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NASA TM-82387

# NASA'S UNIVERSITY PROGRAM

## ACTIVE PROJECTS

(NASA-TM-82387) NASA'S UNIVERSITY PROGRAM  
ACTIVE PROJECTS. FISCAL YEAR 1980 (National  
Aeronautics and Space Administration) 320 p  
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**NASA**  
National Aeronautics and  
Space Administration

University Affairs Office  
Washington, D.C. 20546



FISCAL YEAR 1980

**NASA'S UNIVERSITY PROGRAM**

**ACTIVE PROJECTS**

**FISCAL YEAR 1980**

**National Aeronautics and Space Administration  
University Affairs Office  
Washington, D.C. 20546**

*Acknowledgements*

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*Additional Copies*

This publication is available from the National Technical Information Service (NTIS), 5285 Port Royal Rd., Springfield, Virginia 22161.

## FOREWORD

As basic policy NASA believes that colleges and universities should be encouraged to participate in the nation's space and aeronautics program to the maximum extent practicable. Indeed, universities are considered as partners with government and industry in the nation's aerospace program. NASA's objective is to have them bring their scientific, engineering, and social research competence to bear on aerospace problems and on the broader social, economic, and international implications of NASA's technical and scientific programs. It is expected that, in so doing, universities will strengthen both their research and their educational capabilities to contribute more effectively to the national well-being.

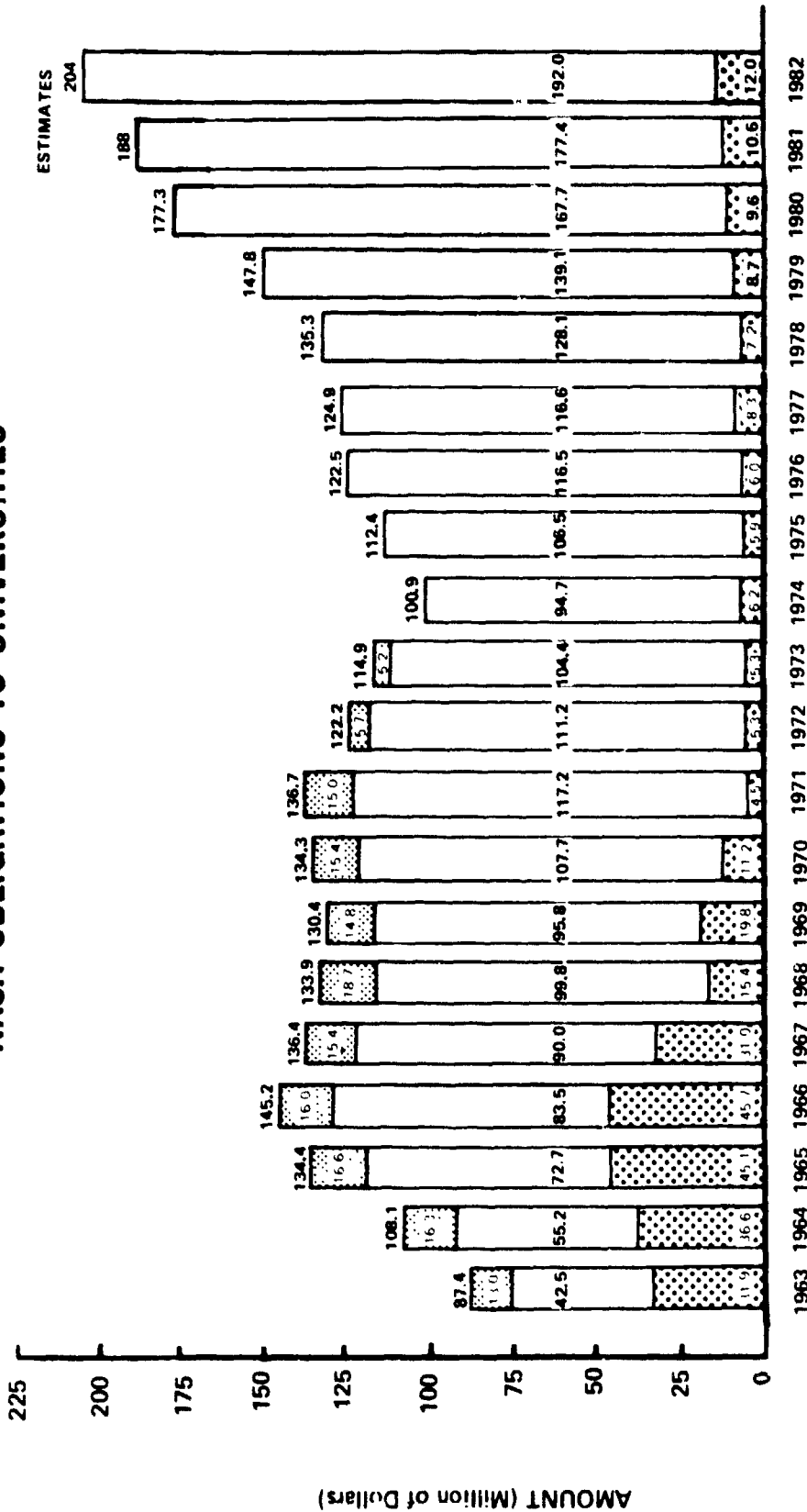
NASA Field Centers and certain Headquarters Program Offices provide funds for those R&D activities in universities which contribute to the mission needs of that particular NASA element. Although NASA has no predetermined amount of money to devote to university activities, the effort funded each year is substantial. (See the bar chart on the next page). This annual report is one means of documenting the NASA-university relationship, frequently denoted, collectively, as NASA's University Program.

The University Affairs Office (UAO) serves as a focal point for NASA's relationships with colleges and universities. One of its roles is to provide information on the NASA University Program. The present document is designed to serve several purposes and a wide range of audiences from private individuals to NASA employees. The emphasis is on the technical content of the program, rather than on fiscal data, which is available separately from UAO. As some terminology will not be familiar to all readers, a "User's Guide" is included to facilitate the fullest use of the material related to the interests of any particular reader.

Information on obtaining reports resulting from these projects may be obtained from: NASA, Scientific and Technical Information Branch, Code NST, Washington, DC 20546.



# NASA OBLIGATIONS TO UNIVERSITIES



FISCAL YEARS

UNIVERSITY AFFAIRS OFFICE    PROJECT RESEARCH    SPACE GUIDANCE (DRAPER LAB)

- NOTES:
1. Excludes obligations to or through Federally Funded Research and Development Centers (e.g. JPL)
  2. Change in status from "university" to "non-profit" for three organizations accounts for \$10.1M of the difference between FY 73 and FY 74. (Draper Lab, ERIM, Dudley Observatory).
  3. University Affairs Office includes 1962-1971 Sustaining University Program.
  4. Omitted Obligations: Transition Period (July-Sept 1976). \$27.7M; FY 59, \$3.6M; FY 60; \$5.0M; FY 61, \$14.5M, FY62, \$29.5 M.

Source: NASA University Affairs Office

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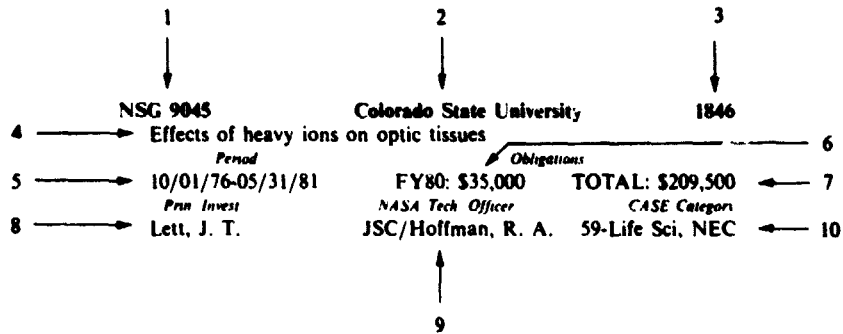
This report includes data on projects active during Fiscal Year 1980.

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## USER'S GUIDE

The University Program Report provides current information and related statistics for each grant/contract/cooperative agreement active during the report period. The following guidance is provided as an aid to the reader in readily locating material of interest and in optimizing the use of this document.

### I. Typical Citation



1. Agreement Number.\*
2. Institution Name.
3. Accession Number.
4. Brief work description.
5. Approximate period of performance.
6. Amount (if any) actually provided during the indicated fiscal year.
7. Total amount actually provided during the indicated period of performance.
8. Principal Investigator(s) at the educational institution.
9. NASA Technical Officer(s) and organizational location.
10. CASE Field of Science and Engineering code and name.

\* Uniquely identifies project. Prefixes denote type of instrument as follows:

Grants	NAG, NAGW, NGF, NGT, NGL, NGR, NSG
Cooperative Agreements	NCC, NCCW
Contracts	DEN, NAS, NASR, NASW, NSR
Space Act Agreements	NCA
Purchase Orders	Single or Double Letter

## II. NASA Installations

NASA installations are included in the citation as abbreviations (item 9). The following listing of installations will be useful to those desiring further information on specific projects.

<b>Abbrev.</b>	<b>Installation Name and Address</b>	<b>Telephone Number for Information</b>
ARC	Ames Research Center NASA Moffett Field, CA 94035	415/965-5000
DFRC	Dryden Flight Research Center NASA P.O. Box 273 Edwards, CA 93523	805/258-3311
GSFC	Goddard Space Flight Center NASA Greenbelt, MD 20771	301/344-5042
JPL	Jet Propulsion Laboratory 4800 Oak Grove Drive Pasadena, CA 91103	213/354-4321
JSC	Johnson Space Center NASA Houston, TX 77058	713/483-3111
KSC	Kennedy Space Center NASA Kennedy Space Center, FL 32899	305/867-7113
LARC	Langley Research Center NASA Hampton, VA 23665	804/827-1110
LERC	Lewis Research Center NASA 21000 Brookpark Road Cleveland, OH 44135	216/433-4000
MSFC	Marshall Space Flight Center NASA Marshall Space Flight Center, AL 35812	205/453-2121
NSTL	National Space Technology Laboratories NASA NSTL Station, MS 39529	601/688-2211

WFC	Wallops Flight Center NASA Wallops Island, VA 23337	804/824-3411
HD	NASA Headquarters Washington, DC 20546	202/755-2320

The abbreviation for NASA Headquarters, HD, usually carries a suffix, for example HD-LCU, which denotes a particular office and general area of responsibility. (LCU is the University Affairs Office.) A full listing of the suffix letters and information on NASA's organizational structure may be found in the NASA Headquarters Telephone Directory. (The Directory is for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.)

### III. CASE Fields of Science and Engineering

The National Science Foundation (NSF) operates a government-wide system (CASE) for collecting and analyzing data on support to colleges and universities. Participating agencies report annually to NSF which in turn issues *Support to Universities, Colleges and Selected Nonprofit Institutions*. The CASE Fields, used in the extensive tabulations contained in that document, form the only consistent classification system for government sponsored research. The fields are listed in full in the Appendix.

### IV. Cross-Index

The cross-indexed Appendix is related to the citations (descriptions) by the accession number (item 3). The accession number has meaning only in this report; it is in no way permanently associated with nor does it uniquely identify a specific grant/contract/cooperative agreement anywhere except in the present report. Accession numbers are assigned sequentially to the citations, beginning with 1000. Thus, when an entry of interest is identified in the Appendix, the associated accession number allows ready location of the full description in the body of the report.

Appendix This index provides rapid access to all projects in a particular area of endeavor, as defined by the CASE Fields. This listing is also easily used to determine the institutions and principal investigators conducting NASA projects in a field.

# NASA'S UNIVERSITY PROGRAM

## ALABAMA

**NAG 8-1** Alabama A&M University **1000**  
 Development of capabilities for computer processing of remotely sensed data

<i>Period</i>	<i>Obligations</i>	
01/23/80-01/22/83	FY80: \$110,184	TOTAL: \$110,184
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Montgomery, O. L.	MSFC/Smith, A. D.	39-Env Sci, NEC
	MSFC/Atwell, B. H.	

**NAS 8-32945** Alabama A&M University **1001**  
 Solution growth of crystals in zero gravity experiment for materials processing in space

<i>Period</i>	<i>Obligations</i>	
03/05/78-03/05/83	FY80: \$121,000	TOTAL: \$286,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lal, R. B.	MSFC/Bannister, T. C.	47-Materials Engr

**NSG 8033** Alabama A&M University **1002**  
 The study of crystals for space processing and the effects of 0-gravity

<i>Period</i>	<i>Obligations</i>	
01/15/76-12/31/78	FY80:	TOTAL: \$52,046
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lal, R. B.	MSFC/Schafer, C. F.	13-Physics
	MSFC/Thomas, P. E.	

**NSG 8037** Alabama A&M University **1003**  
 Atmospheric effects on coherent laser systems

<i>Period</i>	<i>Obligations</i>	
06/01/76-05/31/81	FY80: \$26,154	TOTAL: \$121,645
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Murty, S. S.	MSFC/Bilbro, J. W.	45-Elec Engr
	MSFC/Kent, M. I.	

**NSG 8041** Alabama A&M University **1004**  
 Parametric study of rock pile thermal storage for solar heating

<i>Period</i>	<i>Obligations</i>	
06/01/76-03/31/80	FY80:	TOTAL: \$62,677
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Saha, H.	MSFC/Humphries, W. R.	46-Mech Engr
	MSFC/Zurburg, F. R.	

**NSG 8057** Alabama A&M University **1005**  
 Evaluation of digital system design languages

<i>Period</i>	<i>Obligations</i>	
10/01/77-10/15/78	FY80:	TOTAL: \$21,990
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Shiva, S. G.	MSFC/Gould, J. M.	45-Elec Engr
	MSFC/Kent, M. I.	

**NSG 8062** Alabama A&M University **1006**  
 The application of remote sensing technology to soil mapping and land use problems of Alabama and southeastern United States

<i>Period</i>	<i>Obligations</i>	
05/15/78-05/14/79	FY80:	TOTAL: \$43,750
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Montgomery, O. L.	MSFC/Downs, S. W., Jr.	
	MSFC/Kent, M. I.	39-Env Sci, NEC

**NSG 8064** Alabama A&M University **1007**  
 Guinea pig macrophages for electrophoretic experiment

<i>Period</i>	<i>Obligations</i>	
09/29/78-04/28/79	FY80:	TOTAL: \$3,960
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Savage, J.	MSFC/Snyder, R. S.	59-Life Sci, NEC

**NSG 8065** Alabama A&M University **1008**  
 Statistical classification techniques for engineering and climatic data samples

<i>Period</i>	<i>Obligations</i>	
11/01/78-03/31/81	FY80: \$30,000	TOTAL: \$57,274
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Temple, E. C.	MSFC/Smith, O. E.	21-Mathematics
Shipman, J. R.	MSFC/Kent, M. I.	

**NSG 8066** Alabama A&M University **1009**  
 Research in computer processing of remotely sensed data

<i>Period</i>	<i>Obligations</i>	
11/15/78-11/14/79	FY80:	TOTAL: \$70,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Montgomery, O. L.	MSFC/Smith, A. D.	39-Env Sci, NEC
	MSFC/Atwell, B. H.	

**NSG 8067** Alabama A&M University **1010**  
 Characterization of space environment using plant cells and tissues

<i>Period</i>	<i>Obligations</i>	
02/01/79-01/31/81	FY80: \$52,185	TOTAL: \$78,081
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Neugebauer, M. G.	MSFC/Nerren, B. H.	51-Biological Sci
	MSFC/Kent, M. I.	

**NSG 8068** Alabama A&M University **1011**  
 The motion of particles in interstellar space released from a nuclear waste payload container

<i>Period</i>	<i>Obligations</i>	
07/01/79-06/30/81	FY80: \$30,416	TOTAL: \$52,416
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Williams, A. C.	MSFC/Burns, R. E.	13-Physics
	MSFC/Kent, M. I.	

**NASA'S UNIVERSITY PROGRAM  
ALABAMA (Continued)**

<b>NAS 8-32920</b>	<b>Athens State College</b>	<b>1012</b>	<b>NAS 8-34130</b>	<b>Auburn University</b>	<b>1018</b>
Vapor transport mechanisms			Application of aerospace dynamic modeling techniques of civil engineering structures		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
02/01/78-11/20/80	FY80: \$50,960	TOTAL: \$109,937	10/01/80-01/31/82	FY80: \$50,000	TOTAL: \$50,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Workman, G. L.	MSFC/Reardon, F. A.	19-Phys Sci, NEC	Johnson, R. C.	MSFC/Slaby, J. A.	32-Geological Sci
	MSFC/Williams, J. R.		Moore, R. K.	MSFC/Schock, R. W.	
			Ramey, G. E.		
<b>NAG 3-103</b>	<b>Auburn University</b>	<b>1013</b>	<b>NCA 8-132</b>	<b>Auburn University</b>	<b>1019</b>
Development of laser speckle techniques and procedures for determining stress in rotating turbine blades			Solid propellant rocket motor internal ballistic performance variation analysis		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
09/15/80-09/14/81	FY80: \$44,455	TOTAL: \$44,455	01/12/79-01/11/80	FY80:	TOTAL: \$36,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Swinson, W. F.	LERC/Decker, A. J.	46-Mech Engr	Sforzini, R. H.	MSFC/Shackelford, B.W.	46-Mech Engr
Turner, J. L.				MSFC/Miller, J. Q.	
<b>NAS 8-31572</b>	<b>Auburn University</b>	<b>1014</b>	<b>NCA 8-133</b>	<b>Auburn University</b>	<b>1020</b>
Design, processing and test of large scale integrated circuit arrays			Evaluating the feasibility of detecting and measuring lightning discharges from a space station		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
12/01/75-08/14/79	FY80:	TOTAL: \$70,790	01/26/79-11/25/79	FY80:	TOTAL: \$4,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Tung, C.	MSFC/Matheny, J. L.	45-Elec Engr	Irwin, J. D.	MSFC/Wagnon, F. W.	45-Elec Engr
	MSFC/Cagle, F. A.			MSFC/Harper, W.	
<b>NAS 8-33092</b>	<b>Auburn University</b>	<b>1015</b>	<b>NSG 3233</b>	<b>Auburn University</b>	<b>1021</b>
Developing and characterizing improved radiation hard technology for space applications (CMOS)			Development of basic theories and techniques for determining stresses in rotating turbine or compressor blades		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
11/06/78-10/31/80	FY80:	TOTAL: \$30,000	12/01/78-06/01/80	FY80:	TOTAL: \$50,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kerns, D. V.	MSFC/Routh, D. E.	45-Elec Engr	Swinson, W. F.	LERC/Decker, A. J.	49-Engr, NEC
Cook, K. B.	MSFC/Gould, J. M.		Turner, J. L.		
			Ranson, W. F.		
<b>NAS 8-33880</b>	<b>Auburn University</b>	<b>1016</b>	<b>NSG 8047</b>	<b>Auburn University</b>	<b>1022</b>
Radiation and scattering of ionized lightning channels			Grain quality inspection system. Phase 1: Feasibility evaluation		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
05/28/80-05/27/81	FY80: \$18,000	TOTAL: \$18,000	01/24/77-09/30/79	FY80:	TOTAL: \$74,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Shumpert, T.	MSFC/Harper, W.	45-Elec Engr	Flood, C. A., Jr.	MSFC/Daniel, C. C.	49-Engr, NEC
Honnell, M. A.	MSFC/Wagnon, W.			MSFC/Kent, M. I.	
<b>NAS 8-33886</b>	<b>Auburn University</b>	<b>1017</b>	<b>NSG 2217</b>	<b>Talladega College</b>	<b>1023</b>
Research study: Solid rocket motor internal ballistic performance variations			Experimental Research on the thermodynamic properties of sulfuric acid		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
09/03/80-09/02/81	FY80: \$35,970	TOTAL: \$35,970	05/01/77-04/30/81	FY80: \$59,052	TOTAL: \$159,625
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Foster, W. A.	MSFC/Shackelford, B. J.	42-Astro Engr	Morrison, R. A.	ARC/Whitten, R. C.	13-Physics
			Chu, K. S.	ARC/Farlow, N. A.	

**NASA'S UNIVERSITY PROGRAM  
ALABAMA (Continued)**

<b>NAG 1-31</b>	<b>Tuskegee Institute</b>	<b>1024</b>
Software requirements for a robot visual system operating in real-time		
<i>Period</i>	<i>Obligations</i>	
02/01/80-07/31/81	FY80: \$18,765	TOTAL: \$18,765
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bales, J. W.	LARC/Barker, L. K.	22-Computer Science
	LARC/Hankins, W. W.	
<b>NAG 1-72</b>	<b>Tuskegee Institute</b>	<b>1025</b>
Minimization of differences between simulated and actual flight data for area navigation on high speed aircraft		
<i>Period</i>	<i>Obligations</i>	
05/19/80-05/18/81	FY80: \$42,222	TOTAL: \$42,222
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hargrove, A.	LARC/Shanks, R. E.	41-Aero Engr
<b>NAG 2-22</b>	<b>Tuskegee Institute</b>	<b>1026</b>
Livercells: A model system for studies on metabolism in space		
<i>Period</i>	<i>Obligations</i>	
04/01/80-03/31/81	FY80: \$30,000	TOTAL: \$30,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Tolbert, M. E.	ARC/Klein, H. P.	51-Biological Sci
<b>NAG 3-76</b>	<b>Tuskegee Institute</b>	<b>1027</b>
Characterization of advanced electric propulsion systems		
<i>Period</i>	<i>Obligations</i>	
06/02/80-06/01/81	FY80: \$38,367	TOTAL: \$38,367
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ray, P. K.	LERC/Kerslake, W. R.	19-Phys Sci, NEC
<b>NAG 8-5</b>	<b>Tuskegee Institute</b>	<b>1028</b>
Investigation of degradation process of insulating materials		
<i>Period</i>	<i>Obligations</i>	
05/01/80-04/30/81	FY80: \$36,848	TOTAL: \$36,848
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Doreswamy, C. V.	MSFC/Peacock, C. L.	45-Elec Engr
	MSFC/Kent, M. I.	
<b>NAG10-1</b>	<b>Tuskegee Institute</b>	<b>1029</b>
Study of permeability of polymeric materials to condensable gases and organic liquids		
<i>Period</i>	<i>Obligations</i>	
02/25/80-02/24/81	FY80: \$29,877	TOTAL: \$29,877
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Dillon, I. G.	KSC/Bryan, C. J.	12-Chemistry
<b>NCC 2-12</b>	<b>Tuskegee Institute</b>	<b>1030</b>
Morphometrics of cellular damage in mice receiving whole body irradiation		
<i>Period</i>	<i>Obligations</i>	
08/01/79-07/31/81	FY80: \$25,000	TOTAL: \$70,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sapp, W. J.	ARC/Philpott, D. E.	54-Env Biology
<b>NGT 01-005-750</b>	<b>Tuskegee Institute</b>	<b>1031</b>
Training of undergraduate students in sciences and engineering		
<i>Period</i>	<i>Obligations</i>	
06/01/75-05/31/81	FY80: \$12,887	TOTAL: \$68,887
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Dybczak, Z. W.	HD-LU/Pohly, J. G.	49-Engr, NEC
<b>NGT 01-005-780</b>	<b>Tuskegee Institute</b>	<b>1032</b>
Pre-cooperative engineering education program		
<i>Period</i>	<i>Obligations</i>	
10/01/78-07/31/80	FY80:	TOTAL: \$8,950
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Dybczak, Z. W.	HD-LU/Pohly, J. G.	49-Engr, NEC
	LERC/Allen, R. P.	
<b>NSG 3154</b>	<b>Tuskegee Institute</b>	<b>1033</b>
Evaporation behavior of superalloys		
<i>Period</i>	<i>Obligations</i>	
08/01/77-09/01/80	FY80:	TOTAL: \$102,556
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ramirez, R. P.	LERC/Titran, R. H.	47-Materials Engr
	LERC/Klopp, W. D.	
<b>NSG 3295</b>	<b>Tuskegee Institute</b>	<b>1034</b>
An improved computer model for prediction of axial gas turbine performance losses		
<i>Period</i>	<i>Obligations</i>	
08/01/79-07/30/81	FY80: \$38,190	TOTAL: \$71,918
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Jenkins, R. M.	LERC/Glassman, A. J.	41-Aero Engr
<b>NSG 8038</b>	<b>Tuskegee Institute</b>	<b>1035</b>
Investigation of electrical breakdown characteristics and stability of insulating materials used on solar cells (photovoltaic converters)		
<i>Period</i>	<i>Obligations</i>	
08/01/77-12/31/79	FY80:	TOTAL: \$48,928
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Doreswamy, C. V.	MSFC/Young, L. E.	45-Elec Engr
	MSFC/Kent, M. I.	
<b>NSG 8054</b>	<b>Tuskegee Institute</b>	<b>1036</b>
An investigation of absorber and radiators for solar power systems		
<i>Period</i>	<i>Obligations</i>	
09/01/77-06/30/81	FY80: \$39,952	TOTAL: \$92,441
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sellers, J. P., Jr.	MSFC/Peoples, J. A.	46-Mech Engr
	MSFC/Kent, M. I.	
<b>NAS 8-33014</b>	<b>University of Alabama - Birmingham</b>	<b>1037</b>
Materials processing in space experiment: Whole cell electrophoresis aboard spacelab		
<i>Period</i>	<i>Obligations</i>	
05/17/78-12/31/79	FY80:	TOTAL: \$40,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Chiovetti, R., Jr.	MSFC/Bannister, T.C.	59-Life Sci, NEC
	MSFC/Snyder, P.	



**NASA'S UNIVERSITY PROGRAM  
ALABAMA (Continued)**

**NGR 01-010-601** University of Alabama - Birmingham 1038  
Model for origin and coevolution of genetic code and the process of protein synthesis

<i>Period</i>	<i>Obligations</i>	
05/09/73-05/31/81	FY80: \$64,518	TOTAL: \$334,018
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lacey, J. C., Jr.	HD-SB/Devinenzi, D. L.	12-Chemistry

**NAS 8-31293** University of Alabama - Huntsville 1045  
Solar heating and cooling technical data and systems analysis

<i>Period</i>	<i>Obligations</i>	
11/07/74-09/30/81	FY80: \$604,087	TOTAL: \$1,629,091
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Christensen, D.	MSFC/Price, J. M.	13-Physics

**NAGW 9** University of Alabama - Huntsville 1039  
Dynamic behavior of a flaring loop, a two-dimensional, time-dependent MHD (magnetohydrodynamic) flux tube model

<i>Period</i>	<i>Obligations</i>	
10/01/79-07/31/80	FY80: \$25,000	TOTAL: \$25,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wu, S. T.	HD-ST/Chipman, E.	13-Physics

**NAS 8-31729** University of Alabama - Huntsville 1046  
Numerical simulation of warm fogs

<i>Period</i>	<i>Obligations</i>	
11/05/75-07/31/80	FY80:	TOTAL: \$74,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hur, R. J.	MSFC/Vaughn, O. H.	13-Physics
	MSFC/Anderson, B. J.	

**NAS 8-28097** University of Alabama - Huntsville 1040  
Triggering mechanisms for solar flares

<i>Period</i>	<i>Obligations</i>	
12/06/71-11/30/80	FY80: \$4,700	TOTAL: \$581,898
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wu, S. T.	MSFC/Hanssen, T.	13-Physics

**NAS 8-31895** University of Alabama - Huntsville 1047  
Investigations in cosmic ray and gamma ray astronomy and nuclear instruments

<i>Period</i>	<i>Obligations</i>	
03/19/76-05/31/81	FY80: \$62,000	TOTAL: \$270,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Gregory, J. C.	MSFC/Parnell, T. A.	13-Physics

**NAS 8-29316** University of Alabama - Huntsville 1041  
Working model of the London moment readout system

<i>Period</i>	<i>Obligations</i>	
10/06/72-02/15/81	FY80: \$74,985	TOTAL: \$698,181
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hendricks, J. B.	MSFC/Decher, R.	46-Mech Engr
	MSFC/Urban, E. W.	

**NAS 8-32818** University of Alabama - Huntsville 1048  
Infrared telescope cryogenic system design and development

<i>Period</i>	<i>Obligations</i>	
03/31/78-05/06/81	FY80: \$69,998	TOTAL: \$224,817
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Karr, G. R.	MSFC/Urban, E. W.	13-Physics
Hendricks, J. B.	MSFC/Smith, G. T.	

**NAS 8-30563** University of Alabama - Huntsville 1042  
Study of magnetospheric and laboratory plasma physics experiments

<i>Period</i>	<i>Obligations</i>	
09/01/74-04/30/81	FY80: \$122,000	TOTAL: \$466,669
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Comfort, R. H.	MSFC/Chappell, C. R.	13-Physics
Horwitz, J. L.	MSFC/Fields, S. F.	

**NAS 8-33096** University of Alabama - Huntsville 1049  
Design automation of digital systems

<i>Period</i>	<i>Obligations</i>	
08/09/78-09/30/81	FY80: \$46,373	TOTAL: \$106,278
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Shiva, S. G.	MSFC/Jones, R.E.	22-Computer Science
	MSFC/Gould, J.M.	

**NAS 8-31170** University of Alabama - Huntsville 1043  
Study of efficient low power diffractometer designs

<i>Period</i>	<i>Obligations</i>	
01/15/75-03/01/81	FY80: \$22,497	TOTAL: \$160,888
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Gregory, J. C.	MSFC/Parnell, T. A.	13-Physics
	MSFC/Eby, P. B.	

**NAS 8-33132** University of Alabama - Huntsville 1050  
Orbiting space science platform

<i>Period</i>	<i>Obligations</i>	
06/01/78-12/21/80	FY80: \$73,628	TOTAL: \$126,353
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wu, S. T.	MSFC/Snoddy, W.C.	19-Phys Sci, NEC
	MSFC/Hickey, J. D.	

**NAS 8-31171** University of Alabama - Huntsville 1044  
Study of internal wave motions on the neutral atmosphere

<i>Period</i>	<i>Obligations</i>	
02/14/75-09/30/80	FY80:	TOTAL: \$136,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hung, R. J.	MSFC/West, G. S.	39-Env Sci, NEC
	MSFC/Smith, R. E.	

**NAS 8-33216** University of Alabama - Huntsville 1051  
Dynamic simulation of coronal mass ejections

<i>Period</i>	<i>Obligations</i>	
10/27/78-12/31/79	FY80:	TOTAL: \$35,800
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Steinolfson, R. S.	MSFC/DeLoach, A. C.	13-Physics
Wu, S. T.	MSFC/Snoddy, W. C.	

**NASA'S UNIVERSITY PROGRAM  
ALABAMA (Continued)**

**NAS 8-33377** University of Alabama - Huntsville **1052**  
 Analysis and modeling of materials space environmental effects data  
*Period* *Obligations*  
 06/22/79-11/30/80 FY80: \$47,972 TOTAL: \$74,972  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Davis, J. H. MSFC/Whitaker, A. F.  
 Castle, J. S. MSFC/Peacock, C. L. 47-Materials Engr

**NAS 8-33384** University of Alabama - Huntsville **1053**  
 Test facility helium-3 refrigerator research  
*Period* *Obligations*  
 05/31/79-11/30/81 FY80: \$54,993 TOTAL: \$72,322  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Hendricks, J. B. MSFC/Ladner, E. R. 12-Chemistry  
 MSFC/Urban, E. W.

**NAS 8-33443** University of Alabama - Huntsville **1054**  
 Solar-terrestrial relationships  
*Period* *Obligations*  
 04/18/79-05/04/81 FY80: \$6,300 TOTAL: \$51,300  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Wu, S. T. MSFC/Morgan, S.H. 19-Phys Sci, NEC  
 MSFC/Laurine, J.

**NAS 8-33525** University of Alabama - Huntsville **1055**  
 Analysis and application of vector magnetic field data in predicting flares  
*Period* *Obligations*  
 03/03/80-03/02/81 FY80: \$40,207 TOTAL: \$40,207  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Krall, K. R. MSFC/Hanssen, E. 31-Atmos Sci  
 Wu, S. T. MSFC/Smith, G. T.  
 Smith, J. B.

**NAS 8-33526** University of Alabama - Huntsville **1056**  
 Data analysis and modeling of ultraviolet spectrometer and polarimeter (UVSP) experiment and other related experiments for solar maximum mission (SMM)  
*Period* *Obligations*  
 02/29/80-06/28/82 FY80: \$80,000 TOTAL: \$80,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Wu, S. T. MSFC/Tandberghanssen, E.  
 MSFC/Watkins, J. R. 31-Atmos Sci

**NAS 8-33542** University of Alabama - Huntsville **1057**  
 Advanced furnace development and scientific coordination activity  
*Period* *Obligations*  
 06/29/79-09/30/81 FY80: \$20,000 TOTAL: \$68,955  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Hendricks, J. B. MSFC/Bass, B. G. 47-Materials Engr  
 MSFC/Horton, J.

**NAS 8-33548** University of Alabama - Huntsville **1058**  
 An X-ray diffraction analysis Ne3Ge  
*Period* *Obligations*  
 07/11/79-10/10/80 FY80: TOTAL: \$10,104  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Davis, J. H. MSFC/Lacy, L. L. 47-Materials Engr  
 MSFC/Rathz, T. J.

**NAS 8-33726** University of Alabama - Huntsville **1059**  
 Study effects of internal wave on the neutral atmosphere  
*Period* *Obligations*  
 02/11/80-02/07/81 FY80: \$80,000 TOTAL: \$80,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Hung, R. J. MSFC/West, C. W. 32-Geological Sci

**NAS 8-33731** University of Alabama - Huntsville **1060**  
 Containerless processing technology analysis  
*Period* *Obligations*  
 05/09/80-09/14/81 FY80: \$60,000 TOTAL: \$60,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Rush, J. E. MSFC/Ross, B. B. 13-Physics  
 MSFC/Oran, W. A.

**NAS 8-33889** University of Alabama - Huntsville **1061**  
 Product end user analysis including environmental, safety and retrofit problems for medium Btu synthesis gas  
*Period* *Obligations*  
 04/30/80-08/29/80 FY80: \$11,657 TOTAL: \$11,657  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Proffitt, S. MSFC/Rutland, C. M. 39-Env Sci, NEC

**NAS 8-33975** University of Alabama - Huntsville **1062**  
 High energy cosmic ray balloon flight investigations  
*Period* *Obligations*  
 06/13/80-06/12/81 FY80: \$36,688 TOTAL: \$36,688  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Gregory, J. C. MSFC/Fishman, G. J. 13-Physics  
 MSFC/Parnell, T. A.

**NAS 8-33977** University of Alabama - Huntsville **1063**  
 X-ray astronomy instrumentation studies  
*Period* *Obligations*  
 07/18/80-07/17/81 FY80: \$15,997 TOTAL: \$15,997  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Gregory, J. C. MSFC/Weisskopf, M. C. 11-Astronomy  
 MSFC/Parnell, T. A.

**NAS 8-33978** University of Alabama - Huntsville **1064**  
 New polymers for low-gravity purification of cells by partitioning  
*Period* *Obligations*  
 09/10/80-10/09/82 FY80: \$46,000 TOTAL: \$46,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Harris, J. M. MSFC/Bannister, T. C. 12-Chemistry  
 MSFC/Synder, R.

**NASA'S UNIVERSITY PROGRAM**  
**ALABAMA (Continued)**

**NAS 8-33982** University of Alabama - Huntsville **1065**  
Plasma and magnetospheric research  
*Period* *Obligations*  
08/27/80-06/26/81 FY80: \$89,500 TOTAL: \$89,500  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Comfort, R. H. MSFC/Chappell, C. R. 13-Physics  
Horwitz, J. L. MSFC/Fields, S. A.

**NAS 8-34129** University of Alabama - Huntsville **1066**  
Data based management system analysis  
*Period* *Obligations*  
09/19/80-10/19/80 FY80: \$18,599 TOTAL: \$18,599  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Horwitz, J. L. MSFC/Green, J. L. 22-Computer Science

**NAS 8-34187** University of Alabama - Huntsville **1067**  
Geostationary platform workshop  
*Period* *Obligations*  
09/02/80-03/01/81 FY80: \$34,844 TOTAL: \$34,844  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Carter, E. MSFC/Carey, T. 19-Phys Sci, NEC

**NGT 01-002-081** University of Alabama - Huntsville **1068**  
Modeling of the evolution of magnetic field structure in an active region  
*Period* *Obligations*  
09/01/80-08/31/81 FY80: \$7,200 TOTAL: \$7,200  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Wu, S. T. MSFC/Tandberghanssen, E.  
HD-LU/Carter, C. H. 19-Phys Sci, NEC

**NGT 01-002-082** University of Alabama - Huntsville **1069**  
Correlations between auroral features and low-energy ion characteristics in the magnetosphere  
*Period* *Obligations*  
09/01/80-08/31/81 FY80: \$7,200 TOTAL: \$7,200  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Horwitz, J. L. MSFC/Green, J. L. 13-Physics  
HD-LU/Carter, C. H.

**NGT 01-002-083** University of Alabama - Huntsville **1070**  
Graduate student researchers program  
*Period* *Obligations*  
09/01/80-08/31/81 FY80: \$7,200 TOTAL: \$7,200  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Karr, G. R. MSFC/Urban, E. W. 46-Mech Engr

**NGT 01-008-021** University of Alabama - Huntsville **1071**  
Summer faculty fellowship program  
*Period* *Obligations*  
01/01/76-03/31/81 FY80: TOTAL: \$370,961  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Karr, G. R. HD-LU/Carter, C. H. 49-Engr, NEC

**NSG 5413** University of Alabama - Huntsville **1072**  
Pitch angle distributions of thermal ions in the inner thermosphere  
*Period* *Obligations*  
10/01/79-09/30/80 FY80: \$25,000 TOTAL: \$25,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Horwitz, J. L. GSFC/Corrigan, J. P. 11-Astronomy

**NAS 8-33430** University of Alabama - University **1073**  
Solid state switch design for large space structure technology  
*Period* *Obligations*  
04/05/79-12/31/79 FY80: \$500 TOTAL: \$26,622  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Raburn, W. D. MSFC/Williams, D. E. 45-Elec Engr  
MSFC/Loggins, R. W.

**NAS 8-33507** University of Alabama - University **1074**  
Space shuttle induced environment contamination monitor (IFCM) air sampler experiment  
*Period* *Obligations*  
05/21/79-03/21/83 FY80: TOTAL: \$24,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Bertsch, W. MSFC/Peters, P. N. 31-Atmos Sci  
Zatko, D. A. MSFC/Hester, H. B.

**NGT 01-002-099** University of Alabama - University **1075**  
Summer faculty fellowship program in research  
*Period* *Obligations*  
01/01/78-03/31/81 FY80: \$197,526 TOTAL: \$346,100  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Barfield, B. F. HD-LU/Carter, C. H. 49-Engr, NEC

**ALASKA**

**NAG 6-1** University of Alaska - Fairbanks **1076**  
Fluorescent plasma tracer and perturbation experiments from sounding rockets  
*Period* *Obligations*  
01/01/80-12/31/80 FY80: \$117,951 TOTAL: \$117,951  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Wescott, E. M. WFC/Early, I. J. 19-Phys Sci, NEC  
WFC/Pless, R. H.

**NAG 9-8** University of Alaska - Fairbanks **1077**  
Applications of radar and infrared airborne remote sensing to geothermal research on Pilgrim Springs, Alaska  
*Period* *Obligations*  
02/01/80-11/30/80 FY80: \$55,000 TOTAL: \$55,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Forbes, R. B. JSC/Duke, M. B. 32-Geological Sci

**NASA'S UNIVERSITY PROGRAM  
ALASKA (Continued)**

**NAG 9-9** University of Alaska - Fairbanks **1078**  
Application of airborne remote sensing to problems caused by increased volcanic heat flux of Mt. Wrangell

<i>Period</i>	<i>Obligations</i>	
06/01/80-05/31/81	FY80: \$20,000	TOTAL: \$20,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>C&amp;SF Category</i>
Benson, C. S.	JSC/Duke, M. B.	32-Geological Sci

**NSG 5409** University of Alaska - Fairbanks **1085**  
Study of magnetopause/boundary layer and plasma sheet structures

<i>Period</i>	<i>Obligations</i>	
09/15/79-10/14/81	FY80: \$25,000	TOTAL: \$25,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>C&amp;SF Category</i>
Lee, I. C.	GSFC/Corrigan, J. P.	11-Astronomy

**NAS 6-3065** University of Alaska - Fairbanks **1079**  
S/M and personnel for operation and maintenance of the Poker Flat Research Range

<i>Period</i>	<i>Obligations</i>	
11/01/79-10/08/80	FY80: \$820,507	TOTAL: \$820,507
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>C&amp;SF Category</i>
Brown, N. B., Jr	WFC/Millner, C. E.	31-Atmos Sci
Roederer, J. G.	WFC/Gray, J. W.	

**NSG 602a** University of Alaska - Fairbanks **1086**  
Observations of 'firewheel' chemical releases

<i>Period</i>	<i>Obligations</i>	
05/01/79-04/30/81	FY80	TOTAL: \$23,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>C&amp;SF Category</i>
Hallinan, F. J.	WFC/Gray, J. W.	19-Phys Sci, NEC
	WFC/Pless, R. H.	

**NCA 2-20001** University of Alaska - Fairbanks **1080**  
Stream corridor physiography of the Susitna River Basin, Alaska

<i>Period</i>	<i>Obligations</i>	
06/01/80-11/30/80	FY80: \$13,646	TOTAL: \$13,646
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>C&amp;SF Category</i>
Stringer, W.	ARC/Johnson, R. D.	39-Env Sci, NEC
Dean, K. G.		

**NSG 7447** University of Alaska - Fairbanks **1087**  
Study of the relationship between the ring current and magnetospheric substorms, study of possible relationship of sudden stratospheric warmings with magnetospheric substorms

<i>Period</i>	<i>Obligations</i>	
06/01/78-05/31/81	FY80: \$95,000	TOTAL: \$125,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>C&amp;SF Category</i>
Akasofu, S. I.	HD-ST/Hedin, A. E.	19-Phys Sci, NEC
	HD-ST/Schmerling, F. R.	

**NCA 2-20002** University of Alaska - Fairbanks **1081**  
Enhancement of LANDSAT data for the analysis of subarctic wetlands

<i>Period</i>	<i>Obligations</i>	
08/15/80-11/15/80	FY80: \$5,134	TOTAL: \$5,134
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>C&amp;SF Category</i>
Dean, K. G.	ARC/Wilson, D. E.	39-Env Sci, NEC
George, T. H.		

**NSG 7625** University of Alaska - Fairbanks **1088**  
Numerical simulation of the turbulent cascade and voltage amplification mechanism in the magnetosphere

<i>Period</i>	<i>Obligations</i>	
07/01/79-06/30/81	FY80: \$17,000	TOTAL: \$30,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>C&amp;SF Category</i>
Swift, O. W.	HD-ST/Hedin, A. E.	19-Phys Sci, NEC
	HD-ST/Schmerling, F. R.	

**NCA 2-20902** University of Alaska - Fairbanks **1082**  
Regulation of nutrient availability and plant nutrient uptake in controlled environments

<i>Period</i>	<i>Obligations</i>	
09/01/79-08/31/81	FY80: \$17,302	TOTAL: \$17,302
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>C&amp;SF Category</i>
Bloom, A. J.	ARC/MacIroy, R. D.	51-Biological Sci

**ARIZONA**

**NSG 02-001-092** University of Alaska - Fairbanks **1083**  
Application of remote sensing data to surveys of the Alaskan environment

<i>Period</i>	<i>Obligations</i>	
07/26/72-03/31/82	FY80	TOTAL: \$975,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>C&amp;SF Category</i>
Miller, J. M.	HD-ET Vitale, J. A.	39-Env Sci, NEC

**NAG 3-6** Arizona State University **1089**  
Transient response of rotor bearing systems using component mode synthesis

<i>Period</i>	<i>Obligations</i>	
01/01/80-12/31/80	FY80: \$63,288	TOTAL: \$63,288
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>C&amp;SF Category</i>
Nelson, H. D.	LERC/Fleming, D. P.	46-Mech Engr
Russell, S. J.	LERC/Kascak, A. E.	

**NSG 5219** University of Alaska - Fairbanks **1084**  
Auroral spectroscopy using atmosphere Explorer observations

<i>Period</i>	<i>Obligations</i>	
10/01/77-12/31/80	FY80	TOTAL: \$47,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>C&amp;SF Category</i>
Rees, M. H.	GSFC/Spencer, N. W.	13-Physics

**NAG 3-105** Arizona State University **1090**  
Feasibility study of a New type of cascade solar cell

<i>Period</i>	<i>Obligations</i>	
09/22/80-06/21/81	FY80: \$9,956	TOTAL: \$9,956
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>C&amp;SF Category</i>
Wang, F. Y.	LERC/Curtis, H. B.	13-Physics

**NASA'S UNIVERSITY PROGRAM  
ARIZONA (Continued)**

**NAG 3-112** Arizona State University **1091**  
Parallel-processor simulation systems  
*Period* *Obligations*  
10/15/80-10/14/81 FY80: \$64,218 TOTAL: \$64,218  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Ogrady, E. P. LERC/Milner, E. J. 22-Computer Science  
Higgins, W. T. LERC/Szuch, J. R.

**NAG 9-4** Arizona State University **1092**  
Matrix phases of carbonaceous chondrites  
*Period* *Obligations*  
02/01/80-01/31/81 FY80: \$70,000 TOTAL: \$70,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Buseck, P. R. JSC/Harris, J. W. 32-Geological Sci

**NAGW 1** Arizona State University **1093**  
Planetary and Mars geomorphology  
*Period* *Obligations*  
02/01/80-01/31/81 FY80: \$84,900 TOTAL: \$84,900  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Malin, M. C. HD-SL/Boyce, J. M. 32-Geological Sci  
HD-SL/Quaide, W. L.

**NAGW 24** Arizona State University **1094**  
Aggregate formation and aeolian action on Mars  
*Period* *Obligations*  
04/15/80-04/14/81 FY80: \$17,000 TOTAL: \$17,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Krinsley, D. HD-SL/Boyce, J. M. 32-Geological Sci  
HD-SL/Quaide, W. L.

**NAGW 56** Arizona State University **1095**  
Impact cratering experiments  
*Period* *Obligations*  
04/01/80-03/31/81 FY80: \$18,585 TOTAL: \$18,585  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Greeley, R. HD-SL/Quaide, W. L. 32-Geological Sci  
HD-SL/French, B. M.

**NAS 8-32230** Arizona State University **1096**  
Marshall mated element system translator  
*Period* *Obligations*  
12/15/76-11/13/78 FY80: TOTAL: \$122,557  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Woodfin, M. A. MSFC/Lee, G. 21-Mathematics  
MSFC/Smith, J. G.

**NAS 8-32357** Arizona State University **1097**  
Building and obstacles wakes  
*Period* *Obligations*  
02/11/77-04/21/81 FY80: \$24,953 TOTAL: \$99,783  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Logan, E., Jr. MSFC/Camp, D. 31-Atmos Sci  
MSFC/Alexander, M. B.

**NAS 8-32937** Arizona State University **1098**  
The effect of a dispersed second phase on the ionic conductivity  
of solid state electrolytes  
*Period* *Obligations*  
12/13/77-12/13/82 FY80: TOTAL: \$201,500  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Wagner, J. B. MSFC/Reeves, F. A. 47-Materials Engr  
MSFC/Rathz, T.

**NCA 2-35001** Arizona State University **1099**  
Size-frequency analysis of simulated Martian aeolian silt and  
clay  
*Period* *Obligations*  
07/01/80-06/30/81 FY80: \$20,914 TOTAL: \$20,914  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Krinsley, D. ARC/Pollack, J. B. 32-Geological Sci  
Greeley, R.

**NGI 03-001-001** Arizona State University **1100**  
Development of improved procedures for sampling, characterizing  
and classifying meteorite specimens  
*Period* *Obligations*  
04/16/63-03/02/81 FY80: \$29,399 TOTAL: \$389,722  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Moore, C. B. HD-SL/French, B. M. 32-Geological Sci  
HD-SL/Quaide, W. L.

**NGT 03-001-800** Arizona State University **1101**  
Graduate student researchers program  
*Period* *Obligations*  
06/01/80-05/31/81 FY80: \$10,860 TOTAL: \$10,860  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Moore, C. B. JSC/Blanchard, D. P. 12-Chemistry

**NSG 2284** Arizona State University **1102**  
Aeolian geology studies  
*Period* *Obligations*  
12/01/77-12/31/80 FY80: \$17,880 TOTAL: \$81,756  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Greeley, R. ARC/Pollack, J. B. 19-Phys Sci, NEC

**NSG 3075** Arizona State University **1103**  
Study of multiple jet array impingement heat transfer char-  
acteristics  
*Period* *Obligations*  
09/01/75-10/28/80 FY80: TOTAL: \$298,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Metzger, D. E. LERC/Hippensteele, S.A. 41-Aero Engr

**NSG 7040** Arizona State University **1104**  
The origin and early evolution of the solar system  
*Period* *Obligations*  
04/01/74-02/28/81 FY80: \$55,500 TOTAL: \$284,467  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Larimer, J. W. HD-SL/French, B. M. 32-Geological Sci  
HD-SL/Quaide, W. L.

**NASA'S UNIVERSITY PROGRAM  
ARIZONA (Continued)**

**NSG 7255** Arizona State University **1105**  
The nature and origin of organic compounds in carbonaceous meteorites  
*Period* *Obligations*  
06/14/76-01/31/81 **FY80: \$54,789 TOTAL: \$202,164**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Cronin, J. R. HD-SB/Devincenzi, D. L.  
Yuen, G. U. 32-Geological Sci

**NSG 7415** Arizona State University **1106**  
Geological studies in planetology  
*Period* *Obligations*  
12/01/77-02/28/81 **FY80: \$324,284 TOTAL: \$644,596**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Greeley, R. HD-SL/Boyce, J. M. 32-Geological Sci  
HD-SL/Quaide, W. L.

**NSG 742** Arizona State University **1107**  
Analysis of lunar mare emplacement and impact cratering experiments  
*Period* *Obligations*  
02/01/78-05/31/80 **FY80: TOTAL: \$68,354**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Greeley, R. HD-SL/Dwornik, S. E. 32-Geological Sci

**NSG 7548** Arizona State University **1108**  
Studies in Martian geology  
*Period* *Obligations*  
03/01/79-09/30/80 **FY80: \$108,981 TOTAL: \$188,191**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Greeley, R. HD-SL/Boyce, J. M. 31-Atmos Sci  
HD-SL/Quaide, W. L.

**NSG 7630** Arizona State University **1109**  
The effects of topography, albedo and thermal inertia variations on the generation of mesoscale Martian wind patterns  
*Period* *Obligations*  
07/01/79-12/31/80 **FY80: \$20,515 TOTAL: \$42,205**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Rankin, R. L. HD-SL/Boyce, J. M. 32-Geological Sci  
HD-SL/Quaide, W. L.

**NSG 7642** Arizona State University **1110**  
Development of Martian terraced-ejecta deposits  
*Period* *Obligations*  
10/01/79-02/28/81 **FY80: TOTAL: \$29,556**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Sheridan, M. HD-SL/Dwornik, S. E. 32-Geological Sci

**NAG 2-7** University of Arizona **1111**  
The radial velocity search for extrasolar planets  
*Period* *Obligations*  
10/01/80-12/31/80 **FY80: \$25,530 TOTAL: \$25,530**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Serkowski, K. M. ARC/Black, D. C. 11-Astronomy

**NAG 2-55** University of Arizona **1112**  
The study of star formation and molecular cloud evolution with the Kuiper Airborne Observatory  
*Period* *Obligations*  
10/01/80-09/30/81 **FY80: \$15,500 TOTAL: \$15,500**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Thronson, H. ARC/Haughney, L. C. 11-Astronomy  
Lada, C. J.  
Smith, H. A.

**NAG 3-41** University of Arizona **1113**  
The application of probabilistic design theory to high temperature low cycle fatigue  
*Period* *Obligations*  
06/01/80-05/31/81 **FY80: \$35,373 TOTAL: \$35,373**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Wirsching, P. H. LERC/Thompson, R. L. 47-Materials Engr

**NAG 3-45** University of Arizona **1114**  
NASA/Lewis Research Center computational structures apprenticeships  
*Period* *Obligations*  
05/01/80-04/30/81 **FY80: \$65,613 TOTAL: \$65,613**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Gallagher, R. H. LERC/Chamis, C. C. 41-Aero Engr  
Kamel, H. A. LERC/Johns, R. H.

**NAG 5-34** University of Arizona **1115**  
New seeing-limited studies of emission nebulae  
*Period* *Obligations*  
04/01/80-03/31/81 **FY80: \$14,791 TOTAL: \$14,791**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Craine, E. R. GSFC/Gull, T. R. 11-Astronomy  
GSFC/Bogges, A.

**NAG 5-38** University of Arizona **1116**  
Study of the hottest White dwarfs from the palmer-green study  
*Period* *Obligations*  
04/01/80-09/30/81 **FY80: \$19,205 TOTAL: \$19,205**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Green, R. F. GSFC/Bogges, A. 11-Astronomy  
Liebert, L.

**NAG 5-56** University of Arizona **1117**  
Ultraviolet spectroscopy of heavy element abundances in the novae  
*Period* *Obligations*  
05/15/80-05/14/81 **FY80: \$3,089 TOTAL: \$3,089**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Williams, R. E. GSFC/Bogges, A. 11-Astronomy

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<b>NAG 5-57</b>	<b>University of Arizona</b>	<b>1118</b>		
Evolution of the chromospheres transition regions in dwarf stars				
<i>Period</i>	<i>Obligations</i>			
05/15/80-05/14/81	FY80: \$7,972	TOTAL: \$7,972		
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>		
Giampapa, M. S.	GSFC/Boggess, A.	11-Astronomy		
Worden, S. P.				
<b>NAG 5-76</b>	<b>University of Arizona</b>	<b>1119</b>		
Study of an optical spectrometer to measure atmospheric composition from entry probes				
<i>Period</i>	<i>Obligations</i>			
06/01/80-05/31/81	FY80: \$10,003	TOTAL: \$10,003		
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>		
Tomasko, M. G.	GSFC/Spencer, N. W.	31-Atmos Sci		
<b>NAG 5-86</b>	<b>University of Arizona</b>	<b>1120</b>		
Spectroscopic observations of comets				
<i>Period</i>	<i>Obligations</i>			
07/01/80-06/30/81	FY80: \$3,000	TOTAL: \$3,000		
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>		
Larson, S.	GSFC/Donn, B.	11-Astronomy,		
<b>NAG 8-321</b>	<b>University of Arizona</b>	<b>1121</b>		
The X-ray properties of well-studied intermediate and large redshift quasi stellar objects - A pilot study				
<i>Period</i>	<i>Obligations</i>			
03/10/80-03/09/81	FY80: \$4,076	TOTAL: \$4,076		
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>		
Strittmatter, P. A.	MSFC/Jones, J. B.	11-Astronomy		
Smith, M. G.				
Condon, J. J.				
<b>NAG 8-370</b>	<b>University of Arizona</b>	<b>1122</b>		
The X-ray properties of close pairs of galaxies and low spectral resolution optical survey of the HEAO-B high resolution imager and imaging proportional counter fields				
<i>Period</i>	<i>Obligations</i>			
08/15/80-08/14/81	FY80: \$17,189	TOTAL: \$17,189		
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>		
Stoeke, J. T.	MSFC/Stone, J. F.	11-Astronomy		
<b>NAG 8-380</b>	<b>University of Arizona</b>	<b>1123</b>		
Survey of bright (PG) quasars				
<i>Period</i>	<i>Obligations</i>			
08/22/80-08/21/81	FY80: \$8,623	TOTAL: \$8,623		
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>		
Green, R. F.	MSFC/Stone, J. F.	11-Astronomy		
<b>NAGW 55</b>	<b>University of Arizona</b>	<b>1124</b>		
Absorption of sunlight in the atmosphere of Venus				
<i>Period</i>	<i>Obligations</i>			
01/01/80-12/31/80	FY80: \$74,887	TOTAL: \$74,887		
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>		
Tomasko, M. G.	HD-SL/Murphy, R. E.	41-Aero Engr		
	HD-SL/Brunk, W. E.			
<b>NAGW 67</b>	<b>University of Arizona</b>	<b>1125</b>		
Investigation of the chemical dynamics of the Venus atmosphere				
<i>Period</i>	<i>Obligations</i>			
06/01/80-05/31/81	FY80: \$31,024	TOTAL: \$31,024		
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>		
Sill, G. T.	HD-SL/Murphy, R. E.	31-Atmos Sci		
	HD-SL/Brunk, W. E.			
<b>NAS 1-14332</b>	<b>University of Arizona</b>	<b>1126</b>		
Stratospheric aerosol measurement experiment				
<i>Period</i>	<i>Obligations</i>			
03/19/76-09/30/80	FY80: \$10,167	TOTAL: \$130,167		
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>		
Heiman, B. M.	LARC/McCormick, M. P.	31-Atmos Sci		
	LARC/McMaster, L. R.			
<b>NAS 1-14928</b>	<b>University of Arizona</b>	<b>1127</b>		
Stratospheric aerosol and gas experiment				
<i>Period</i>	<i>Obligations</i>			
07/21/77-06/30/81	FY80:	TOTAL: \$60,000		
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>		
Herman, B. M.	LARC/McMaster, L. R.	31-Atmos Sci		
	LARC/McCormick, M. P.			
<b>NAS 2-6265</b>	<b>University of Arizona</b>	<b>1128</b>		
Imaging photopolarimeter experiment data analysis Pioneer 10 and 11				
<i>Period</i>	<i>Obligations</i>			
11/01/70-01/31/81	FY80: \$380,110	TOTAL: \$2,363,179		
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>		
Gehrels, A. M.	ARC/Hall, C. F.	11-Astronomy		
Tomasko, M. G.	ARC/Porter, D. L.			
Doose, L.				
<b>NAS 2-9487</b>	<b>University of Arizona</b>	<b>1129</b>		
Pioneer Venus data analysis				
<i>Period</i>	<i>Obligations</i>			
01/06/78-09/30/80	FY80: \$20,000	TOTAL: \$131,365		
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>		
Hunter, D. M.	ARC/Fimmel, R. O.	31-Atmos Sci		
	ARC/Dyer, J.			
<b>NAS 2-10436</b>	<b>University of Arizona</b>	<b>1130</b>		
15 um detectors for shuttle infrared telescope facility				
<i>Period</i>	<i>Obligations</i>			
11/01/79-10/30/80	FY80: \$15,000	TOTAL: \$15,000		
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>		
Davidson, A.	ARC/McCreight, C. R.	11-Astronomy		
<b>NAS 5-24308</b>	<b>University of Arizona</b>	<b>1131</b>		
Study of suitability of Starlab for solar system studies				
<i>Period</i>	<i>Obligations</i>			
09/27/77-06/30/81	FY80:	TOTAL: \$17,585		
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>		
Smith, B. A.	GSFC/Eirand, A. M.	11-Astronomy		

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<b>NAS 5-25484</b>	<b>University of Arizona</b>	<b>1132</b>
Support to the space telescope wide field planetary camera development team		
<i>Period</i>	<i>Obligations</i>	
02/01/79-10/30/80	FY80: \$30,000	TOTAL: \$62,964
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Smith, B. A.	GSFC/Sours, W. T.	31-Atmos Sci
<b>NAS 5-25733</b>	<b>University of Arizona</b>	<b>1133</b>
Space telescope/High Resolution Spectrograph (HRS) extragalactic studies		
<i>Period</i>	<i>Obligations</i>	
06/18/79-03/31/81	FY80: \$2,781	TOTAL: \$5,781
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Weymann, R. J.	GSFC/Liberatore, F. J.	11-Astronomy
<b>NAS 5-25955</b>	<b>University of Arizona</b>	<b>1134</b>
Scientific activities of the high resolution ultraviolet spectrometer and polarimeter for the solar maximum mission		
<i>Period</i>	<i>Obligations</i>	
11/14/79-02/28/82	FY80: \$12,000	TOTAL: \$12,000
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Beckers, J. M.	GSFC/Kalet, M. W.	11-Astronomy
	GSFC/Woodgate, B. E.	
<b>NAS 5-26176</b>	<b>University of Arizona</b>	<b>1135</b>
Solar diameter measurements for study of Sun climate coupling		
<i>Period</i>	<i>Obligations</i>	
06/04/80-06/04/81	FY80: \$26,000	TOTAL: \$26,000
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hill, H. A.	GSFC/Wolff, C. L.	31-Atmos Sci
<b>NAS 8-31192</b>	<b>University of Arizona</b>	<b>1136</b>
Maintenance and operation of the 60 inch NASA telescope at Mt. Lemmon		
<i>Period</i>	<i>Obligations</i>	
10/01/74-12/31/79	FY80:	TOTAL: \$374,207
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Renton, E. V.	MSFC/Parnell, T. A.	11-Astronomy
	MSFC/Bass, B. G.	
<b>NAS 8-31948</b>	<b>University of Arizona</b>	<b>1137</b>
Automated analytical electrophoresis apparatus		
<i>Period</i>	<i>Obligations</i>	
05/17/76-12/31/80	FY80:	TOTAL: \$299,305
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bartels, P. H.	MSFC/Snyder, R. S.	59-Life Sci, NEC
	MSFC/Nerren, B. H.	
<b>NAS 8-32950</b>	<b>University of Arizona</b>	<b>1138</b>
Hormone purification by isoelectric focusing in space		
<i>Period</i>	<i>Obligations</i>	
03/29/78-03/29/81	FY80: \$85,000	TOTAL: \$222,800
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bier, M.	MSFC/Bannister, T.C.	59-Life Sci, NEC
Barstow, L. E.	MSFC/Snyder, R. S.	
Jewett, W. R.		
<b>NAS 8-33351</b>	<b>University of Arizona</b>	<b>1139</b>
Low spectral resolution optical survey of the HEAO-B high resolution imager fields		
<i>Period</i>	<i>Obligations</i>	
05/23/79-05/22/80	FY80:	TOTAL: \$21,260
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Strittmatter, P. A.	MSFC/Jones, J. B., Jr.	11-Astronomy
<b>NAS 8-33718</b>	<b>University of Arizona</b>	<b>1140</b>
Lightning detection from space		
<i>Period</i>	<i>Obligations</i>	
02/11/80-02/10/81	FY80: \$40,000	TOTAL: \$40,000
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Krider, E. P.	MSFC/Wagnon, F. W.	49-Engr, NEC
	MSFC/Harper, J. W.	
<b>NAS 8-33720</b>	<b>University of Arizona</b>	<b>1141</b>
Conceptual design study of lightning optical/sensor systems		
<i>Period</i>	<i>Obligations</i>	
02/07/80-02/06/81	FY80: \$39,860	TOTAL: \$39,860
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wolfe, W. L.	MSFC/Wagnon, F. W.	49-Engr, NEC
	MSFC/Barnes, T. G.	
<b>NAS 8-33732</b>	<b>University of Arizona</b>	<b>1142</b>
Maintenance and operation of the 60 inch NASA telescope		
<i>Period</i>	<i>Obligations</i>	
01/02/80-01/01/81	FY80: \$86,400	TOTAL: \$86,400
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Larson, H. P.	MSFC/Fishman, G. J.	11-Astronomy
	MSFC/Parnell, T. A.	
<b>NAS 8-33815</b>	<b>University of Arizona</b>	<b>1143</b>
Computer studies of baroclinic stability in spherical geometry		
<i>Period</i>	<i>Obligations</i>	
03/07/80-03/06/81	FY80: \$24,560	TOTAL: \$24,560
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Gall, R. L.	MSFC/Fowles, W. W.	31-Atmos Sci
	MSFC/Fitch, G. H.	
<b>NASW 3262</b>	<b>University of Arizona</b>	<b>1144</b>
Colloquium and book on asteroids and planets		
<i>Period</i>	<i>Obligations</i>	
04/23/79-03/30/80	FY80:	TOTAL: \$14,700
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Gehrels, A. M.	HD-SL/Brunk, W. E.	11-Astronomy
<b>NASW 3413</b>	<b>University of Arizona</b>	<b>1145</b>
Colloquium and book on comets		
<i>Period</i>	<i>Obligations</i>	
11/01/80-10/31/81	FY80: \$15,267	TOTAL: \$15,267
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wilkening, L. L.	HD-SL/Brunk, W. E.	11-Astronomy
	HD-SL/Murphy, R. E.	



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**NAS10-8518** University of Arizona **1146**  
Thunderstorm electrical field changes and associated meteorological conditions of KSC  
*Period* *Obligations*  
02/12/74-03/01/81 FY80: \$30,000 TOTAL: \$191,600  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Krider, E. P. KSC/Jafferis, W. 31-Atmos Sci

**NCA 2-40001** University of Arizona **1147**  
A high angular resolution far infrared study of star formation in the M17 region  
*Period* *Obligations*  
07/01/80-10/01/80 FY80: \$7,590 TOTAL: \$7,590  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Harvey, P. M. ARC/Werner, M. W. 11-Astronomy

**NCA 5-93** University of Arizona **1148**  
Spectroscopic observations of comets  
*Period* *Obligations*  
09/06/78-07/01/79 FY80: TOTAL: \$3,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Martineck, S. GSFC/Donn, B. 31-Atmos Sci

**NCA 5-94** University of Arizona **1149**  
Infrared absorption studies of clathrates and hydrate ices  
*Period* *Obligations*  
01/23/79-03/31/80 FY80: TOTAL: \$14,785  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Fink, U. GSFC/Pearl, J. C. 13-Physics

**NGL 03-002-002** University of Arizona **1150**  
Planetary, spectroscopic, selenodetic and physical studies of lunar surface  
*Period* *Obligations*  
08/17/61-05/31/81 FY80: \$65,195 TOTAL: \$2,854,445  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Smith, B. A. HD-SL/Brunk, W. E. 11-Astronomy  
HD-SL/Murphy, R. E.

**NGL 03-002-019** University of Arizona **1151**  
High resolution electron microscopic techniques to study biological material  
*Period* *Obligations*  
06/07/63-08/31/79 FY80: TOTAL: \$471,055  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Hoeng, S. A. HD-SL/Fellows, R. F. 31-Atmos Sci  
HD-SL/Brunk, W. E.

**NGL 03-002-081** University of Arizona **1152**  
Photometry and polarimetry of minor planets  
*Period* *Obligations*  
03/14/66-09/30/80 FY80: \$40,000 TOTAL: \$509,225  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Gehrels, T. HD-SL/Brunk, W. E. 11-Astronomy  
HD-SL/Murphy, R. E.

**NGL 03-002-122** University of Arizona **1153**  
Astrometric and astrophysical investigation of comets, minor planets, and satellites  
*Period* *Obligations*  
02/22/67-04/30/79 FY80: TOTAL: \$213,984  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Cox, E. L. HD-SL/Brunk, W. E. 11-Astronomy  
HD-SL/Fellows, R. F.

**NGL 03-002-191** University of Arizona **1154**  
Lunar surface and planetology study  
*Period* *Obligations*  
05/16/69-09/30/79 FY80: TOTAL: \$568,770  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Strom, R. G. HD-SL/Bohlin, J. M. 32-Geological Sci  
HD-SL/Flinn, E. A.

**NGL 03-002-313** University of Arizona **1155**  
Remote sensing applications for state and local government  
*Period* *Obligations*  
03/07/72-02/28/83 FY80: \$125,000 TOTAL: \$975,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Johnson, J. D. HD-ET/Vitale, J. A. 39-Env Sci, NEC

**NGR 03-002-107** University of Arizona **1156**  
Basic research in astrophysics and space science  
*Period* *Obligations*  
09/01/67-08/31/80 FY80: \$40,000 TOTAL: \$678,063  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Hsieh, K. C. HD-ST/Hedin, A. F. 13-Physics  
HD-ST/Schmerling, E. R.

**NGR 03-002-171** University of Arizona **1157**  
Analysis of carbonaceous meteorites  
*Period* *Obligations*  
10/26/68-03/31/81 FY80: \$66,884 TOTAL: \$638,884  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Nagy, B. HD-SB/Devincenzi, D. L. 32-Geological Sci

**NGR 03-002-219** University of Arizona **1158**  
Photopolarimetry of Mercury, Mars, and satellites  
*Period* *Obligations*  
02/13/70-10/31/80 FY80: \$37,820 TOTAL: \$387,235  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Gehrels, A. M. HD-SL/Brunk, W. E. 11-Astronomy  
HD-SL/Murphy, R. F.

**NGR 03-002-269** University of Arizona **1159**  
Operation of a 30 cm flying infrared telescope  
*Period* *Obligations*  
05/04/71-07/31/81 FY80: \$71,000 TOTAL: \$639,336  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Low, F. J. HD-SC/Bogges, N. W. 11-Astronomy  
HD-SC/Weiler, E. J.

**NASA'S UNIVERSITY PROGRAM  
ARIZONA (Continued)**

<b>NGR 03-002-332</b>	<b>University of Arizona</b>	<b>1160</b>
Infrared spectroscopy of the planets from 1-5.6 micron with the medium-resolution LPL Fournier interferometer		
<i>Period</i>	<i>Obligations</i>	
03/05/73-10/31/80	FY80: \$105,000	TOTAL: \$625,357
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Larson, H. P.	ARC/Haughney, L. C.	11-Astronomy
	ARC/Gillespie, C. M.	
<b>NGR 03-002-370</b>	<b>University of Arizona</b>	<b>1161</b>
An investigation of electromagnetic processes in the early solar system with bearing on thermal evolution and fossil magnetism		
<i>Period</i>	<i>Obligations</i>	
10/01/73-12/31/80	FY80: \$44,298	TOTAL: \$278,257
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sonett, C. P.	HD-SL/Quaide, W. L.	32-Geological Sci
	HD-SL/Boyce, J. M.	
<b>NGR 03-002-371</b>	<b>University of Arizona</b>	<b>1162</b>
Far infrared observations of galactic and extra-galactic sources of radiation		
<i>Period</i>	<i>Obligations</i>	
09/01/73-11/30/80	FY80: \$90,000	TOTAL: \$450,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Campbell, M.	HD-SC/Bogges, N. W.	11-Astronomy
Hoffman, W. F.	HD-SC/Roman, N. G.	
<b>NGR 03-002-390</b>	<b>University of Arizona</b>	<b>1163</b>
Mapping structure of galactic center		
<i>Period</i>	<i>Obligations</i>	
10/01/73-10/31/80	FY80: \$112,004	TOTAL: \$388,737
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Harvey, P. M.	ARC/Haughney, L. C.	11-Astronomy
Thronson, H. A., Jr.		
<b>NGT 03-002-800</b>	<b>University of Arizona</b>	<b>1164</b>
Graduate student training program in computational fluid dynamics		
<i>Period</i>	<i>Obligations</i>	
07/01/80-05/30/81	FY80: \$74,699	TOTAL: \$74,699
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Seebass, A. R.	HD-RT/Graves, R. A.	41-Aero Engr
<b>NSG 2112</b>	<b>University of Arizona</b>	<b>1165</b>
Inviscid transonic flow computations		
<i>Period</i>	<i>Obligations</i>	
11/01/75-10/31/80	FY80:	TOTAL: \$221,991
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Seebass, A. R.	ARC/Ballhaus, W. F.	41-Aero Engr
Fung, K. Y.		
Sobieczky, H.		
<b>NSG 2205</b>	<b>University of Arizona</b>	<b>1166</b>
Construction of a radial velocity meter for determining percentage of binaries among solar-type stars		
<i>Period</i>	<i>Obligations</i>	
01/01/77-01/31/81	FY80: \$30,000	TOTAL: \$75,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Serkowski, K. M.	ARC/Black, D. C.	11-Astronomy
<b>NSG 2381</b>	<b>University of Arizona</b>	<b>1167</b>
Cytofluorometric analysis of viral infection		
<i>Period</i>	<i>Obligations</i>	
05/01/79-01/31/81	FY80: \$26,356	TOTAL: \$61,356
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Meinke, W. J.	ARC/Mandel, A.D.	56-Medical Sciences
<b>NSG 5023</b>	<b>University of Arizona</b>	<b>1168</b>
Lightning detection study		
<i>Period</i>	<i>Obligations</i>	
09/01/74-06/30/81	FY80: \$5,000	TOTAL: \$56,500
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ragsdell, K. J.	GSFC/LeVine, D. M.	31-Atmos Sci
Thompson, H. D.		
<b>NSG 5235</b>	<b>University of Arizona</b>	<b>1169</b>
Research of the ultraviolet spectra of T Tauri and related stars		
<i>Period</i>	<i>Obligations</i>	
02/19/78-04/08/81	FY80: \$7,865	TOTAL: \$14,163
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Imhoff, C. L.	GSFC/Bogges, A.	11-Astronomy
Giampapa, M. S.		
<b>NSG 5249</b>	<b>University of Arizona</b>	<b>1170</b>
Spectrophotometry of planets, satellites and asteroids		
<i>Period</i>	<i>Obligations</i>	
03/01/78-07/31/80	FY80: \$7,500	TOTAL: \$29,500
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Tomasko, M. G.	GSFC/Bogges, A.	11-Astronomy
Zellner, B. H.	GSFC/West, D. K.	
Gehrels, A. M.		
<b>NSG 5302</b>	<b>University of Arizona</b>	<b>1171</b>
Laser application of incoherent radiation		
<i>Period</i>	<i>Obligations</i>	
09/15/78-09/14/79	FY80:	TOTAL: \$5,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lamb, W. E., Jr.	GSFC/McAvoy, N.	13-Physics
<b>NSG 7011</b>	<b>University of Arizona</b>	<b>1172</b>
Radiation history of meteorites		
<i>Period</i>	<i>Obligations</i>	
03/01/74-03/01/81	FY80: \$44,066	TOTAL: \$257,882
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wilkening, L. L.	HD-SL/French, B. M.	32-Geological Sci
	HD-SL/Quaide, W. L.	

**NASA'S UNIVERSITY PROGRAM**  
**ARIZONA (Continued)**

**NSG 7020** University of Arizona 1173  
 Investigation of lunar induced and permanent magnetism in the  
 lunar data analysis and synthesis program  
*Period Obligations*  
 03/01/74-01/31/81 FY80: \$90,719 TOTAL: \$694,035  
*Pnn Invest NASA Tech Officer CASE Category*  
 Sonett, C. P. HD-SL/Quaide, W. L. 32-Geological Sci  
 HD-SL/French, B. E.

**NSG 7024** University of Arizona 1174  
 Study of the Earth's magnetosphere and solar wind  
*Period Obligations*  
 02/01/74-10/31/80 FY80: \$101,565 TOTAL: \$439,665  
*Pnn Invest NASA Tech Officer CASE Category*  
 Sonett, C. P. HD-ST/Williamson, P. R. 13-Physics  
 HD-ST/Schmerling, E. R.

**NSG 7045** University of Arizona 1175  
 Interiors of the giant planets  
*Period Obligations*  
 04/01/74-03/31/81 FY80: \$35,300 TOTAL: \$234,194  
*Pnn Invest NASA Tech Officer CASE Category*  
 Hubbard, W. B. HD-SL/Brunk, W. E. 11-Astronomy  
 HD-SL/Fellows, R. F.

**NSG 7070** University of Arizona 1176  
 Planetary spectroscopy  
*Period Obligations*  
 06/01/74-05/31/81 FY80: \$85,737 TOTAL: \$639,485  
*Pnn Invest NASA Tech Officer CASE Category*  
 Fink, U. W. HD-SL/Brunk, W. E. 11-Astronomy  
 HD-SL/Murphy, R. F.

**NSG 7101** University of Arizona 1177  
 Study structure of astrophysical plasma and turbulent fluctua-  
 tions  
*Period Obligations*  
 11/18/74-08/31/81 FY80: \$110,000 TOTAL: \$333,192  
*Pnn Invest NASA Tech Officer CASE Category*  
 Jokipii, J. R. HD-SC/Gilman, D. A. 11-Astronomy  
 HD-SC/Holt, S. S.

**NSG 7114** University of Arizona 1178  
 Infrared observations of the planets  
*Period Obligations*  
 02/20/75-05/31/81 FY80: \$31,145 TOTAL: \$126,821  
*Pnn Invest NASA Tech Officer CASE Category*  
 Rieke, G. H. HD-SL/Brunk, W. E. 11-Astronomy  
 HD-SL/Murphy, R. E.

**NSG 7146** University of Arizona 1179  
 Geologic investigation of Mercury from Mariner 10 television  
 data  
*Period Obligations*  
 07/01/75-01/31/81 FY80: \$79,394 TOTAL: \$339,482  
*Pnn Invest NASA Tech Officer CASE Category*  
 Strom, R. G. HD-SL/Boyce, J. M. 32-Geological Sci  
 HD-SL/Quaide, W. L.

**NSG 7249** University of Arizona 1180  
 High precision polarimetry of meteorites  
*Period Obligations*  
 07/01/76-02/28/81 FY80: \$31,629 TOTAL: \$148,897  
*Pnn Invest NASA Tech Officer CASE Category*  
 Zellner, B. H. HD-SL/French, B. M. 32-Geological Sci  
 HD-SL/Quaide, W. L.

**NSG 7333** University of Arizona 1181  
 Study of isoelectric focusing for proteins and peptide hormones  
 in a microgravity environment  
*Period Obligations*  
 04/01/79-03/31/83 FY80: \$200,000 TOTAL: \$925,000  
*Pnn Invest NASA Tech Officer CASE Category*  
 Bier, M. HD-ET/Vitale, J. A. 59-Life Sci. NEC

**NSG 7368** University of Arizona 1182  
 A deep near infrared photographic sky survey as a support tool  
 for the infrared astronomical satellite  
*Period Obligations*  
 06/15/77-06/14/81 FY80: \$39,983 TOTAL: \$107,725  
*Pnn Invest NASA Tech Officer CASE Category*  
 Craine, E. R. HD-SC/Boggess, N. W. 11-Astronomy  
 HD-SC/Weiler, E. J.

**NSG 7374** University of Arizona 1183  
 Evaluation of a field-ionization neutral mass spectrometer for  
 possible comet fly-by missions in 1980's  
*Period Obligations*  
 08/01/77-12/01/79 FY80: TOTAL: \$35,006  
*Pnn Invest NASA Tech Officer CASE Category*  
 Hsieh, K. C. HD-SL/Murphy, R. E. 11-Astronomy  
 HD-SL/Brunk, W. E.

**NSG 7419** University of Arizona 1184  
 Generation and behavior of solar system magnetic fields  
*Period Obligations*  
 03/01/79-01/31/81 FY80 \$37,852 TOTAL: \$103,990  
*Pnn Invest NASA Tech Officer CASE Category*  
 Levy, E. H. HD-SL/Quaide, W. L. 32-Geological Sci  
 HD-SL/French, B. M.

**NSG 7436** University of Arizona 1185  
 Rare earths in inclusions from different classes of carbonaceous  
 chondrites  
*Period Obligations*  
 03/01/78-12/28/81 FY80: \$50,904 TOTAL: \$89,237  
*Pnn Invest NASA Tech Officer CASE Category*  
 Boynton, W. V. HD-SL/French, B. M. 32-Geological Sci  
 HD-SL/Quaide, W. L.

**NSG 7485** University of Arizona 1186  
 Stratospheric aeronomy  
*Period Obligations*  
 09/01/78-08/31/80 FY80: TOTAL: \$112,272  
*Pnn Invest NASA Tech Officer CASE Category*  
 Hunton, D. M. HD-ST/Newton, G. P. 31-Atmos Sci  
 HD-ST/Tilford, S. G.

**NASA'S UNIVERSITY PROGRAM  
ARIZONA (Continued)**

**NSG 7502** University of Arizona 1187  
Asteroid population statistics  
*Period* *Obligations*  
09/01/78-08/31/81 FY80: \$56,691 TOTAL: \$81,561  
*Prin Invest* NASA Tech Officer CASE Category  
Zellner, B. H. HD-SL/Brunk, W. E. 11-Astronomy  
HD-SL/Murphy, R. E.

**NSG 7544** University of Arizona 1188  
Martian landforms response to geologic setting  
*Period* *Obligations*  
04/01/79-01/31/81 FY80: \$36,000 TOTAL: \$55,999  
*Prin Invest* NASA Tech Officer CASE Category  
Woronow, A. HD-SL/Boyce, J. M. 32-Geological Sci  
HD-SL/Quaide, W. L.

**NSG 7558** University of Arizona 1189  
Planetary aeronomy and related studies  
*Period* *Obligations*  
04/01/79-03/31/81 FY80: \$29,984 TOTAL: \$54,259  
*Prin Invest* NASA Tech Officer CASE Category  
Hunten, D. M. HD-SL/Murphy, R. E. 31-Atmos Sci  
HD-SL/Brunk, W. E.

**NSG 7573** University of Arizona 1190  
Scattering of light by ammonia crystals  
*Period* *Obligations*  
09/01/78-08/31/81 FY80: \$54,903 TOTAL: \$103,552  
*Prin Invest* NASA Tech Officer CASE Category  
Tomasko, M. G. HD-SL/Murphy, R. E. 31-Atmos Sci  
HD-SL/Brunk, W. E.

**NSG 7574** University of Arizona 1191  
Optical photometry and polarimetry and confirmed counterparts  
for X-ray binary pulsars  
*Period* *Obligations*  
05/01/79-04/30/81 FY80: \$25,889 TOTAL: \$45,321  
*Prin Invest* NASA Tech Officer CASE Category  
Tapia, S. F. HD-SC/Weiler, E. J. 11-Astronomy  
HD-SC/Bogges, N. W.

**NSG 7576** University of Arizona 1192  
Geochemical evolution of the Moon and igneous meteorites  
*Period* *Obligations*  
05/01/79-01/31/81 FY80: \$93,115 TOTAL: \$156,082  
*Prin Invest* NASA Tech Officer CASE Category  
Drake, M. J. HD-SL/Quaide, W. L. 32-Geological Sci  
HD-SL/French, B. M.

**NSG 7577** University of Arizona 1193  
Terrestrial analog studies of relationships  
*Period* *Obligations*  
03/01/79-09/30/80 FY80: \$55,398 TOTAL: \$85,453  
*Prin Invest* NASA Tech Officer CASE Category  
Drake, M. J. HD-SL/Quaide, W. L. 32-Geological Sci  
HD-SL/Boyce, J. M.

**NSG 7607** University of Arizona 1194  
Laboratory infrared reflectance studies  
*Period* *Obligations*  
05/01/79-04/30/81 FY80: \$21,173 TOTAL: \$40,536  
*Prin Invest* NASA Tech Officer CASE Category  
Lebofsky, L. HD-SL/Quaide, W. L. 32-Geological Sci  
HD-SL/French, B. M.

**NSG 7634** University of Arizona 1195  
Studies of planetary extended atmospheres  
*Period* *Obligations*  
10/01/79-09/30/81 FY80: \$74,779 TOTAL: \$138,109  
*Prin Invest* NASA Tech Officer CASE Category  
Brown, R. A. HD-SL/Brunk, W. E. 11-Astronomy  
HD-SL/Murphy, R. E.

**ARKANSAS**

**NSG 3249** Arkansas State University 1196  
Vaporization thermodynamics of potassium sulfide and potassium  
sulfite  
*Period* *Obligations*  
03/15/79-08/29/81 FY80: \$24,658 TOTAL: \$58,798  
*Prin Invest* NASA Tech Officer CASE Category  
Bennett, J. E. LERC/Kohl, F. J. 12-Chemistry

**NAG 5-20** University of Arkansas - Fayetteville 1197  
Measurement of soil moisture using remote sensing multisensor  
transfer techniques  
*Period* *Obligations*  
03/01/80-02/28/81 FY80: \$55,000 TOTAL: \$55,000  
*Prin Invest* NASA Tech Officer CASE Category  
Wate, W. P. GSFC/Rango, A. 39-Env Sci, NEC  
Hancock, G. D. GSFC/Schmugge, T. J.

**NAG 9-3** University of Arkansas - Fayetteville 1198  
Analysis of geological terrain models for determination of optimum  
SAR sensor configuration and optimum information extraction  
for exploration of global nonrenewable resources  
*Period* *Obligations*  
01/21/80-01/20/81 FY80: \$60,000 TOTAL: \$60,000  
*Prin Invest* NASA Tech Officer CASE Category  
MacDonald, H. C. JSC/Duke, M. B. 32-Geological Sci

**NAS 8-33224** University of Arkansas - Fayetteville 1199  
Space shuttle environmental analysis statistical models  
*Period* *Obligations*  
05/07/79-04/29/81 FY80: \$9,821 TOTAL: \$27,699  
*Prin Invest* NASA Tech Officer CASE Category  
Tubbs, J. D. MSFC/Smith, O. E. 31-Atmos Sci

**NASA'S UNIVERSITY PROGRAM**

**ARKANSAS (Continued)**

**NGL 04-001-007** University of Arkansas - Fayetteville **1200**  
 Application of lasers to instrumentation and measurement techniques

<i>Period</i>	<i>Obligations</i>	
06/15/70-04/30/81	FY80: \$28,092	TOTAL: \$452,473
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Mazumder, M. K.	ARC/Ragent, B. ARC/Bader, J.	41-Aero Engr

**NAG 5-66** California Institute of Technology **1206**  
 Observations of selected Jovian atmospheric features

<i>Period</i>	<i>Obligations</i>	
05/26/80-12/25/80	FY80: \$9,000	TOTAL: \$9,000
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Trauger, J. T. Allen, M. A. Lane, A. L.	GSFC/Bogges, A.	11-Astronomy

**CALIFORNIA**

**NAG 1-71** California Institute of Technology **1201**  
 Development of mathematical techniques for assimilation of remote sensing data into atmospheric models

<i>Period</i>	<i>Obligations</i>	
06/01/80-05/31/81	FY80: \$43,026	TOTAL: \$43,026
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Seinfeld, J. H. Koda, M Omatu, S	LARC/McDougal, D. S.	31-Atmos Sci

**NAG 5-68** California Institute of Technology **1207**  
 Research of the stellar population of normal galaxies

<i>Period</i>	<i>Obligations</i>	
06/01/80-05/31/81	FY80: \$9,000	TOTAL: \$9,000
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Cohen, J. G.	GSFC/Bogges, A.	11-Astronomy

**NAG 8-304** California Institute of Technology **1208**  
 Investigation of stellar chromospheric and coronal activity

<i>Period</i>	<i>Obligations</i>	
01/28/80-01/27/81	FY80: \$10,000	TOTAL: \$10,000
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Zirin, H.	MSFC/Jones, J. B.	11-Astronomy

**NAG 2-1** California Institute of Technology **1202**  
 Submillimeter line astronomy on the NASA 91.5 cm airborne telescope

<i>Period</i>	<i>Obligations</i>	
10/01/79-12/31/80	FY80: \$60,051	TOTAL: \$60,051
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Phillips, T. G.	ARC/Haughney, L. C.	11-Astronomy

**NAG 8-313** California Institute of Technology **1209**  
 Investigation of stellar chromospheric and coronal activity

<i>Period</i>	<i>Obligations</i>	
03/01/80-02/28/81	FY80: \$1,728	TOTAL: \$1,728
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Zirin, H.	MSFC/Jones, J. B.	11-Astronomy

**NAG 3-70** California Institute of Technology **1203**  
 Nonsteady combustion in burners for aircraft gas turbines

<i>Period</i>	<i>Obligations</i>	
06/09/80-06/08/81	FY80: \$50,000	TOTAL: \$50,000
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Marble, F. E. Zukoski, F. E. Kubota, T.	LARC/Szaniuszo, A. J.	41-Aero Engr

**NAG 8-322** California Institute of Technology **1210**  
 X-ray observations of T Tauri stars

<i>Period</i>	<i>Obligations</i>	
03/20/80-03/19/81	FY80: \$1,512	TOTAL: \$1,512
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Decampli, W. D.	MSFC/Jones, J. B.	11-Astronomy

**NAG 5-4** California Institute of Technology **1204**  
 Research on long exposure observations of extragalactic objects

<i>Period</i>	<i>Obligations</i>	
03/01/80-08/31/81	FY80: \$26,200	TOTAL: \$26,200
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sargent, W. L. Gull, T. R. Boksenberg, A.	GSFC/Bogges, A.	11-Astronomy

**NAG 8-324** California Institute of Technology **1211**  
 Determine location of high energy astronomical observatory-a2 soft X-ray sources, mapping kilo electron volts diffuse features near galactic Center

<i>Period</i>	<i>Obligations</i>	
01/15/80-01/14/81	FY80: \$15,000	TOTAL: \$15,000
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Garmire, G. P.	MSFC/Jones, J. B.	11-Astronomy

**NAG 5-47** California Institute of Technology **1205**  
 Observations of emission in bright, low redshift quasars

<i>Period</i>	<i>Obligations</i>	
04/28/80-04/27/81	FY80: \$10,000	TOTAL: \$10,000
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Soifer, B. T.	GSFC/Bogges, A.	11-Astronomy

**NAG 8-374** California Institute of Technology **1212**  
 A hot nearby white dwarf, identifying the bright soft X-ray sources found by HEAO-1, HRI observe of the point source in RCW 103, find brightest soft X-ray cataclysmic variables in quiescence

<i>Period</i>	<i>Obligations</i>	
09/15/80-09/14/81	FY80: \$20,000	TOTAL: \$20,000
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Garmire, G. P.	MSFC/Stone, J. F.	11-Astronomy

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**NAG 8-376** California Institute of Technology 1213  
IPC observations of interstellar bullets and IPC observations of a new type of extragalactic object found at infrared wavelengths  
*Period* *Obligations*  
09/22/80-09/21/81 FY80: \$10,210 TOTAL: \$10,210  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Pravdo, S. H. MSFC/Stone, J. F. 11-Astronomy

**NAGW 58** California Institute of Technology 1214  
Dynamics of planetary atmospheres  
*Period* *Obligations*  
05/01/80-04/30/81 FY80: \$85,800 TOTAL: \$85,800  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Ingersoll, A. P. HD-SL/Murphy, R. E. 31-Atmos Sci  
HD-SL/Brunk, W. E.

**NAS 5-11066** California Institute of Technology 1215  
IMP-H and J electron isotope spectrometer experiment  
*Period* *Obligations*  
01/12/68 03/23/80 FY80: TOTAL: \$2,137,391  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Stone, E. C. GSFC/Gemmell, J. D. 13-Physics

**NAS 5-20721** California Institute of Technology 1216  
High energy cosmic rays experiment for International Sun Earth Explorer spacecraft  
*Period* *Obligations*  
02/07/75-09/30/81 FY80: TOTAL: \$1,706,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Stone, E. C. GSFC/Wales, R. O. 13-Physics

**NAS 5-22939** California Institute of Technology 1217  
Helioscope camera definition study  
*Period* *Obligations*  
03/10/76-06/01/80 FY80: TOTAL: \$39,627  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Zirin, H. GSFC/Neupert, W. M. 11-Astronomy  
Prout, R. A.

**NAS 5-22965** California Institute of Technology 1218  
Nimbus G Earth radiation budget sensor support  
*Period* *Obligations*  
01/27/76-10/01/80 FY80: TOTAL: \$117,591  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Ingersoll, A. P. GSFC/Nelsen, F. D. 31-Atmos Sci

**NAS 5-25049** California Institute of Technology 1219  
HEAO A-2 cosmic X-ray experiment mission support and data analysis support  
*Period* *Obligations*  
08/13/78-03/31/82 FY80: \$311,000 TOTAL: \$605,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Garmire, G. P. GSFC/Wende, C. D. 13-Physics

**NAS 5-25451** California Institute of Technology 1220  
Wide field/planetary camera for space telescope  
*Period* *Obligations*  
01/01/79-02/01/84 FY80: \$922,021 TOTAL: \$1,445,936  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Westphal, J. GSFC/Sours, W. P. 11-Astronomy

**NAS 5-25789** California Institute of Technology 1221  
Data reduction and analysis of interplanetary monitoring platform (IMP) electron isotope spectrometer experiment  
*Period* *Obligations*  
03/24/80-12/31/80 FY80: \$84,758 TOTAL: \$84,758  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Stone, E. C. GSFC/Corrigan, J. P. 11-Astronomy

**NAS 8-27978** California Institute of Technology 1222  
Design, development & operation of the 7 heavy nuclei experiment under the HEAO program  
*Period* *Obligations*  
06/23/72-09/30/81 FY80: \$422,132 TOTAL: \$950,192  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Stone, E. C. MSFC/Stone, J. F. 11-Astronomy

**NAS 8-29313** California Institute of Technology 1223  
Dynamics of unsteady cavitating cascades  
*Period* *Obligations*  
09/28/72-10/15/79 FY80: TOTAL: \$470,459  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Acosta, A. J. MSFC/Gross, L. A. 46-Mech Engr  
MSFC/Stinson, H. P., Jr.

**NAS 8-33108** California Institute of Technology 1224  
Research in turbomachine rotor forces  
*Period* *Obligations*  
10/23/78-12/21/81 FY80: \$175,000 TOTAL: \$210,152  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Costa, A. J. MSFC/Gross, L. A. 46-Mech Engr  
Brennen, C. MSFC/Goetz, O. K.

**NAS 8-33215** California Institute of Technology 1225  
ATM guest investigator program empirical studies of solar flares: Comparison of X-ray and h-alpha filterations and analysis of the energy balance of the thermal X-ray plasma  
*Period* *Obligations*  
11/17/78-11/16/79 FY80: TOTAL: \$33,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Moore, R. L. MSFC/DeLoach, A. C. 13-Physics  
MSFC/Snoddy, W. C.

**NAS 8-33331** California Institute of Technology 1226  
Study of supernova remnant RCW 103 and a search for X-ray emission from dwarf novae  
*Period* *Obligations*  
02/05/79-02/04/81 FY80: TOTAL: \$10,996  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Garmire, G. P. MSFC/Jones, J. B. 11-Astronomy  
Tuohy, J. R.

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<b>NAS 8-33352</b>	<b>California Institute of Technology</b>	<b>1227</b>
A SSS observation of the supernova remnant RCW 103		
<i>Period</i>	<i>Obligations</i>	
05/30/79-05/29/80	FY80: TOTAL: \$2,720	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Garmire, G. P.	MSFC/Jones, J. B., Jr.	11-Astronomy
Tuohy, J. R.		
<b>NGL 05-002-134</b>	<b>California Institute of Technology</b>	<b>1234</b>
Modern astronomical instrument development		
<i>Period</i>	<i>Obligations</i>	
10/27/69-09/30/81	FY80: \$42,000 TOTAL: \$764,662	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Oke, J. B.	HD-SC/Roman, N. G.	11-Astronomy
	HD-SC/Rosendhal, J. D.	
<b>NCC 2-61</b>	<b>California Institute of Technology</b>	<b>1228</b>
Evolution of the atmosphere of Venus		
<i>Period</i>	<i>Obligations</i>	
01/01/80-12/31/80	FY80: \$11,995 TOTAL: \$11,995	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Yung, Y. L.	ARC/Pollack, J. B.	31-Atmos Sci
<b>NGL 05-002-140</b>	<b>California Institute of Technology</b>	<b>1235</b>
Research in planetary astronomy		
<i>Period</i>	<i>Obligations</i>	
04/11/69-03/31/81	FY80: \$27,637 TOTAL: \$540,347	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Goldreich, P.	HD-SL/Brunk, W. E.	11-Astronomy
	HD-SL/Murphy, R. E.	
<b>NCC 5-17</b>	<b>California Institute of Technology</b>	<b>1229</b>
Theoretical investigation of the mechanics of strike slip faulting in an unelastic Earth		
<i>Period</i>	<i>Obligations</i>	
06/01/79-05/31/80	FY80: TOTAL: \$2,778	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Melosh, H. J.	GSFC/Cohen, S. C.	32-Geological Sci
<b>NGL 05-002-188</b>	<b>California Institute of Technology</b>	<b>1236</b>
Lunar sample analysis		
<i>Period</i>	<i>Obligations</i>	
02/03/71-01/31/81	FY80: \$572,061 TOTAL: \$5,533,763	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wassberg, G. J.	JSC/Harris, J. W.	12-Chemistry
<b>NGL 05-002-190</b>	<b>California Institute of Technology</b>	<b>1237</b>
Lunar sample analysis		
<i>Period</i>	<i>Obligations</i>	
01/19/71-01/31/81	FY80: \$60,000 TOTAL: \$952,645	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Epstein, S.	JSC/Harris, J. W.	13-Physics
<b>NGL 05-002-207</b>	<b>California Institute of Technology</b>	<b>1238</b>
Research in infrared and X-ray astronomy		
<i>Period</i>	<i>Obligations</i>	
02/18/71-09/30/81	FY80: \$86,000 TOTAL: \$991,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Neugebauer, G.	HD-SC/Boggess, N. W.	11-Astronomy
	HD-SC/Roman, N. G.	
<b>NGL 05-002-003</b>	<b>California Institute of Technology</b>	<b>1230</b>
Basic scientific research on lunar and planetary exploration		
<i>Period</i>	<i>Obligations</i>	
12/01/59-11/30/80	FY80: \$117,577 TOTAL: \$3,310,435	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Muhleman, D. O.	HD-SL/Brunk, W. E.	11-Astronomy
	HD-SL/Murphy, R. E.	
<b>NGL 05-002-034</b>	<b>California Institute of Technology</b>	<b>1231</b>
Research in solar flares and the solar atmosphere		
<i>Period</i>	<i>Obligations</i>	
05/18/65-09/30/80	FY80: \$255,000 TOTAL: \$3,086,353	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Zirin, H.	HD-ST/Chipman, E.	11-Astronomy
<b>NGL 05-002-069</b>	<b>California Institute of Technology</b>	<b>1232</b>
Theoretical investigation of planetary interiors		
<i>Period</i>	<i>Obligations</i>	
06/12/67-06/30/80	FY80: TOTAL: \$553,729	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Anderson, D. L.	HD-SL/Quaide, W. L.	32-Geological Sci
<b>NGL 05-002-105</b>	<b>California Institute of Technology</b>	<b>1233</b>
Shock effects in minerals		
<i>Period</i>	<i>Obligations</i>	
08/16/68-03/31/81	FY80: \$89,605 TOTAL: \$1,194,093	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ahrens, T. J.	HD-SL/Quaide, W. L.	32-Geological Sci
	HD-SL/French, B. E.	
<b>NGL 05-002-114</b>	<b>California Institute of Technology</b>	<b>1240</b>
Radio interferometry on Mars and Venus		
<i>Period</i>	<i>Obligations</i>	
10/11/68-09/30/80	FY80: \$50,970 TOTAL: \$475,818	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Muhleman, D. O.	HD-SL/Brunk, W. E.	11-Astronomy
	HD-SL/Murphy, R. E.	

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**NGR 05-002-160 California Institute of Technology 1241**  
 Research in particles and fields  
*Period Obligations*  
 10/27/69-10/31/80 FY80: \$559,000 TOTAL: \$3,585,000  
*Pnn Invest NASA Tech Officer CASE Category*  
 Vogt, R. E. HD-SC/Kaluzienski, L. J. 11-Astronomy  
 HD-SC/Opp, A. G.

**NSG 1483 California Institute of Technology 1248**  
 Low speed impact damage on composite materials  
*Period Obligations*  
 01/15/78-01/14/81 FY80: \$45,055 TOTAL: \$119,941  
*Pnn Invest NASA Tech Officer CASE Category*  
 Knuss, W. G. LARC/Starnes, H. H., Jr. 41-Aero Engr  
 Babcock, C. D.

**NGR 05-002-256 California Institute of Technology 1242**  
 Study and research on experimental tests of gravitation theory  
*Period Obligations*  
 02/23/72-12/31/80 FY80: \$25,000 TOTAL: \$213,000  
*Pnn Invest NASA Tech Officer CASE Category*  
 Thorne, K. S. HD-SC/Roman, N. G. 11-Astronomy  
 HD-SC/Weiler, E. J.

**NSG 2413 California Institute of Technology 1249**  
 Airborne observations of Paschen alpha emission in Seyfert galaxies  
*Period Obligations*  
 10/01/79-03/31/81 FY80: \$33,641 TOTAL: \$33,641  
*Pnn Invest NASA Tech Officer CASE Category*  
 Soifer, B. T. ARC/Haughney, L. C. 11-Astronomy  
 Neugebauer, G.

**NGR 05-002-281 California Institute of Technology 1243**  
 High angular resolution of H 2 regions and associated galactic sources  
*Period Obligations*  
 03/01/73-10/31/80 FY80: TOTAL: \$359,602  
*Pnn Invest NASA Tech Officer CASE Category*  
 Werner, M. W. ARC/Haughney, L. C. 11-Astronomy

**NSG 5208 California Institute of Technology 1250**  
 Support of joint infrared and copernicus X-ray observations  
*Period Obligations*  
 09/01/77-08/31/79 FY80: TOTAL: \$5,963  
*Pnn Invest NASA Tech Officer CASE Category*  
 Neugebauer, G. GSFC/Kupperian, J. E., Jr. 11-Astronomy

**NGR 05-002-284 California Institute of Technology 1244**  
 High angular resolution cosmic X-ray astronomy observations in the energy band 0.15-2 Ke and XUV observations of early stars from an attitude controlled rocket  
*Period Obligations*  
 03/05/73-03/31/81 FY80: \$182,383 TOTAL: \$1,202,615  
*Pnn Invest NASA Tech Officer CASE Category*  
 Garmire, G. P. GSFC/Guidotti, J. 11-Astronomy  
 Nousek, J.  
 Pravdo, S.

**NSG 5224 California Institute of Technology 1251**  
 Earthquake research: Premonitory models and the physics of crustal distortion  
*Period Obligations*  
 01/16/78-07/15/80 FY80: TOTAL: \$190,340  
*Pnn Invest NASA Tech Officer CASE Category*  
 Whitcomb, J. H. GSFC/Allenby, R. J. 32-Geological Sci  
 Allen, C. R.  
 Anderson, D. L.

**NGR 05-002-303 California Institute of Technology 1245**  
 Systematic search program for new Apollo Amor asteroids  
*Period Obligations*  
 08/01/73-09/30/80 FY80: \$97,542 TOTAL: \$551,005  
*Pnn Invest NASA Tech Officer CASE Category*  
 Shoemaker, E. M. HD-SL/Boyce, J. M. 32-Geological Sci  
 HD-SL/Quaide, W. L.

**NSG 5243 California Institute of Technology 1252**  
 Observations of faint, high latitude blue stars and ultraviolet spectroscopy of peculiar galaxies and quasars  
*Period Obligations*  
 03/01/78-01/31/81 FY80: \$21,800 TOTAL: \$58,800  
*Pnn Invest NASA Tech Officer CASE Category*  
 Greenstein, J. L. GSFC/Boggess, A. 11-Astronomy

**NGR 05-002-333 California Institute of Technology 1246**  
 Lunar sample analysis  
*Period Obligations*  
 02/01/74-01/31/81 FY80: \$95,674 TOTAL: \$648,074  
*Pnn Invest NASA Tech Officer CASE Category*  
 Tombrello, T. A. JSC/Harris, J. W. 13-Physics

**NSG 5244 California Institute of Technology 1253**  
 Ultraviolet observations of quasi-stellar objects  
*Period Obligations*  
 03/01/78-06/30/80 FY80: \$10,800 TOTAL: \$32,800  
*Pnn Invest NASA Tech Officer CASE Category*  
 Schmidt, M. GSFC/Boggess, A. 11-Astronomy  
 Green, F. R.  
 Estabrook, F. B.

**NGT 05-003-790 California Institute of Technology 1247**  
 Summer research program faculty fellowships  
*Period Obligations*  
 01/01/79-03/31/81 FY80: \$162,243 TOTAL: \$235,931  
*Pnn Invest NASA Tech Officer CASE Category*  
 Albee, A. L. HD-LU/Carter, C. H. 49-Engr, NEC



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**NSG 5267 California Institute of Technology 1254**  
Theoretical investigation of the mechanics of strike slip faulting in the unelastic program

<i>Period</i>	<i>Obligations</i>	
04/01/78-05/31/79	FY80	TOTAL: \$13,307
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Melosh, H. J.	GSFC/Allenby, R. J.	32-Geological Sci
	GSFC/Mead, G. D.	

**NSG 5301 California Institute of Technology 1255**  
Research in atmospheric chemistry and transport

<i>Period</i>	<i>Obligations</i>	
09/15/78-01/14/81	FY80: \$30,000	TOTAL: \$46,739
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Yung, Y. I.	GSFC/Hanse, J. F.	31-Atmos Sci

**NSG 5314 California Institute of Technology 1256**  
Optical observations at the Big Bear Solar Observatory

<i>Period</i>	<i>Obligations</i>	
01/01/79-12/31/80	FY80 \$8,472	TOTAL \$60,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Zinn, H.	GSFC/Donley, J. I.	31-Atmos Sci

**NSG 5327 California Institute of Technology 1257**  
High resolution comparative observations of microwave and hard X-ray sources

<i>Period</i>	<i>Obligations</i>	
02/01/79-01/31/81	FY80 \$59,400	TOTAL \$72,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Zinn, H.	GSFC/Donley, J. I.	31-Atmos Sci

**NSG 5369 California Institute of Technology 1258**  
Research of interstellar lines in the galactic halo

<i>Period</i>	<i>Obligations</i>	
06/01/79-05/31/80	FY80	TOTAL \$13,600
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sargent, W. I.	GSFC/Boggett, A.	11-Astronomy
Gull, T. R.		

**NSG 5381 California Institute of Technology 1259**  
Support of research involving International Ultraviolet Experiment (IUE) satellite

<i>Period</i>	<i>Obligations</i>	
07/01/79-12/31/80	FY80 \$8,000	TOTAL \$15,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Greenstein, J. I.	GSFC/Boggett, A.	11-Astronomy

**NSG 5384 California Institute of Technology 1260**  
Ultraviolet observations of young stellar populations

<i>Period</i>	<i>Obligations</i>	
07/01/79-06/30/81	FY80	TOTAL \$2,916
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Meier, D. I.	GSFC/Boggett, A.	11-Astronomy
Schmidt, M.		

**NSG 5385 California Institute of Technology 1261**  
Study of the hottest White dwarfs from the Palomar-Green

<i>Period</i>	<i>Obligations</i>	
07/01/79-06/30/80	FY80	TOTAL: \$3,100
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Green, R. F.	GSFC/Boggett, A.	11-Astronomy
Liebert, J.		
Strittmatter, P. A.		

**NSG 7129 California Institute of Technology 1262**  
Relationship of impact cratering to the evolution of the lunar surface

<i>Period</i>	<i>Obligations</i>	
04/01/75-03/30/81	FY80: \$37,543	TOTAL: \$387,660
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ahrens, T. J.	HD-SI/Quaide, W. I.	32-Geological Sci
	HD-SI/French, B. M.	

**NSG 7202 California Institute of Technology 1263**  
Laboratory partitioning studies relevant to the interpretation of lunar and meteoritic trace element data

<i>Period</i>	<i>Obligations</i>	
02/01/76-01/31/81	FY80: \$69,125	TOTAL: \$355,718
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Burnett, D. S.	HD-SI/Quaide, W. I.	32-Geological Sci
	HD-SI/French, B. M.	

**NSG 7316 California Institute of Technology 1264**  
Crater modification by gravity

<i>Period</i>	<i>Obligations</i>	
02/01/77-06/30/80	FY80	TOTAL: \$112,360
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Melosh, H. J.	HD-SI/Quaide, W. I.	32-Geological Sci

**NSG 7342 California Institute of Technology 1265**  
Theoretical studies of solar oscillation

<i>Period</i>	<i>Obligations</i>	
04/01/77-09/30/80	FY80	TOTAL: \$39,992
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Goldreich, P.	HD-ST/Bohlin, J. D.	13-Physics

**NSG 7376 California Institute of Technology 1266**  
Photochemistry of the Jovian planets and their satellites

<i>Period</i>	<i>Obligations</i>	
11/01/77-10/31/80	FY80: \$43,525	TOTAL: \$107,172
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Yung, Y. I.	HD-SI/Murphy, R. F.	31-Atmos Sci
	HD-SI/Brunk, W. E.	

**NSG 7442 California Institute of Technology 1267**  
Spectral characterization of analogs to the Martian regolith

<i>Period</i>	<i>Obligations</i>	
10/01/77-03/31/80	FY80	TOTAL: \$54,236
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Albee, A. L.	HD-SL/Boyce, J. M.	32-Geological Sci

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**NSG 7458** California Institute of Technology 1268  
Space shuttle based compression studies of planetary materials and recovery of very high pressure phases of possible technological usefulness

<i>Period</i>	<i>Obligations</i>	
03/01/78-12/31/79	FY80: \$50,000	TOTAL: \$50,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ahrens, T. J.	HD-RP/Henry, W.	13-Physics
Gault, D. E.		
Ross, M.		

**NSG 7495** California Institute of Technology 1269  
Detection of gravitational radiation by the Doppler tracking of spacecraft

<i>Period</i>	<i>Obligations</i>	
10/01/78-09/30/80	FY80: \$24,000	TOTAL: \$33,800
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Mashhoon, B.	HD-SC/Roman, N. G.	11-Astronomy
	HD-SC/Rosendhal, J. D.	

**NSG 7508** California Institute of Technology 1270  
Nonlinear interactions in superfluid dynamics. Nonstationary heat transfer due to second sound shock waves

<i>Period</i>	<i>Obligations</i>	
11/01/78-10/31/80	FY80: \$65,463	TOTAL: \$123,609
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Liepmann, H. W.	ARC/Chapman, G. I.	13-Physics

**NSG 7565** California Institute of Technology 1271  
Analysis of Viking infrared thermal mapping data of Mars orbiter and comet missions

<i>Period</i>	<i>Obligations</i>	
10/11/78-09/30/79	FY80: \$2,500	TOTAL: \$2,500
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Muhleman, D. O.	HD-SI/Quaide, W. L.	32-Geological Sci
	HD-SL/Dwornik, S. F.	

**NSG 7610** California Institute of Technology 1272  
Fundamental studies in geodynamics

<i>Period</i>	<i>Obligations</i>	
08/01/79-07/31/83	FY80: \$120,000	TOTAL: \$285,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Anderson, D. L.	HD-ET/Vitale, J. A.	32-Geological Sci

**NSG 7635** California Institute of Technology 1273  
Thermal behavior of Martian satellites Phobos and Deimos

<i>Period</i>	<i>Obligations</i>	
06/01/79-06/30/81	FY80: \$29,961	TOTAL: \$47,961
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Neugebauer, M. G.	HD-SI/Quaide, W. L.	11-Astronomy

**NSG 9019** California Institute of Technology 1274  
Shock compression measurements on lunar samples

<i>Period</i>	<i>Obligations</i>	
10/01/74-01/31/81	FY80: \$60,000	TOTAL: \$395,100
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ahrens, T. J.	JSC/Harris, J. W.	19-Phys Sci, NEC

**NAG 2-61** California Polytechnic State Univ. 1275  
Experimental investigation of control concepts for buoyant hybrid airships using a small scale flying model

<i>Period</i>	<i>Obligations</i>	
08/29/80-08/28/81	FY80: \$25,018	TOTAL: \$25,018
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sandlin, D. R.	ARC/Talbot, P. D.	41-Aero Engr
	ARC/Faye, A. E.	

**NAG 4-4** California Polytechnic State Univ. 1276  
The feasibility of thru-air measurement during flight

<i>Period</i>	<i>Obligations</i>	
06/01/80-05/31/81	FY80: \$18,898	TOTAL: \$18,898
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Carpenter, T. W.	DFRC/Myers, L. P.	41-Aero Engr
	DFRC/Washington, H. P.	

**NAS 2-10364** California Polytechnic State Univ. 1277  
Software development and application for dynamic analysis of the tilt rotor research aircraft

<i>Period</i>	<i>Obligations</i>	
09/04/79-09/03/80	FY80: \$47,000	TOTAL: \$113,948
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Grimes, J. E.	ARC/Magee, J. P.	41-Aero Engr

**NCA 2-678001** California Polytechnic State Univ. 1278  
Vegetation mapping and inventory of forest resources for Santa Cruz count using LANDSAT imagery

<i>Period</i>	<i>Obligations</i>	
01/01/80-12/31/80	FY80: \$27,675	TOTAL: \$27,675
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Pillsbury, N.	ARC/Peterson, D. L.	39-Env Sci, NEC

**NCC 4-1** California Polytechnic State Univ. 1279  
Cal Poly graduate student program

<i>Period</i>	<i>Obligations</i>	
10/01/79-09/30/81	FY80: \$97,566	TOTAL: \$97,566
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sandlin, D. R.	DFRC/Kordes, E. E.	41-Aero Engr

**NSG 2391** California Polytechnic State Univ. 1280  
Delay of separation with free stream turbulence

<i>Period</i>	<i>Obligations</i>	
08/01/79-07/31/81	FY80: \$25,927	TOTAL: \$49,860
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hoffmann, J. A.	ARC/Koenig, D. G.	41-Aero Engr
	ARC/Aoyagi, K.	

**NSG 4014** California Polytechnic State Univ. 1281  
Wake vortex turbulence study using radio controlled models

<i>Period</i>	<i>Obligations</i>	
09/23/77-05/21/80	FY80: \$49,995	TOTAL: \$49,995
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sandlin, D. R.	DFRC/Ayers, T. G.	41-Aero Engr
Nicolaides, J. D.	DFRC/Friend, E. L.	

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**NSG 4020** California Polytechnic State Univ. 1282  
Wind tunnel test of free wing/free trimmer concept  
*Period* *Obligations*  
12/29/78-12/31/80 FY80: TOTAL: \$11,993  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Sandlin, D. K. DFRC/Geer, S. W. 41-Aero Engr  
Nicolaides, J. D. DFRC/Kordes, E. F.

**NSG 4022** California Polytechnic State Univ. 1283  
Flight evaluation of terminal guidance system  
*Period* *Obligations*  
03/01/79-10/31/80 FY80: TOTAL: \$56,350  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Sandlin, D. R. DFRC/Geer, S. W. 41-Aero Engr  
Nicolaides, J. D. DFRC/Kordes, E. F.

**NAG 2-49** California State Poly Univ - Pomona 1284  
Development of a small-scale V-STOI propulsion simulator for  
modelling ground effect fields  
*Period* *Obligations*  
08/01/80-04/30/81 FY80: \$13,872 TOTAL: \$13,872  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Lord, P. A. ARC/Christianson, R. S. 41-Aero Engr

**NAS 3-22172** California State University - Chico 1285  
Operation of the LERC Visitor Information Center  
*Period* *Obligations*  
10/01/79-09/30/81 FY80: \$230,104 TOTAL: \$230,104  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Lewis, M. R. LERC/Allen, H. 99-Multi-Discip

**NASW 2835** California State University - Chico 1286  
Spacemobile operation and maintenance space science education  
project  
*Period* *Obligations*  
07/01/75-02/29/80 FY80: TOTAL: \$4,885,037  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Unavailable HD-LF/Rich, W. B. 99-Multi-Discip

**NAS 9-16207** California State University - Fullerton 1287  
Investigation and technical plan for ionospheric models  
*Period* *Obligations*  
09/02/80-01/31/81 FY80: \$5,230 TOTAL: \$5,230  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Marouf, A. JSC/Arndt, G. D. 45-Elec Engr

**NCA 2-253801** California State University - Fullerton 1288  
Real-time simulation of computer-assisted sequencing and  
scheduling of terminal area operations  
*Period* *Obligations*  
07/01/78-01/31/81 FY80: \$11,701 TOTAL: \$35,076  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Dear, R. G. ARC/Tobias, L. 22-Computer Science  
ARC/Erzberger, H.

**NCA 2-253901** California State University - Fullerton 1289  
Absorption by SO2 in the near UV and visible spectral regions  
with applications to Venus' atmosphere  
*Period* *Obligations*  
06/15/79-12/01/80 FY80: \$5,424 TOTAL: \$13,514  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Nanes, R. ARC/Boese, R. W. 13-Physics

**NSG 7314** California State University - Fullerton 1290  
Meteoritic bismuth and lead-208 micro distributions  
*Period* *Obligations*  
02/01/77-01/31/81 FY80: \$41,901 TOTAL: \$136,490  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Woolum, D. S. HD-SL/French, B. M. 32-Geological Sci  
HD-SL/Quaide, W. L.

**NSG 7614** California State University - Fullerton 1291  
Atmospheric dynamics from Viking Lander data  
*Period* *Obligations*  
08/01/79-02/28/81 FY80: \$27,000 TOTAL: \$46,414  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Ryan, J. A. HD-SL/Murphy, R. F. 31-Atmos Sci  
HD-SL/Brunk, W. F.

**NCA 2-290001** California State Univ - Hayward 1292  
Acceleration versus orthostatic tolerance after exercise training  
in men and women  
*Period* *Obligations*  
03/01/80-02/28/81 FY80: \$27,429 TOTAL: \$27,429  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Brock, P. J. ARC/Greenleaf, J. F. 59-Life Sci, NEC

**NCA 2-290101** California State Univ - Hayward 1293  
Sociological survey in relation to project on Advanced Technology  
Display House (ATDH)  
*Period* *Obligations*  
11/01/80-04/30/81 FY80: \$25,200 TOTAL: \$25,200  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Huttman, E. ARC/Holley, H. 76-Sociology

**NAG 3-20** California State University - Long Beach 1294  
Gear lubrication and cooling study  
*Period* *Obligations*  
01/01/80-03/30/81 FY80: \$54,981 TOTAL: \$54,981  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Akin, L. LERC/Townsend, D. P. 46-Mech Engr  
LERC/Zaretsky, F. V.

**NCA 2-382001** California State University - Long Beach 1295  
Experimental investigation of velocity biasing in laser Doppler  
anemometer measurements  
*Period* *Obligations*  
03/17/80-03/16/81 FY80: \$15,322 TOTAL: \$15,322  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Modarress, D. ARC/Johnson, D. A. 46-Mech Engr

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**NAG 3-73 California State University - Los Angeles 1296**  
Electrostatic fuel conditioning of internal combustion engines

<i>Period</i>	<i>Obligations</i>	
06/15/80-06/14/81	FY80: \$35,000	TOTAL: \$35,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Gold, P. I.	LERC/Ream, L. W.	46-Mech Engr
Kovacs, A. J.		

**NASW 3257 California State University - Los Angeles 1297**  
Development of a direct contact heat exchanger for application in power generation systems utilizing geothermal brines

<i>Period</i>	<i>Obligations</i>	
03/12/79-12/20/80	FY80:	TOTAL: \$33,285
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Manvi, R.	HD-LU/Pohly, J. G.	46-Mech Engr
	JPL/Nakamura, Y.	

**NSG 2199 California State University - Los Angeles 1298**  
Biochemical and structural studies on the thermal resistance of 'hardy' bacterial spores

<i>Period</i>	<i>Obligations</i>	
01/01/77-10/31/80	FY80:	TOTAL: \$65,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Andreoli, A. J.	ARC/Hochstein, I. I.	51-Biological Sci

**NSG 7263 California State University - Los Angeles 1299**  
Differential scanning calorimetry of coal

<i>Period</i>	<i>Obligations</i>	
11/15/76-03/15/80	FY80:	TOTAL: \$52,900
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Gold, P. I.	HD-LU/Pohly, J. G.	46-Mech Engr
	JPL/England, C.	

**NAGW 27 California State University - Northridge 1300**  
Renewed synoptic observations and research on basic properties of the solar cycle

<i>Period</i>	<i>Obligations</i>	
02/01/80-01/31/81	FY80: \$44,927	TOTAL: \$44,927
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Martin, S. F.	HD-ST/Chipman, F.	13-Physics

**NSG 3065 California State University - Northridge 1301**  
Study of rolling element dynamic interactions with separators and raceway paths

<i>Period</i>	<i>Obligations</i>	
05/15/75-10/14/79	FY80:	TOTAL: \$119,980
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Nypan, L. J.	LERC/Coe, H. H.	46-Mech Engr

**NSG 5324 California State University - Northridge 1302**  
Analysis of solar maximum mission spectral information

<i>Period</i>	<i>Obligations</i>	
01/15/79-02/14/81	FY80: \$41,237	TOTAL: \$100,500
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Martin, S. F.	GSFC/Donley, J. L.	31-Atmos Sci

**NSG 5330 California State University - Northridge 1303**  
Research of active regions on the solar constant

<i>Period</i>	<i>Obligations</i>	
02/01/79-12/31/81	FY80: \$7,371	TOTAL: \$18,494
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Chapman, G. A.	GSFC/Donley, J. L.	31-Atmos Sci

**NSG 5333 California State University - Northridge 1304**  
Broad spectrum of magnetic, velocity and spectral data

<i>Period</i>	<i>Obligations</i>	
02/01/79-02/28/81	FY80: \$40,441	TOTAL: \$66,523
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Chapman, G. A.	GSFC/Donley, J. L.	31-Atmos Sci

**NSG 7456 California State University - Northridge 1305**  
Magnetic and velocity field of faculae in collaboration with OSO-1

<i>Period</i>	<i>Obligations</i>	
06/01/78-09/30/79	FY80:	TOTAL: \$13,153
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Chapman, G.	HD-ST/Bohlin, J. D.	13-Physics

**NCC 2-31 De Anza College 1306**  
Optimization of an interactive distributive computer network for planetary and infrared scientific research applications

<i>Period</i>	<i>Obligations</i>	
10/01/79-09/30/81	FY80: \$65,755	TOTAL: \$65,755
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Frederick, V.	ARC/Lum, H.	49-Engr, NEC
Lum, H.		
Bar-gadda, B.		

**NCA 2-283801 Harvey Mudd College 1307**  
Solutions to operational problems encountered in the application of laser diagnostic systems to helicopter rotors

<i>Period</i>	<i>Obligations</i>	
05/30/78-08/31/80	FY80: \$5,000	TOTAL: \$49,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Williams, H.	ARC/Luebs, A. B.	41-Aero Engr
	ARC/Orloff, K. L.	

**NCC 2-90 Harvey Mudd College 1308**  
Helicopter automatic pilot performance in adverse wind conditions

<i>Period</i>	<i>Obligations</i>	
09/01/80-02/28/81	FY80: \$17,010	TOTAL: \$17,010
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Clary, G. R.	ARC/Bull, J. G.	41-Aero Engr

**NCA 2-280001 Hastings College of Law 1309**  
A joint venture between the NASA-ARC and the Hastings College of Law to encourage and support basic, exploratory and applied legal research of mutual benefit to the parties

<i>Period</i>	<i>Obligations</i>	
09/25/80-09/25/81	FY80: \$70,000	TOTAL: \$70,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Henke, D. F.	ARC/Glazer, J. H.	99-Multi-Discip
	ARC/Brekke, D. G.	

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**NCA 2-280001 Hastings College of Law 1310**  
A joint venture to consolidate law library collections and produce for mutual use and benefit administrative law practice manuals  
*Period* *Obligations*  
09/25/78-09/25/80 FY80: \$44,505 TOTAL: \$171,205  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Wolcott, T. ARC/Glazer, J. H. 99-Multi-Discip

**NSG 2341 Humboldt State University 1311**  
Application of remote sensing technology in northern California  
*Period* *Obligations*  
10/01/78-10/30/80 FY80: \$31,000 TOTAL: \$106,213  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Fox, I. ARC/Norman, S. M. 39-Env Sci, NFC

**NSG 7566 Pomona College 1312**  
Viking inorganic chemical analysis experiment: Data analysis and laboratory simulations  
*Period* *Obligations*  
03/01/79-09/01/81 FY80: \$95,974 TOTAL: \$171,726  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Baird, A. K. HD-SI/Quaide, W. L. 32-Geological Sci  
HD-SI/Boyce, J. M.

**NAG 8-356 San Diego State University 1313**  
Proposal to observe with the High Energy Astronomical Observatory-B  
*Period* *Obligations*  
06/27/80-06/26/81 FY80: \$7,499 TOTAL: \$7,499  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Young, A. MSFC/Swearingen, J. C. 11-Astronomy  
Vanburen, D.

**NAS 9-16143 San Diego State University 1314**  
Research surface trends to Earth's crust  
*Period* *Obligations*  
06/02/80-06/01/81 FY80: \$9,700 TOTAL: \$9,700  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Jiracek, G. R. JSC/Blanchard, D. P. 32-Geological Sci

**NSG 1430 San Diego State University 1315**  
Use of the Chappuis band for determination of modern and historical stratospheric ozone levels  
*Period* *Obligations*  
07/15/77-10/31/81 FY80: \$34,000 TOTAL: \$101,715  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Angione, R. J. LARC/Levine, J. S. 31-Atmos Sci  
Roosen, R. G.

**NAGW 94 San Francisco State University 1316**  
Ternary coordination complexes of metals with 5 foot nucleotides and amino acids in a clay environment  
*Period* *Obligations*  
07/01/80-06/30/81 FY80: \$34,642 TOTAL: \$34,642  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Orenberg, J. B. HD-SB/Devincenzi, D. L. 12-Chemistry

**NCA 2-660001 San Francisco State University 1317**  
Joint use of resources for operation of NASA-Ames consortium office  
*Period* *Obligations*  
10/01/79-09/30/80 FY80: \$86,484 TOTAL: \$86,484  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Eisenberg, L. ARC/Tomberlin, K. A. 99-Multi-Discip  
Heidmann, R. W.

**NCA 2-660006 San Francisco State University 1318**  
Theoretical studies of solar wind dynamics  
*Period* *Obligations*  
09/01/78-08/31/80 FY80: \$18,400 TOTAL: \$44,220  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Kilpatrick, T. ARC/Barnes, A. 13-Physics  
Nerney, S. F.

**NCC 2-25 San Francisco State University 1319**  
Effects of centrifugation on gonadal and adrenocortical steroid in rats  
*Period* *Obligations*  
11/01/79-10/31/80 FY80: \$20,000 TOTAL: \$20,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Kakihana, R. ARC/Oyama, J. 51-Biological Sci  
Butte, J.

**NCC 2-32 San Francisco State University 1320**  
Studies in origin of life research search for extra-terrestrial intelligence  
*Period* *Obligations*  
11/01/79-12/31/80 FY80: \$160,773 TOTAL: \$160,773  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Seeger, C. L. ARC/Billingham, J. 59-Life Sci, NRC  
ARC/Wolfe, J. H.

**NCC 2-95 San Francisco State University 1321**  
Three dimensional solar wind modeling  
*Period* *Obligations*  
09/01/80-08/31/81 FY80: \$8,311 TOTAL: \$8,313  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Nerney, S. F. ARC/Barnes, A. 11-Astronomy

**NSG 7512 San Francisco State University 1322**  
Smectite clays in Mars soil Evidence for their presence and role in Viking biology experiments  
*Period* *Obligations*  
10/01/78-12/31/80 FY80: \$38,130 TOTAL: \$72,362  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Orenberg, J. B. HD-SB/Devincenzi, D. L. 51-Biological Sci

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**NCA 2-675001** San Jose State University 1323  
Computer circled optimization in selection of optimal design parameters of helicopter rotors

<i>Period</i>	<i>Obligations</i>	
10/01/79-09/30/80	FY80: \$20,943	TOTAL: \$20,943
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Linecki, A. G.	ARC/Stroub, R. H.	41-Aero Engr
	ARC/Lemke, L. G.	

**NCA 2-675009** San Jose State University 1330  
Measures of vestibular function and emesis in animal candidates for flight experimentation

<i>Period</i>	<i>Obligations</i>	
07/01/80-06/30/82	FY80: \$14,728	TOTAL: \$14,728
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Fox, R. A.	ARC/Daunton, N. G.	61-Biol Aspects

**NCA 2-675002** San Jose State University 1324  
A self-report method for motion sickness assessment in the squirrel monkey: Its use in habituation and sensory conflict studies

<i>Period</i>	<i>Obligations</i>	
01/01/80-12/31/81	FY80: \$34,277	TOTAL: \$34,277
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ginsberg, R.	ARC/Daunton, N. G.	51-Biological Sci

**NCA 2-675901** San Jose State University 1331  
Joint development of a display software system for unsteady transonic flow field computations

<i>Period</i>	<i>Obligations</i>	
10/01/78-09/30/80	FY80: \$7,391	TOTAL: \$14,391
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Mitchem, J	ARC/Chyu, W. J.	22-Computer Science
Teall, M.		

**NCA 2-675003** San Jose State University 1325  
Early evolution of the cyanophyta

<i>Period</i>	<i>Obligations</i>	
01/21/80-01/20/82	FY80: \$16,312	TOTAL: \$16,312
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Weaver, E. C	ARC/Klein, H. P.	54-Env Biology

**NCA 2-675903** San Jose State University 1332  
Quantitation of readaptation of selected physiological variables following environmental perturbation

<i>Period</i>	<i>Obligations</i>	
01/01/79-12/31/80	FY80: \$19,774	TOTAL: \$39,269
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Holley, D. C.	ARC/Winget, C. M.	51-Biological Sci

**NCA 2-675004** San Jose State University 1326  
Investigation of mitochondria as a means to determine the effects of space weightlessness on the aging process of drosophila

<i>Period</i>	<i>Obligations</i>	
04/01/80-03/31/81	FY80: \$21,253	TOTAL: \$21,253
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Yengoyan, L. S.	ARC/Miquel, J.	12-Chemistry

**NCA 2-675907** San Jose State University 1333  
Population dynamics in small scale microbial ecosystems

<i>Period</i>	<i>Obligations</i>	
07/01/79-06/30/81	FY80: \$9,999	TOTAL: \$17,994
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Haight, R. D.	ARC/Deal, P. H.	51-Biological Sci

**NCA 2-675005** San Jose State University 1327  
Effects of circadian rhythm phase alterations on physiological and psychological variables: Implications to pilot performance

<i>Period</i>	<i>Obligations</i>	
06/01/80-10/15/80	FY80: \$18,148	TOTAL: \$18,148
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Holley, D. C.	ARC/Winget, C. M.	61-Biol Aspects
	ARC/Deroshia, C. W.	

**NCC 2-2** San Jose State University 1334  
A study of planetary meteorology

<i>Period</i>	<i>Obligations</i>	
04/01/79-09/30/80	FY80: \$4,844	TOTAL: \$13,042
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Riegel, C. A.	ARC/Pollack, J. B.	31-Atmos Sci

**NCA 2-675007** San Jose State University 1328  
Stratospheric-mesospheric models

<i>Period</i>	<i>Obligations</i>	
06/02/80-03/31/81	FY80: \$20,044	TOTAL: \$20,044
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Riegel, C. A.	ARC/Whitten, R. C.	31-Atmos Sci
	ARC/Page, W. A.	

**NCC 2-3** San Jose State University 1335  
A study of fiber materials for use in temperature resistant fiber reinforced composites

<i>Period</i>	<i>Obligations</i>	
05/31/79-05/31/81	FY80: \$66,870	TOTAL: \$107,224
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Anderson, R. N.	ARC/Riccitiello, S.R.	47-Materials Engr
	ARC/Goldstein, H.	

**NCA 2-675008** San Jose State University 1329  
Abiotic synthesis: Studies of potential primeval atmospheres and the development of biologically significant molecules

<i>Period</i>	<i>Obligations</i>	
07/01/80-06/30/81	FY80: \$20,000	TOTAL: \$20,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ling, A. C.	ARC/Oyama, V. I.	51-Biological Sci
Mayer, L. A.		
Selter, G.		

**NCC 2-4** San Jose State University 1336  
An investigation of the toxic hazards from burning materials in controlled fires

<i>Period</i>	<i>Obligations</i>	
04/01/79-03/31/81	FY80: \$46,683	TOTAL: \$80,698
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ballard, R. C.	ARC/Cagliostro, D. E.	12-Chemistry

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<b>NCC 2-8</b>	<b>San Jose State University</b>	<b>1337</b>			
Development of superoxidos as an improved oxygen source for breathing apparatus					
<i>Period</i>		<i>Obligations</i>			
06/20/79-06/19/81	FY80: \$55,954	TOTAL: \$100,966			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Spitze, L. A.	ARC/Wydeven, T.	12-Chemistry			
Ballou, E. V.					
Wood, P.					
<b>NCC 2-28</b>	<b>San Jose State University</b>	<b>1338</b>			
Characterization and degradation studies on aromatic polyimides, polyesters and composite resins					
<i>Period</i>		<i>Obligations</i>			
10/01/79-10/31/80	FY80: \$67,900	TOTAL: \$67,900			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Ling, A. C.	ARC/Heimbuch, A. H.	12-Chemistry			
Hsu, M. T.					
<b>NCC 2-34</b>	<b>San Jose State University</b>	<b>1339</b>			
Cooperative research on flight management					
<i>Period</i>		<i>Obligations</i>			
10/01/79-10/31/81	FY80: \$116,687	TOTAL: \$116,687			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Clark, B.	ARC/Wempe, T. E.	59-Life Sci, NEC			
<b>NCC 2-35</b>	<b>San Jose State University</b>	<b>1340</b>			
Simulation technology: Human performance in inflight simulation abstract					
<i>Period</i>		<i>Obligations</i>			
10/01/79-10/31/80	FY80: \$102,330	TOTAL: \$102,330			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Clark, B.	ARC/Stewart, J. D.	69-Psych, NEC			
<b>NCC 2-37</b>	<b>San Jose State University</b>	<b>1341</b>			
Helicopter human factors					
<i>Period</i>		<i>Obligations</i>			
10/01/79-10/31/80	FY80: \$56,478	TOTAL: \$56,478			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Clark, B.	ARC/Hartzell, E. J.	69-Psych, NEC			
	ARC/Huff, E. M.				
<b>NCC 2-53</b>	<b>San Jose State University</b>	<b>1342</b>			
Mineral separation systems					
<i>Period</i>		<i>Obligations</i>			
01/01/80-10/31/80	FY80: \$28,856	TOTAL: \$28,856			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Spitze, L. A.	ARC/Wydeven, T.	12-Chemistry			
<b>NCC 2-56</b>	<b>San Jose State University</b>	<b>1343</b>			
Heat release studies for aircraft materials					
<i>Period</i>		<i>Obligations</i>			
01/01/80-12/31/80	FY80: \$53,998	TOTAL: \$53,998			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Ling, A. C.	ARC/Kourtides, D. A.	12-Chemistry			
	ARC/Gilwee, W. J.				
<b>NCC 2-57</b>	<b>San Jose State University</b>	<b>1344</b>			
New elastomers for improved aircraft tires					
<i>Period</i>		<i>Obligations</i>			
01/01/80-12/31/80	FY80: \$31,658	TOTAL: \$31,658			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Ling, A. C.	ARC/Golub, M. A.	12-Chemistry			
	ARC/Parker, J. A.				
<b>NCC 2-65</b>	<b>San Jose State University</b>	<b>1345</b>			
A study of processing parameters for nonmetallic composites					
<i>Period</i>		<i>Obligations</i>			
03/01/80-09/30/80	FY80: \$17,560	TOTAL: \$17,560			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Ling, A. C.	ARC/Fohlen, G. M.	12-Chemistry			
Holloway, J. G.	ARC/Heimbuch, A. H.				
<b>NCC 2-68</b>	<b>San Jose State University</b>	<b>1346</b>			
One and two dimensional atmospheric computer model and studies					
<i>Period</i>		<i>Obligations</i>			
04/01/80-03/31/81	FY80: \$47,435	TOTAL: \$47,435			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Riegel, C. A.	ARC/Whitten, R. C.	31-Atmos Sci			
	ARC/Toon, O. B.				
<b>NCC 2-72</b>	<b>San Jose State University</b>	<b>1347</b>			
Changes in cortisol and antidiuretic hormone during induced motion sickness in squirrel monkeys					
<i>Period</i>		<i>Obligations</i>			
04/15/80-12/14/80	FY80: \$10,000	TOTAL: \$10,000			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Fox, R. A.	ARC/Suri, K. P.	51-Biological Sci			
<b>NCC 2-73</b>	<b>San Jose State University</b>	<b>1348</b>			
A method for evaluating the transports by mean deviatory motions in a two dimensional model					
<i>Period</i>		<i>Obligations</i>			
05/01/80-05/31/81	FY80: \$54,597	TOTAL: \$54,597			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Riegel, C. A.	ARC/Danielsen, E. F.	31-Atmos Sci			
<b>NCC 2-80</b>	<b>San Jose State University</b>	<b>1349</b>			
A study of the physical properties of composites					
<i>Period</i>		<i>Obligations</i>			
05/01/80-04/30/81	FY80: \$29,998	TOTAL: \$29,998			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Holmstrom, F.	ARC/Mansfield, J.	47-Materials Engr			
<b>NCC 2-81</b>	<b>San Jose State University</b>	<b>1350</b>			
Synthesis, characterization, and formulation of perfluorocarbon ether elastomers					
<i>Period</i>		<i>Obligations</i>			
10/01/80-05/31/81	FY80: \$62,714	TOTAL: \$62,714			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Selter, G.	ARC/Rosser, R. W.	12-Chemistry			
Chen, T.	ARC/Parker, J. A.				
Cheng, C.					

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**NCC 2-83** **San Jose State University** **1351**  
 Determination, state estimation and parameter identification  
*Period* *Obligations*  
 06/01/80-05/31/81 **FY80: \$84,125** **TOTAL: \$84,125**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Wang, J. C. ARC/Duval, R. W. 21-Mathematics

**NSG 2186** **San Jose State University** **1352**  
 Characterization and formulation of fluorocarbon ether elastomers  
*Period* *Obligations*  
 10/01/76-09/30/80 **FY80:** **TOTAL: \$238,023**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Hyer, M. W. ARC/Rosser, R. W. 12-Chemistry  
 Korus, R. A. ARC/Parker, J. A.

**NSG 2239** **San Jose State University** **1353**  
 Coastal zone color scanner surface truth measurements  
*Period* *Obligations*  
 06/01/77-09/30/80 **FY80:** **TOTAL: \$59,975**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Broenkow, W. W. ARC/Wrigley, R. C. 33-Oceanography

**NSG 2305** **San Jose State University** **1354**  
 Applications of X-ray fluorescence spectrometry to water quality assurance programs  
*Period* *Obligations*  
 02/01/78-09/30/80 **FY80: \$8,496** **TOTAL: \$49,394**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Ling, A. C. ARC/Nishioka, K. 39-Env Sci, NEC

**NSG 2339** **San Jose State University** **1355**  
 Changes in cortisol and antidiuretic hormone during induced motion sickness in cats  
*Period* *Obligations*  
 10/01/78-05/31/81 **FY80:** **TOTAL: \$19,598**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Fox, R. A. ARC/Sun, K. P. 61-Biol Aspects

**NSG 2371** **San Jose State University** **1356**  
 Graphite epoxy composite protective coatings  
*Period* *Obligations*  
 01/01/79-01/31/81 **FY80: \$27,588** **TOTAL: \$50,134**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Mayer, L. A. ARC/Fish, R. H. 12-Chemistry

**NSG 2398** **San Jose State University** **1357**  
 Establishment of a sample treatment protocol for virus detection by laser fluorometry  
*Period* *Obligations*  
 07/01/79-10/31/80 **FY80:** **TOTAL: \$21,653**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Funk, G. A. ARC/Johnson, R. D. 39-Env Sci, NEC

**NAG 1-17** **Stanford University** **1358**  
 The annoyance of impulsive helicopter noise  
*Period* *Obligations*  
 12/01/79-11/30/80 **FY80: \$58,700** **TOTAL: \$58,700**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Karamcheti, K. LARC/Powell, C. A. 69-Psych, NEC  
 Ahumada, A. LARC/McCurdy, D. A.

**NAG 1-97** **Stanford University** **1359**  
 Basic research in structural dynamics and control of large flexible space structures  
*Period* *Obligations*  
 08/01/80-09/30/80 **FY80: \$40,000** **TOTAL: \$40,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Cannon, R. H. LARC/Horner, G. C. 42-Astro Engr  
 Bryson, A. E. LARC/Montgomery, R. C.  
 Ashley, H.

**NAG 2-18** **Stanford University** **1360**  
 Analysis and development of gust alleviation systems for small transport aircraft  
*Period* *Obligations*  
 01/01/80-12/31/80 **FY80: \$47,024** **TOTAL: \$47,024**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Shevell, R. S. ARC/Williams, L. J. 41-Aero Engr  
 ARC/Galloway, T. L.

**NAG 2-21** **Stanford University** **1361**  
 An experimental investigation of the behavior of sub-grid scale motions in turbulent shear flow  
*Period* *Obligations*  
 02/01/80-01/31/81 **FY80: \$62,356** **TOTAL: \$62,356**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Cantrell, B. ARC/Chapman, G. T. 41-Aero Engr  
 ARC/Tobak, M.

**NAG 2-29** **Stanford University** **1362**  
 Research and training in computational turbulence flow simulation  
*Period* *Obligations*  
 04/01/80-03/31/81 **FY80: \$85,570** **TOTAL: \$85,570**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Reynolds, W. C. ARC/Peterson, V. L. 41-Aero Engr  
 Moin, P. ARC/Lomax, H.  
 Kim, J. J.

**NAG 2-36** **Stanford University** **1363**  
 Density measurement in air with a saturable absorbing seed gas  
*Period* *Obligations*  
 07/01/80-06/30/81 **FY80: \$24,938** **TOTAL: \$24,938**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Baganoff, D. ARC/McKenzie, R. L. 19-Phys Sci, NEC



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**NAG 2-42** **Stanford University** **1364**  
 The Joint Institute for Aeronautics and Acoustics: Experimental investigation of flow over a single backward facing step  
*Period* *Obligations*  
 05/01/80-04/30/81 **FY80: \$50,000** **TOTAL: \$50,000**  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
 Kline, S. J. ARC/Presley, L. L. 41-Aero Engr  
 Johnston, J. P. ARC/Johnson, D. J.

**NAG 2-43** **Stanford University** **1365**  
 Joint Institute for Aeronautics and Acoustics: Analysis of compressible flow in subsonic diffusers  
*Period* *Obligations*  
 05/01/80-04/30/81 **FY80: \$20,000** **TOTAL: \$20,000**  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
 Karanicheti, K. ARC/Presley, L. L. 41-Aero Engr  
 Kline, S. J. ARC/Lee, G.  
 Ferziger, J. H.

**NAG 2-44** **Stanford University** **1366**  
 Studies on lasers and laser devices  
*Period* *Obligations*  
 04/01/80-03/31/81 **FY80: \$80,000** **TOTAL \$80,000**  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
 Harris, S. E. ARC/McKenzie, R. L. 19-Phys Sci, NEC  
 Siegman, A. E.  
 Young, J. F.

**NAG 2-45** **Stanford University** **1367**  
 Joint Institute for Aeronautics and Acoustics: Application of holography to the study of helicopter rotor flow fields  
*Period* *Obligations*  
 07/01/80-06/30/81 **FY80: \$22,504** **TOTAL: \$22,504**  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
 Baganoff, D. ARC/Yu, Y. H. 41-Aero Engr  
 ARC/Schmitz, F. H.

**NAG 2-62** **Stanford University** **1368**  
 High accuracy heat capacity measurement through the lambda transition of liquid helium  
*Period* *Obligations*  
 09/01/80-08/31/81 **FY80: \$40,000** **TOTAL: \$40,000**  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
 Fairbanks, W. M. ARC/Brooks, W. F. 13-Physics  
 Lipa, J. A. ARC/Carpman, G.

**NAG 3-3** **Stanford University** **1369**  
 Heat transfer and hydrodynamic studies on a curved surface with full-coverage film coolings  
*Period* *Obligations*  
 11/01/79-10/31/80 **FY80: \$84,310** **TOTAL: \$84,310**  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
 Johnston, J. P. LERC/Gaugler, R. E. 46-Mech Engr  
 Kays, W. M.  
 Moffat, R. J.

**NAG 3-63** **Stanford University** **1370**  
 Computing low-thrust transfers to synchronous orbit  
*Period* *Obligations*  
 05/02/80-05/01/81 **FY80: \$41,736** **TOTAL: \$41,736**  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
 Breakwell, J. V. LERC/Spurlock, O. F. 42-Astro Engr

**NAG 8-325** **Stanford University** **1371**  
 A study of the size and composition of interstellar grains  
*Period* *Obligations*  
 03/01/80-02/28/81 **FY80: \$15,563** **TOTAL: \$15,563**  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
 Walker, A. B. MSFC/Jones, J. B. 11-Astronomy

**NAGW 6** **Stanford University** **1372**  
 Neuroscientific and biocybernetic models of relevance for the design and development of intelligent machines  
*Period* *Obligations*  
 07/01/79-10/31/80 **FY80: \$74,935** **TOTAL: \$74,935**  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
 Suppes, P. HD-RT/Gevarter, W. B. 99-Multi-Discip  
 Anliker, J. E. LARC/Woolley, C.

**NAGW 86** **Stanford University** **1373**  
 A comparative study of calculated and observed magnetosheath plasma properties  
*Period* *Obligations*  
 07/01/80-06/30/81 **FY80: \$52,900** **TOTAL: \$52,900**  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
 Spreiter, J. R. HD-ST/Wiskerchen, M. J. 12-Chemistry  
 HD-ST/Schmerling, E. R.

**NAGW 92** **Stanford University** **1374**  
 Research in solar plasma theory  
*Period* *Obligations*  
 07/15/80-07/14/81 **FY80: \$152,000** **TOTAL: \$152,000**  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
 Sturrock, P. A. HD-ST/Birmingham, T. J. 13-Physics  
 HD-ST/Newton, G. P.

**NAS 2-10512** **Stanford University** **1375**  
 Insulin resistance in animals exposed to weightlessness in spaceflight: Effect of exercise training  
*Period* *Obligations*  
 01/17/80-04/30/81 **FY80: \$3,011** **TOTAL: \$3,011**  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
 Reaven, G. M. ARC/Ferandin, J. 51-Biological Sci  
 Mondon, C. E. ARC/Sebesta, P.

**NAS 5-21960** **Stanford University** **1376**  
 Gravity only orbit control subsystem  
*Period* *Obligations*  
 12/21/73-05/30/81 **FY80: \$30,000** **TOTAL: \$261,262**  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
 Debra, D. B. GSFC/Kant, S. 42-Astro Engr



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<b>NAS 8-33234</b>	<b>Stanford University</b>	<b>1391</b>
Theoretical study hard X-ray emissions from Cygnus X-1 using the HEAO-A observational results		
<i>Period</i>	<i>Obligations</i>	
11/20/78-01/27/81	FY80: \$23,741	TOTAL: \$36,740
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>
Wagoner, R. V.	MSFC/Manning, H. S.	11-Astronomy
<b>NAS 8-33796</b>	<b>Stanford University</b>	<b>1392</b>
A preliminary study of a cryogenic equivalence principle experiment on shuttle		
<i>Period</i>	<i>Obligations</i>	
04/30/80-04/29/81	FY80: \$24,635	TOTAL: \$24,635
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>
Everitt, C. W. Worden, P. W.	MSFC/Decher, R. MSFC/Peters, P.	31-Atmos Sci
<b>NAS 9-16050</b>	<b>Stanford University</b>	<b>1393</b>
Cardiovascular effects of weightlessness studied by two dimensional, real-time ultrasound		
<i>Period</i>	<i>Obligations</i>	
01/17/80-05/31/81	FY80: \$62,994	TOTAL: \$62,994
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>
Popp, R.	JSC/Kirby, R.	59-Life Sci, NEC
<b>NASW 2916</b>	<b>Stanford University</b>	<b>1394</b>
Advanced studies in computer visual systems for exploratory vehicles		
<i>Period</i>	<i>Obligations</i>	
03/01/76-09/30/78	FY80:	TOTAL \$89,514
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>
McCarthy, J.	HD-RE/Pontious, C. F.	45-Elec Engr
<b>NASW 3204</b>	<b>Stanford University</b>	<b>1395</b>
Program of research and research internships in telecommunications and information technology		
<i>Period</i>	<i>Obligations</i>	
07/01/78-09/30/81	FY80 \$250,000	TOTAL \$500,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>
Dunn, D. Agnew, C.	HD-ET/Roberson, F. HD-LU/Carter, C. H.	39-Env Sci, NEC
<b>NCA 2-745001</b>	<b>Stanford University</b>	<b>1396</b>
Eigenvector and eigenvalue analysis of finite difference schemes used to solve the Euler equations		
<i>Period</i>	<i>Obligations</i>	
10/01/79-09/30/80	FY80 \$1,445	TOTAL \$8,969
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>
Shevell, R. S.	ARC/Lomax, H.	41-Aero Engr
<b>NCA 2-745002</b>	<b>Stanford University</b>	<b>1397</b>
Numerical solution of steady Navier-Stokes equations		
<i>Period</i>	<i>Obligations</i>	
10/15/79-10/14/80	FY80: \$14,021	TOTAL \$14,021
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>
Schreiber, R. S.	ARC/Warming, R. E. ARC/Mehta, U. B.	21-Mathematics
<b>NCA 2-745004</b>	<b>Stanford University</b>	<b>1398</b>
Stable boundary approximations for difference methods for compressible fluids		
<i>Period</i>	<i>Obligations</i>	
04/01/80-03/31/81	FY80: \$13,538	TOTAL: \$13,538
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>
Oliger, J.	ARC/Beam, R. M.	22-Computer Science
<b>NCA 2-745005</b>	<b>Stanford University</b>	<b>1399</b>
A study of the use of multigrid techniques on the relaxation of steady transonic flows		
<i>Period</i>	<i>Obligations</i>	
06/01/80-05/31/81	FY80: \$13,526	TOTAL: \$13,526
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>
Baganoff, D. Cantwell, B.	ARC/Lomax, H.	41-Aero Engr
<b>NCA 2-745006</b>	<b>Stanford University</b>	<b>1400</b>
Graphic analysis of computed three dimensional viscous flow fields		
<i>Period</i>	<i>Obligations</i>	
06/01/80-09/30/80	FY80: \$4,006	TOTAL: \$4,006
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>
Baganoff, D.	ARC/Deiwert, G. S.	41-Aero Engr
<b>NCA 2-745008</b>	<b>Stanford University</b>	<b>1401</b>
Cosmological and local effects of the variable cosmological constant		
<i>Period</i>	<i>Obligations</i>	
09/15/80-09/14/81	FY80: \$13,000	TOTAL: \$13,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>
Petrosian, V.	ARC/Caroff, L. J.	13-Physics
<b>NCA 2-745709</b>	<b>Stanford University</b>	<b>1402</b>
Glucocorticoid effects on bone formation in vitro		
<i>Period</i>	<i>Obligations</i>	
01/01/77-09/30/80	FY80:	TOTAL: \$28,030
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>
Feldman, D.	ARC/Holton, E. M.	56-Medical Sciences
<b>NCA 2-745802</b>	<b>Stanford University</b>	<b>1403</b>
Renal receptor and simulated weightlessness		
<i>Period</i>	<i>Obligations</i>	
10/01/77-09/30/80	FY80:	TOTAL: \$34,573
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>
Feldman, D.	ARC/Holton, E. M.	56-Medical Sciences
<b>NCA 2-745901</b>	<b>Stanford University</b>	<b>1404</b>
A study of the epitaxial nucleation and growth characteristics of metals on refractory oxide substrates by in-situ transmission electron microscopy		
<i>Period</i>	<i>Obligations</i>	
11/15/78-11/14/80	FY80: \$18,355	TOTAL: \$29,973
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>
Heinemann, K.	ARC/Poppa, H.	47-Materials Engr

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**NCA 2-745906** **Stanford University** **1405**  
Numerical simulation of the turbulent shear layer using the vortex-in-cell method

<i>Period</i>	<i>Obligations</i>	
09/01/79-08/31/81	FY80 \$10,000	TOTAL: \$30,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Buneman, O.	ARC/Leonard, A.	45-Elec Engr
Couet, B.		

**NCA 2-745907** **Stanford University** **1406**  
Nutrient recycling in a closed, synthetic ecosystem: A model for the study of ecosystem control

<i>Period</i>	<i>Obligations</i>	
07/01/79-07/31/80	FY80	TOTAL: \$14,841
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Young, L. Y.	ARC/Silverman, M. P.	59-Life Sci, NEC

**NCA 2-745908** **Stanford University** **1407**  
Catalytic oxidation reactions on group 8 metal particles supported on single crystal

<i>Period</i>	<i>Obligations</i>	
06/01/79-05/31/81	FY80 \$8,356	TOTAL: \$16,712
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Boudart, M.	ARC/Poppa, H.	43-Chem Engr

**NCA 2-745911** **Stanford University** **1408**  
Cardiovascular deconditioning and exercise performance

<i>Period</i>	<i>Obligations</i>	
09/01/79-08/31/81	FY80 \$5,000	TOTAL: \$27,165
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Debusk, R. F.	ARC/Goldwater, D.	51-Biological Sci

**NCA 2-1** **Stanford University** **1409**  
Development of ultrasonic indices for space shuttle passenger selection

<i>Period</i>	<i>Obligations</i>	
04/01/79-03/31/81	FY80 \$50,000	TOTAL: \$100,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Popp, R.	ARC/Sandler, H.	56-Medical Sciences

**NCC 2-10** **Stanford University** **1410**  
Aerothermodynamic heat shield environments

<i>Period</i>	<i>Obligations</i>	
09/15/79-09/14/81	FY80 \$21,385	TOTAL: \$81,385
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bershadler, D.	ARC/Howe, J. T.	42-Astro Engr
	ARC/Nachtsheim, P. R.	

**NCC 2-13** **Stanford University** **1411**  
Experimental studies of rotors

<i>Period</i>	<i>Obligations</i>	
06/01/79-05/31/81	FY80 \$106,428	TOTAL: \$136,515
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Karamcheti, K.	ARC/Robinson, W. R.	41-Aero Engr
Chopra, I.	ARC/Warmbrodt, W. G.	

**NCC 2-15** **Stanford University** **1412**  
A cooperative program in the computation of turbulent flows

<i>Period</i>	<i>Obligations</i>	
07/01/79-06/30/81	FY80: \$76,080	TOTAL: \$101,080
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Reynolds, W. C.	ARC/Rubesin, M. W.	19-Phys Sci, NEC
Ferziger, J. H.	ARC/Leonard, A.	

**NCC 2-18** **Stanford University** **1413**  
Studies in rotor aerodynamics and noise

<i>Period</i>	<i>Obligations</i>	
04/01/79-10/31/80	FY80 \$113,547	TOTAL: \$166,353
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Karamcheti, K.	ARC/Presley, R.	41-Aero Engr
Wright, S. F.		

**NCC 2-21** **Stanford University** **1414**  
Fundamental studies of unsteady turbulent boundary layers

<i>Period</i>	<i>Obligations</i>	
09/01/79-12/31/80	FY80: \$89,783	TOTAL: \$109,783
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Reynolds, W. C.	ARC/Carr, L. W.	41-Aero Engr
Pankh, P.	ARC/McCroskey, W. J.	

**NCC 2-29** **Stanford University** **1415**  
NASA-Ames/Stanford Joint Institute for Aeronautics and Acoustics. Shuttle infrared telescope pointing control system

<i>Period</i>	<i>Obligations</i>	
10/01/79-10/31/80	FY80: \$60,927	TOTAL: \$60,927
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Powell, J. D.	ARC/Lorell, K. R.	42-Astro Engr

**NCC 2-30** **Stanford University** **1416**  
High resolution transmission electron microscope studies of small metal crystallites and surfaces

<i>Period</i>	<i>Obligations</i>	
11/01/79-10/31/80	FY80: \$21,366	TOTAL: \$21,366
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Heinemann, K.	ARC/Axtell, J. O.	13-Physics

**NCC 2-38** **Stanford University** **1417**  
Implantable instrumentation for studies of blood flow distribution

<i>Period</i>	<i>Obligations</i>	
12/01/79-11/30/80	FY80: \$80,000	TOTAL: \$80,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Meindl, J. D.	ARC/Sandler, H.	56-Medical Sciences

**NCC 2-42** **Stanford University** **1418**  
Flow analysis over an advancing rotor blade

<i>Period</i>	<i>Obligations</i>	
10/01/79-10/31/80	FY80: \$24,068	TOTAL: \$24,068
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Karamcheti, K.	ARC/Tauber, M. E.	41-Aero Engr
Archi, R.		

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**NCC 2-44** **Stanford University** **1419**  
 Perceptual problems in aeronautics  
*Period* *Obligations*  
 11/01/79-10/31/80 **FY80: \$85,567** **TOTAL: \$85,567**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Karamcheti, K. ARC/Tanner, T. A. 69-Psych, NEC

**NCC 2-62** **Stanford University** **1426**  
 Stanford/Ames Joint Institute for Aeronautics and Acoustics: Studies of turbulent separation of airfoils and wings  
*Period* *Obligations*  
 10/01/79-10/31/80 **FY80: \$55,000** **TOTAL: \$55,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Karamcheti, K. ARC/Olson, L. E. 41-Aero Engr  
 Wadcock, A. J.

**NCC 2-46** **Stanford University** **1420**  
 An investigation of the performance, application potential, and inherent limitations of the new microanalytical instrument: The auger microprobe  
*Period* *Obligations*  
 02/01/80-10/31/81 **FY80: \$65,979** **TOTAL: \$65,979**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Heinemann, K. ARC/Arnold, J. O. 13-Physics

**NCC 2-66** **Stanford University** **1427**  
 The Fourth International Conference on Photon Correlation Techniques in Fluid Mechanics  
*Period* *Obligations*  
 02/01/80-10/31/80 **FY80: \$45,000** **TOTAL: \$45,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Karamcheti, K. ARC/Chapman, G. T. 19-Phys Sci, NEC

**NCC 2-50** **Stanford University** **1421**  
 Ultra high resolution molecular beam mass spectroscopy with applications to planetary atmospheric molecules  
*Period* *Obligations*  
 01/01/80-12/31/80 **FY80: \$30,000** **TOTAL: \$30,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Byer, R. L. ARC/Chackerians, C. 13-Physics

**NCC 2-70** **Stanford University** **1428**  
 The effect of space flight as simulated by bed rest on drug disposition  
*Period* *Obligations*  
 01/01/80-12/31/80 **FY80: \$80,000** **TOTAL: \$80,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Harrison, D. C. ARC/Sandler, H. 56-Medical Sciences

**NCC 2-51** **Stanford University** **1422**  
 Cardiovascular magnetic measurements  
*Period* *Obligations*  
 01/01/80-12/31/80 **FY80: \$75,000** **TOTAL: \$75,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Harrison, D. C. ARC/Sandler, H. 56-Medical Sciences

**NCC 2-74** **Stanford University** **1429**  
 Stanford/Ames Joint Institute for Aeronautics and Acoustics: Aerodynamic studies relating to short-haul aircraft  
*Period* *Obligations*  
 03/01/80-02/28/81 **FY80: \$40,000** **TOTAL: \$40,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Karamcheti, K. ARC/Dickey, D. 41-Aero Engr  
 Ayoub, A.  
 Levine, H.

**NCC 2-52** **Stanford University** **1423**  
 Biomedical technology transfer  
*Period* *Obligations*  
 01/01/80-12/31/80 **FY80: \$230,000** **TOTAL: \$230,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Harrison, D. C. ARC/Sandler, H. 56-Medical Sciences

**NCC 2-75** **Stanford University** **1430**  
 Stanford/Ames Joint Institute for Aeronautics and Acoustics: Flight effects on jet noise  
*Period* *Obligations*  
 03/01/80-02/28/81 **FY80: \$75,494** **TOTAL: \$75,494**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Karamcheti, K. ARC/Atencio, A. 41-Aero Engr  
 Dash, R. ARC/Hickey, D.  
 Chang, I. D.

**NCC 2-55** **Stanford University** **1424**  
 The research and training activities for the Joint Institute for Aeronautics and Acoustics  
*Period* *Obligations*  
 12/01/79-11/30/80 **FY80: \$124,329** **TOTAL: \$124,329**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Karamcheti, K. ARC/Snyder, C. T. 41-Aero Engr

**NCC 2-59** **Stanford University** **1425**  
 Joint Institute for Aeronautics and Acoustics: Study of trailing edge flows at high Reynolds number  
*Period* *Obligations*  
 12/01/79-11/30/80 **FY80: \$68,492** **TOTAL: \$68,492**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Karamcheti, K. ARC/Marvin, J. G. 41-Aero Engr  
 ARC/Cleary, J.

**NCC 2-76** **Stanford University** **1431**  
 Joint Institute for Aeronautics and Acoustics: Studies of the effects of fields on noise direction  
*Period* *Obligations*  
 03/01/80-02/28/81 **FY80: \$75,000** **TOTAL: \$75,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Karamcheti, K. ARC/Soderman, P. T. 41-Aero Engr  
 Levine, H. ARC/Hickey, D.  
 Koutsoyannis, S.

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**NCC 2-77** **Stanford University** **1432**  
Boundary layers and wakes of oscillating airfoils at subsonic and transonic speeds  
*Period* *Obligations*  
03/01/80-02/28/81 **FY80: \$80,000** **TOTAL: \$80,000**  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Karamcheti, K. ARC/Davis, S. 41-Aero Engr  
Bodapati, S.

**NGL 05-020-014** **Stanford University** **1438**  
Theoretical and experimental radio and radar studies of lunar, planetary ionospheres, atmospheres, and surfaces of Sun and interplanetary medium  
*Period* *Obligations*  
04/30/63-09/30/80 **FY80: \$221,777** **TOTAL: \$3,536,351**  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Eshleman, V. R. HD-SL/Murphy, R. E. 31-Atmos Sci  
HD-ST/Brunk, W. C.

**NCC 2-82** **Stanford University** **1433**  
Photodiagnosics of turbulent flows using laser-induced fluorescence  
*Period* *Obligations*  
10/01/80-09/30/81 **FY80: \$43,459** **TOTAL: \$43,459**  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Bershadar, D. ARC/McKenzie, R. L. 41-Aero Engr

**NGL 05-020-103** **Stanford University** **1439**  
Investigation of laser dynamics, modulation and control by means of intra-cavity time varying perturbation  
*Period* *Obligations*  
05/16/66-03/31/80 **FY80:** **TOTAL: \$1,122,000**  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Harris, S. E. HD-RE/Fitzmaurice, M. W.  
Siegman, A. E. GSFC/McElroy, J. H. 45-Elec Engr  
Young, J. F.

**NCC 2-89** **Stanford University** **1434**  
Joint Institute for Aeronautics and Acoustics: Studies of rotor aeroacoustics  
*Period* *Obligations*  
06/01/80-05/31/82 **FY80: \$520,000** **TOTAL: \$520,000**  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Karamcheti, K. ARC/Presley, L. L. 41-Aero Engr  
Levine, H. ARC/Ahtye, W.

**NGL 05-020-176** **Stanford University** **1440**  
Investigation of space-related whistler propagation phenomena in laboratory plasmas  
*Period* *Obligations*  
03/02/67-06/30/81 **FY80: \$95,000** **TOTAL: \$1,274,800**  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Crawford, F. W. HD-ST/Hedin, A. E. 19-Phys Sci, NEC  
HD-ST/Schmerling, E. R.

**NCC 2-97** **Stanford University** **1435**  
Development of a three dimensional unsteady transonic full potential algorithm with arbitrary geometry capability  
*Period* *Obligations*  
11/01/80-01/15/81 **FY80: \$7,596** **TOTAL: \$7,596**  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Steger, T. ARC/Caradonna, F. X. 41-Aero Engr  
ARC/Morse, H. A.

**NGL 05-020-243** **Stanford University** **1441**  
Refined methods of aeroelastic analysis and optimization  
*Period* *Obligations*  
08/14/67-08/31/82 **FY80: \$36,419** **TOTAL: \$228,974**  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Ashley, H. LARC/Doggett, R. V., Jr. 41-Aero Engr

**NGL 05-020-007** **Stanford University** **1436**  
Guidance and control of flight vehicles  
*Period* *Obligations*  
08/17/72-08/14/82 **FY80: \$136,875** **TOTAL: \$1,684,564**  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Bryson, A. E. ARC/Erzberger, H. 49-Engr, NEC  
ARC/Creer, B. Y.

**NGL 05-020-272** **Stanford University** **1442**  
Theoretical study of the solar atmosphere and the structure of active regions  
*Period* *Obligations*  
06/07/68-09/30/79 **FY80: \$96,196** **TOTAL: \$1,040,196**  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Sturrock, P. A. HD-ST/Bohlin, J. D. 13-Physics

**NGL 05-020-008** **Stanford University** **1437**  
A study of the effects on the Earth's environment of very low frequency radiation into the magnetosphere from electrical transmission lines and ground based very low frequency transmitters  
*Period* *Obligations*  
09/01/61-02/28/81 **FY80: \$285,000** **TOTAL: \$1,925,443**  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Helliwell, R. A. HD-ST/Hedin, A. E. 13-Physics  
HD-ST/Schmerling, E. R.

**NGL 05-020-305** **Stanford University** **1443**  
Evaluation of the cardiovascular system during various circulatory stresses  
*Period* *Obligations*  
09/17/68-11/30/81 **FY80:** **TOTAL: \$1,409,032**  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Harrison, D. C. ARC/Sandler, H. 56-Medical Sciences



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**NSG 2092** **Stanford University** **1458**  
 In vivo determination of bone properties from mechanical measurements  
*Period* *Obligations*  
 07/01/75-10/31/80 **FY80: \$26,000** **TOTAL: \$125,119**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Steele, C. R. ARC/Young, D. R. 56-Medical Sciences

**NSG 2121** **Stanford University** **1459**  
 Preliminary design and computer simulation of a very large Fourier transform processor for the interstellar search system  
*Period* *Obligations*  
 01/01/76-10/31/80 **FY80: \$177,000** **TOTAL: \$241,371**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Peterson, A. M. ARC/Wolfe, J. H. 49-Engr, NEC

**NSG 2203** **Stanford University** **1460**  
 Air cargo in an integrated transportation  
*Period* *Obligations*  
 02/01/77-12/31/80 **FY80: \$22,820** **TOTAL: \$113,017**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Dajani, J. R. ARC/Faye, A. E. 41-Aero Engr

**NSG 2289** **Stanford University** **1461**  
 Applications of cars spectroscopy to turbulence measurements  
*Period* *Obligations*  
 01/01/78-12/31/80 **FY80: \$30,000** **TOTAL: \$96,833**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Byer, R. L. ARC/McKenzie, R. L. 13-Physics

**NSG 2308** **Stanford University** **1462**  
 Dispersion relationships in turbulence with application to noise/turbulence diagnosis  
*Period* *Obligations*  
 03/01/78-02/28/81 **FY80: \$40,000** **TOTAL: \$142,842**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Karamcheti, K. ARC/Horne, C. 41-Aero Engr  
 Koutsoyannis, S. ARC/Hickey, D. H.

**NSG 2359** **Stanford University** **1463**  
 Aerodynamics, aeroelasticity and stability of hang gliders  
*Period* *Obligations*  
 01/01/79-12/31/80 **FY80: \$27,429** **TOTAL: \$52,429**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Ashley, H. ARC/Ciffone, D. L. 41-Aero Engr

**NSG 2392** **Stanford University** **1464**  
 The behavior of sub-grid scale motions in turbulent shear flow  
*Period* *Obligations*  
 07/01/79-09/30/80 **FY80:** **TOTAL: \$22,221**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Cantwell, B. ARC/Chapman, G. T. 41-Aero Engr

**NSG 2422** **Stanford University** **1465**  
 Control of V/STOL aircraft in ground effect  
*Period* *Obligations*  
 08/01/79-08/31/81 **FY80: \$20,000** **TOTAL: \$37,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Debra, D. B. ARC/Franklin, J. A. 41-Aero Engr  
 Bryson, A. E.

**NSG 3124** **Stanford University** **1466**  
 Heat transfer and hydrodynamic studies on a curved surface with full-coverage film cooling  
*Period* *Obligations*  
 10/01/76-10/31/79 **FY80:** **TOTAL: \$212,770**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Johnston, J. P. LERC/Gaugler, R. E. 46-Mech Engr  
 Kays, W. M.  
 Moffat, R. J.

**NSG 4002** **Stanford University** **1467**  
 Theoretical and experimental investigations in the control of aircraft  
*Period* *Obligations*  
 09/01/74-10/30/80 **FY80: \$70,000** **TOTAL: \$400,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Debra, D. B. DFRC/Edwards, J. W. 41-Aero Engr  
 Ashley, H.  
 Bryson, A. E.

**NSG 5131** **Stanford University** **1468**  
 Spectroscopy of cosmic X-ray sources of the solar corona  
*Period* *Obligations*  
 11/15/76-11/30/80 **FY80: \$180,000** **TOTAL: \$705,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Walker, A. B. GSFC/Guidotti, J. 13-Physics  
 Stern, R. A. HD-ST/Bohlin, J. D.  
 Underwood, J. H.

**NSG 5254** **Stanford University** **1469**  
 Stochastic modeling of time-averaged equations for climate dynamics  
*Period* *Obligations*  
 03/15/78-03/14/81 **FY80: \$80,000** **TOTAL: \$250,900**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Spreiter, J. R. GSFC/Halem, M. 31-Atmos Sci

**NSG 5417** **Stanford University** **1470**  
 Determination of interstellar abundances by correlated X-ray and ultraviolet observations  
*Period* *Obligations*  
 10/01/79-05/31/81 **FY80: \$24,200** **TOTAL: \$24,200**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Walker, A. B. GSFC/Boggess, A. 11-Astronomy  
 Stern, R. A.  
 Antiochos, S. K.



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**NSG 7092** **Stanford University** **1471**  
**Energy release in solar flares based on OSO-5 data**  
*Period Obligations*  
 10/01/74-10/31/80 **FY80: \$45,000 TOTAL: \$260,000**  
*Pnn Invest NASA Tech Officer CASE Category*  
 Petrosian, V. HD-ST/Chipman, E. 11-Astronomy

**NSG 7204** **Stanford University** **1472**  
**Theoretical analyses of relativistic gravitational experiments**  
*Period Obligations*  
 10/01/75-09/30/81 **FY80: \$40,100 TOTAL: \$109,785**  
*Pnn Invest NASA Tech Officer CASE Category*  
 Will, C. M. HD-SC/Weiler, E. J. 11-Astronomy  
 HD-SC/Bogges, N. W.

**NSG 7476** **Stanford University** **1473**  
**Investigation of the structure and composition of the International Solar Mission and of fluorescence and self-absorption at low energies in binary X-ray sources using SAS-3 observations**  
*Period Obligations*  
 06/01/78-02/28/80 **FY80: TOTAL: \$21,100**  
*Pnn Invest NASA Tech Officer CASE Category*  
 Walker, A. B. HD-SC/Kaluzionski, L. J. 11-Astronomy  
 Ride, S. K. HD-SC/Fishman, G. J.

**NSG 7538** **Stanford University** **1474**  
**Stereophotogrammetric and stereophotometric analysis of Viking lander imaging data**  
*Period Obligations*  
 04/01/79-09/30/80 **FY80: \$102,689 TOTAL: \$143,347**  
*Pnn Invest NASA Tech Officer CASE Category*  
 Levinthal, E. HD-SL/Boyce, J. M. 32-Geological Sci  
 HD-SL/Quaide, W. L.

**NSG 7552** **Stanford University** **1475**  
**Analysis of coronal flow and wave phenomena during the solar occultation of the Viking Earth radio link**  
*Period Obligations*  
 10/01/78-09/30/80 **FY80: \$47,882 TOTAL: \$91,882**  
*Pnn Invest NASA Tech Officer CASE Category*  
 Tyler, G. L. HD-ST/Chipman, E. 13-Physics

**NSG 7561** **Stanford University** **1476**  
**Reduction and analysis of Viking bistatic radar observations of Mars from the winter 1977/1978 apparition**  
*Period Obligations*  
 03/01/79-03/31/81 **FY80: \$57,344 TOTAL: \$127,344**  
*Pnn Invest NASA Tech Officer CASE Category*  
 Tyler, G. L. HD-SL/Brunk, W. E. 11-Astronomy

**NSG 7619** **Stanford University** **1477**  
**Studies on lasers and laser devices**  
*Period Obligations*  
 04/01/77-03/31/80 **FY80: TOTAL: \$65,000**  
*Pnn Invest NASA Tech Officer CASE Category*  
 Harris, S. E. HD-RT/Schwenk, F. 13-Physics  
 Siegman, A. E. HD-RS/Rubin, B.

**NAG 2-19** **University of California - Berkeley** **1478**  
**A study of methods for improving capacity at major airports**  
*Period Obligations*  
 01/01/80-12/31/80 **FY80: \$30,000 TOTAL: \$30,000**  
*Pnn Invest NASA Tech Officer CASE Category*  
 Kanafani, A. ARC/Faye, A. E. 41-Aero Engr

**NAG 3-88** **University of California - Berkeley** **1479**  
**Coherent conversion of the sunlight spectrum**  
*Period Obligations*  
 07/28/80-07/27/81 **FY80: \$50,000 TOTAL: \$50,000**  
*Pnn Invest NASA Tech Officer CASE Category*  
 Gustafson, T. K. LERC/Anderson, L. M. 13-Physics

**NAG 3-111** **University of California - Berkeley** **1480**  
**First-phase research and conceptual analysis for commercialization of redox energy storage and phosphoric acid fuel cell system**  
*Period Obligations*  
 10/01/80-06/30/81 **FY80: \$189,982 TOTAL: \$189,982**  
*Pnn Invest NASA Tech Officer CASE Category*  
 Sullivan, L. A. LERC/Bollenbacher, G. 99-Multi-Discip

**NAG 5-27** **University of California - Berkeley** **1481**  
**Investigation of the variability in the X-ray emission of extragalactic sources**  
*Period Obligations*  
 03/15/80-03/14/81 **FY80: \$7,000 TOTAL: \$7,000**  
*Pnn Invest NASA Tech Officer CASE Category*  
 Bowyer, C. S. GSFC/Corrigan, J. P. 11-Astronomy

**NAG 5-28** **University of California - Berkeley** **1482**  
**Spectral variability of accreting degenerate dwarfs**  
*Period Obligations*  
 03/15/80-03/14/81 **FY80: \$8,310 TOTAL: \$8,310**  
*Pnn Invest NASA Tech Officer CASE Category*  
 Bowyer, C. S. GSFC/Corrigan, J. P. 11-Astronomy

**NAG 5-55** **University of California - Berkeley** **1483**  
**Study of chromospheric activity in spectroscopic binary systems**  
*Period Obligations*  
 05/01/80-08/31/81 **FY80: \$16,000 TOTAL: \$16,000**  
*Pnn Invest NASA Tech Officer CASE Category*  
 Kuhl, L. GSFC/Bogges, A. 11-Astronomy

**NAG 5-69** **University of California - Berkeley** **1484**  
**Eclipse coverage of selected variable and binary stars**  
*Period Obligations*  
 06/01/80-05/31/81 **FY80: \$9,200 TOTAL: \$9,200**  
*Pnn Invest NASA Tech Officer CASE Category*  
 Bowyer, C. S. GSFC/Bogges, A. 11-Astronomy  
 Basri, G. S.  
 Charles, P.

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**NAG 5-95** University of California - Berkeley 1485  
Research relative to low noise amplifiers for radio astronomy

<i>Period</i>	<i>Obligations</i>	
09/01/80-08/31/81	FY80: \$39,944	TOTAL: \$39,944
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Welch, W. J.	GSFC/Clark, T. A.	45-Elec Engr
	GSFC/Coates, R. J.	

**NAG 8-312** University of California - Berkeley 1491  
Evolution of FE abundance in clusters of galaxies

<i>Period</i>	<i>Obligations</i>	
01/28/80-01/27/81	FY80: \$7,228	TOTAL: \$7,228
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Welsh, W. J.	MSFC/Jones, J. B.	11-Astronomy
	Lea, S. M.	

**NAG 5-103** University of California - Berkeley 1486  
Ultraviolet study of hot stars associated with ring-nebulae

<i>Period</i>	<i>Obligations</i>	
09/01/80-08/31/81	FY80: \$1,725	TOTAL: \$1,725
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Chu, Y. H.	GSFC/Bogges, A.	11-Astronomy

**NAG 8-320** University of California - Berkeley 1492  
Extended gaseous halos of galaxies and gaseous halos of extended radio galaxies

<i>Period</i>	<i>Obligations</i>	
02/01/80-01/31/81	FY80: \$8,000	TOTAL: \$8,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Silk, J. I.	MSFC/Jones, J. B.	11-Astronomy

**NAG 5-117** University of California - Berkeley 1487  
Long term X-ray observations of systems with unusual optical counterparts

<i>Period</i>	<i>Obligations</i>	
10/01/80-09/30/81	FY80: \$4,600	TOTAL: \$4,600
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bowyer, C. S.	GSFC/Corrigan, J. P.	11-Astronomy

**NAG 8-333** University of California - Berkeley 1493  
High resolution X-ray, optical and radio imagery of Parks 0837-12

<i>Period</i>	<i>Obligations</i>	
02/15/80-02/14/81	FY80: \$6,724	TOTAL: \$6,724
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Spinrad, H.	MSFC/Jones, J. B.	11-Astronomy
	Mason, K. O.	
	Bower, S.	

**NAG 8-301** University of California - Berkeley 1488  
Improved positions of heao-1 low energy X-ray sources, an X-ray and optical study of nearby Seyfert 2 and emission line galaxies, and correlation of coronal and chromospheric act with binary period

<i>Period</i>	<i>Obligations</i>	
03/01/80-02/28/81	FY80: \$20,022	TOTAL: \$20,022
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bowyer, C. S.	MSFC/Jones, J. B.	11-Astronomy
	Mason, K. O.	
	Phillips, M. M.	

**NAG 8-336** University of California - Berkeley 1494  
X-ray emission from T Tauri stars

<i>Period</i>	<i>Obligations</i>	
03/01/80-02/28/81	FY80: \$6,500	TOTAL: \$6,500
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kuhi, L. V.	MSFC/Jones, J. B.	11-Astronomy
	Walter, F. M.	

**NAG 8-303** University of California - Berkeley 1489  
Improved positions of HEAO-1 low energy X-ray coronae of bootes

<i>Period</i>	<i>Obligations</i>	
01/28/80-01/27/81	FY80: \$10,000	TOTAL: \$10,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bowyer, C. S.	MSFC/Jones, J. B.	11-Astronomy
	Walter, F. M.	
	Lampton, M.	

**NAG 8-351** University of California - Berkeley 1495  
High Energy Astronomical Observatory-2 guest investigator program: A high resolution study of a very distant rich and luminous cluster of galaxies

<i>Period</i>	<i>Obligations</i>	
06/25/80-06/24/81	FY80: \$7,776	TOTAL: \$7,776
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Silk, J. I.	MSFC/Swearingen, J. C.	11-Astronomy

**NAG 8-311** University of California - Berkeley 1490  
Observation of rich galaxy cluster on high energy astronomical observatory-B guest investigator program

<i>Period</i>	<i>Obligations</i>	
01/21/80-01/20/81	FY80: \$7,964	TOTAL: \$7,964
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Silk, J. I.	MSFC/Jones, J. B.	11-Astronomy
	White, S. D.	

**NAG 8-381** University of California - Berkeley 1496  
An X-ray study of pre-main sequence stars in NGC 2264 with the HRI

<i>Period</i>	<i>Obligations</i>	
09/22/80-09/21/81	FY80: \$7,510	TOTAL: \$7,510
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kuhi, L.	MSFC/Stone, J. F.	11-Astronomy

**NAGW 44** University of California - Berkeley 1497  
The nature of dwarf novae and related systems

<i>Period</i>	<i>Obligations</i>	
03/01/80-02/28/81	FY80: \$14,961	TOTAL: \$14,961
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lampton, M.	HD-SC/Kaluzienski, L. J.	11-Astronomy
	HD-SC/Opp, A. G.	

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<b>NAGW 66</b>	<b>University of California - Berkeley</b>	<b>1498</b>
Microwave and theoretical studies related to the COBE satellite mission		
<i>Period</i>	<i>Obligations</i>	
07/01/80-06/30/81	FY80: \$15,000	TOTAL: \$15,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Smoot, G. F.	HD-SC/Bogges, N. W.	11-Astronomy
	HD-SC/Weiler, E. J.	
<b>NAGW 75</b>	<b>University of California - Berkeley</b>	<b>1499</b>
Theoretical study of auroral arc formation		
<i>Period</i>	<i>Obligations</i>	
06/01/80-05/31/81	FY80: \$105,000	TOTAL: \$105,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hudson, M. K.	HD-ST/Birmingham, T. J.	13-Physics
	HD-ST/Newton, G. P.	
<b>NAS 1-16268</b>	<b>University of California - Berkeley</b>	<b>1500</b>
Definition study for an advanced cosmic ray experiment utilizing the Long Duration Exposure Facility (LDEF)		
<i>Period</i>	<i>Obligations</i>	
07/17/80-10/01/81	FY80: \$60,000	TOTAL: \$60,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Price, P. B.	LARC/Jones, J. L.	11-Astronomy
<b>NAS 2-10499</b>	<b>University of California - Berkeley</b>	<b>1501</b>
Monkey metabolism, body composition and cardiovascular function in weightlessness,		
<i>Period</i>	<i>Obligations</i>	
01/17/80-12/31/80	FY80: \$15,133	TOTAL: \$15,133
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Pace, N.	ARC/Rasmussen, D.	51-Biological Sci
	ARC/Connolly, J.	
<b>NAS 2-10504</b>	<b>University of California - Berkeley</b>	<b>1502</b>
Scale relationships in mammalian metabolism in weightlessness		
<i>Period</i>	<i>Obligations</i>	
01/17/80-12/31/80	FY80: \$15,133	TOTAL: \$15,133
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Pace, N.	ARC/Rasmussen, D.	51-Biological Sci
	ARC/Connolly, J.	
<b>NAS 2-10658</b>	<b>University of California - Berkeley</b>	<b>1503</b>
Metabolic rate and thyroid function in the monkey subjects of the Cosmos 81 mission		
<i>Period</i>	<i>Obligations</i>	
06/01/80-09/30/82	FY80: \$10,000	TOTAL: \$10,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Pace, N.	ARC/Heinrich, M.	51-Biological Sci
<b>NAS 5-20079</b>	<b>University of California - Berkeley</b>	<b>1504</b>
Energetic particles flux experiment for International Sun-Earth Explorer mother and daughter spacecraft		
<i>Period</i>	<i>Obligations</i>	
05/23/74-12/31/81	FY80: \$1,429,290	TOTAL: \$1,429,290
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Anderson, K. A.	GSFC/Kowalski, G. E.	13-Physics
<b>NAS 5-20080</b>	<b>University of California - Berkeley</b>	<b>1505</b>
Quasi-electric fields experiment for ISEE mother/daughter spacecraft		
<i>Period</i>	<i>Obligations</i>	
05/21/74-10/30/79	FY80: \$993,555	TOTAL: \$993,555
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Mozer, F. S.	GSFC/Davis, M. A.	13-Physics
<b>NAS 5-20995</b>	<b>University of California - Berkeley</b>	<b>1506</b>
Isotopic composition of primary cosmic rays H thru FE for ISEE-C spacecraft		
<i>Period</i>	<i>Obligations</i>	
03/19/75-09/30/81	FY80: \$52,000	TOTAL: \$1,560,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Heckman, H. K.	GSFC/Wales, R. O.	13-Physics
	GSFC/Corrigan, J. P.	
<b>NAS 5-22307</b>	<b>University of California - Berkeley</b>	<b>1507</b>
Solar X-ray and interplanetary and solar electrons for the ISEE-C spacecraft		
<i>Period</i>	<i>Obligations</i>	
04/11/75-12/31/83	FY80: \$132,719	TOTAL: \$1,725,719
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Anderson, K. A.	GSFC/Wales, R. O.	32-Geological Sci
	GSFC/Corrigan, J. P.	
<b>NAS 5-24189</b>	<b>University of California - Berkeley</b>	<b>1508</b>
Study on the feasibility of developing three telescopes in the 100-1000A range		
<i>Period</i>	<i>Obligations</i>	
07/19/77-06/30/80	FY80: \$63,752	TOTAL: \$63,752
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bowyer, C. S.	GSFC/Willis, S. E.	11-Astronomy
<b>NAS 5-24445</b>	<b>University of California - Berkeley</b>	<b>1509</b>
Development of instrumentation for an extreme ultraviolet Explorer		
<i>Period</i>	<i>Obligations</i>	
02/28/78-10/02/80	FY80: \$219,686	TOTAL: \$619,679
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bowyer, C. S.	GSFC/Willis, S. E.	11-Astronomy
	GSFC/Townsend, M. R.	
<b>NAS 5-25007</b>	<b>University of California - Berkeley</b>	<b>1510</b>
Microwave and theoretical studies for Cosmic Background Explorer (COBE) satellite		
<i>Period</i>	<i>Obligations</i>	
03/01/78-02/28/81	FY80: \$77,000	TOTAL: \$203,719
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Smoot, G. F.	GSFC/Mather, J. C.	11-Astronomy
	GSFC/Donohoe, M. J.	

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**NAS 5-25070** University of California - Berkeley 1511  
Provide engineering and consulting services to the space telescope instrument science team

<i>Period</i>	<i>Obligations</i>	
05/20/78-01/31/84	FY80: \$36,000	TOTAL: \$86,000
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
King, I.	GSFC/Leckrone, D. S.	11-Astronomy

**NAS 5-25453** University of California - Berkeley 1512  
Plastic track detector study

<i>Period</i>	<i>Obligations</i>	
03/16/79-03/15/80	FY80:	TOTAL: \$29,999
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Price, P. B.	GSFC/Campbell, C. E.	47-Materials Engr

**NAS 5-25770** University of California - Berkeley 1513  
International Sun-Earth Explorers: A data reduction and analysis for the quasi-electric fields experiment

<i>Period</i>	<i>Obligations</i>	
11/01/79-10/31/80	FY80: \$173,863	TOTAL: \$173,863
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Moler, F. S.	GSFC/Corrigan, J. P.	11-Astronomy

**NAS 5-25892** University of California - Berkeley 1514  
Solar X-ray flare experiment for the international solar polar mission

<i>Period</i>	<i>Obligations</i>	
10/01/79-09/30/83	FY80 \$45,000	TOTAL \$47,500
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Anderson, D. A.	GSFC/Porreca, G.	11-Astronomy
Lin, R. P.	GSFC/Chine, T.	

**NAS 5-25958** University of California - Berkeley 1515  
Design, fabrication, assembly and installation of an International Sun-Earth Explorers 3 data box

<i>Period</i>	<i>Obligations</i>	
12/03/79-08/03/80	FY80: \$57,450	TOTAL: \$57,450
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Mozer, F. S.	GSFC/Wales, R. O.	31-Atmos Sci
	GSFC/Corrigan, J. P.	

**NAS 5-25980** University of California - Berkeley 1516  
International Sun-Earth Explorers A and B data reduction and analysis for the energetic particles flux experiment

<i>Period</i>	<i>Obligations</i>	
11/01/79-10/31/80	FY80: \$175,000	TOTAL: \$175,000
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Anderson, K. A.	GSFC/Wales, R. O.	11-Astronomy

**NAS 8-32577** University of California - Berkeley 1517  
Spacelab mission 1 exp 95 far UV observations using Faust instrument on the first Spacelab mission

<i>Period</i>	<i>Obligations</i>	
05/10/77-11/30/81	FY80: \$138,235	TOTAL: \$453,103
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bowyer, C. S.	MSFC/Marmann, R.	11-Astronomy
Lampton, M.		

**NAS 8-33011** University of California - Berkeley 1518  
High energy X-ray observation of clusters of galaxies

<i>Period</i>	<i>Obligations</i>	
06/01/78-06/07/79	FY80:	TOTAL: \$22,675
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Anderson, K. A.	MSFC/Dailey, C. C.	11-Astronomy

**NAS 8-33349** University of California - Berkeley 1519  
A survey and detailed studies of selected systems

<i>Period</i>	<i>Obligations</i>	
03/26/79-03/25/80	FY80:	TOTAL: \$25,000
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bowyer, C. S.	MSFC/Jones, J. B., Jr.	11-Astronomy

**NAS 8-33356** University of California - Berkeley 1520  
The interaction of supernova remnants with interstellar medium

<i>Period</i>	<i>Obligations</i>	
06/12/79-06/11/80	FY80:	TOTAL: \$8,001
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
McKee, C.	MSFC/Jones, J. B., Jr.	11-Astronomy

**NAS 8-33357** University of California - Berkeley 1521  
Spatial distribution of Fe line emission in the Virgo cluster of galaxies

<i>Period</i>	<i>Obligations</i>	
07/02/79-07/01/80	FY80:	TOTAL: \$5,342
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Anderson, K. A.	MSFC/Barnes, J. B.	11-Astronomy
Lea, S. M.		

**NAS 9-14565** University of California - Berkeley 1522  
Study development of improved photointerpretative techniques to wheat identification

<i>Period</i>	<i>Obligations</i>	
05/15/75-11/14/80	FY80: \$270,000	TOTAL: \$1,476,203
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Colwell, R. N.	JSC/Brown, D.	39-Env Sci, NEC

**NAS 9-15987** University of California - Berkeley 1523  
Reformat and documentation of a survey planning model

<i>Period</i>	<i>Obligations</i>	
10/02/79-09/30/80	FY80: \$26,200	TOTAL: \$26,200
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wensel, L. C.	JSC/Hancock, K. J.	39-Env Sci, NFC

**NCA 2-50001** University of California - Berkeley 1524  
Influence of fluid rheology and air resistance on the behavior of liquid jets and drops

<i>Period</i>	<i>Obligations</i>	
10/01/79-12/31/80	FY80:	TOTAL: \$30,000
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Goren, S. L.	ARC/Altman, R. L.	12-Chemistry

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**NCA 2-50002** University of California - Berkeley 1525  
Primitive photobiological mechanisms of salt transport  
*Period* *Obligations*  
10/01/79-09/30/81 FY80: \$22,915 TOTAL: \$22,915  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Packer, L. ARC/Lanyi, J. K. 51-Biological Sci

**NCC 2-86** University of California - Berkeley 1532  
Flight management systems  
*Period* *Obligations*  
06/01/80-11/30/80 FY80: \$19,969 TOTAL: \$19,969  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Stark, L. ARC/Wempe, T. E. 99-Multi-Discip

**NCA 2-50004** University of California - Berkeley 1526  
Climate change and the history of Greenland  
*Period* *Obligations*  
06/01/80-09/01/80 FY80: \$4,252 TOTAL: \$4,252  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Granger, O. ARC/Toon, O. B. 39-Env Sci, NEC

**NGL 05-003-003** University of California - Berkeley 1533  
Study of extraterrestrial life using reflection spectra as a basis  
*Period* *Obligations*  
08/01/80-10/31/80 FY80: \$127,000 TOTAL: \$4,135,081  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Calvin, M. HD-SB/Young, R. S. 32-Geological Sci  
Burlingame, A. L.

**NCA 2-50006** University of California - Berkeley 1527  
Microwave measurement of snow wetness accumulation  
*Period* *Obligations*  
09/01/80-08/31/81 FY80: \$7,000 TOTAL: \$7,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Angelakos, D. ARC/Linlor, W. I. 39-Env Sci, NEC

**NGL 05-003-017** University of California - Berkeley 1534  
Investigation of high energy solar flare radiation and trapped radiation, including balloon-borne and sounding rocket tests of prototype detectors  
*Period* *Obligations*  
04/08/63-01/31/82 FY80: TOTAL: \$1,968,942  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Anderson, K. A. HD-ST/King, J. H. 19-Phys Sci, NEC  
HD-ST/Schmerling, E. R.

**NCA 2-50905** University of California - Berkeley 1528  
Optimal additives to produce anti-misting fuels  
*Period* *Obligations*  
09/15/79-10/31/80 FY80: TOTAL: \$30,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Williams, M. C. ARC/Altman, R. L. 12-Chemistry  
Grens, E. A.

**NGL 05-003-272** University of California - Berkeley 1535  
Research on radiation physics  
*Period* *Obligations*  
03/01/68-02/28/82 FY80: \$5,000 TOTAL: \$1,171,380  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Townes, C. H. HD-SC/Bogges, N. W. 1-Astronomy  
HD-SC/Weiler, E. J.

**NCC 2-36** University of California - Berkeley 1529  
Selected target search for extra-terrestrial intelligence observations using very long base interferometry techniques and pattern recognition studies  
*Period* *Obligations*  
10/16/79-11/15/80 FY80: \$56,666 TOTAL: \$56,666  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Welch, W. J. ARC/Billingham, J. 99-Multi-Discip  
Bowyer, C. S.

**NGL 05-003-404** University of California - Berkeley 1536  
Integrated study of Earth resources in the state of California using remote sensing techniques  
*Period* *Obligations*  
07/13/70-12/31/79 FY80: TOTAL: \$4,093,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Colewell, R. N. HD-ET/Vitale, J. A. 39-Env Sci, NEC  
ARC/Arno, R. D.

**NCC 2-54** University of California - Berkeley 1530  
Irrigated lands assessments for water management  
*Period* *Obligations*  
01/01/80-12/31/80 FY80: \$233,549 TOTAL: \$233,549  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Colwell, R. N. ARC/Bauer, E. H. 19-Phys Sci, NEC

**NGL 05-003-409** University of California - Berkeley 1537  
Lunar sample analysis  
*Period* *Obligations*  
01/26/71-01/31/81 FY80: \$142,704 TOTAL: \$1,114,192  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Reynolds, J. H. JSC/Harris, J. W. 13-Physics

**NCC 2-67** University of California - Berkeley 1531  
Control and modeling of a CELSS (Controlled Ecology Life Support System)  
*Period* *Obligations*  
03/01/80-02/28/81 FY80: \$76,657 TOTAL: \$76,657  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Auslander, D. M. ARC/MacElroy, R. D. 46-Mech Engr  
Spear, R. C.  
Tomizuka, M

**NGL 05-003-497** University of California - Berkeley 1538  
Research in space sciences  
*Period* *Obligations*  
04/05/72-03/31/82 FY80: \$185,000 TOTAL: \$1,985,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Price, P. B. HD-SP/Heninger, L. W. 99-Multi-Discip  
HD-SP/Taylor, T. C.

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**NGR 05-003-239** University of California - Berkeley 1539  
Auroral zone rocket studies of electric fields and precipitating particles  
Period Obligations  
08/26/68-11/30/80 FY80: \$148,000 TOTAL: \$1,423,420  
Prin Invest NASA Tech Officer CASE Category  
Mozer, F. S. GSFC/Guidotti, J. 13-Physics  
Anderson, K. A.

**NGR 05-003-376** University of California - Berkeley 1540  
High resolution studies of cosmic rays and solar particles  
Period Obligations  
04/16/71-10/31/80 FY80: \$125,000 TOTAL: \$878,000  
Prin Invest NASA Tech Officer CASE Category  
Price, P. B. HD-SC/Kaluzienski, L. J. 11-Astronomy  
HD-SC/Opp, A. G.

**NGR 05-003-450** University of California - Berkeley 1541  
Study of X-ray emission from galactic and extragalactic sources with emphasis on soft and ultra-soft wavelengths  
Period Obligations  
05/28/71-11/30/80 FY80: \$150,000 TOTAL: \$1,304,752  
Prin Invest NASA Tech Officer CASE Category  
Bowyer, C. S. GSFC/Guidotti, J. 11-Astronomy  
HD-SC/Roman, N. G.

**NGR 05-003-451** University of California - Berkeley 1542  
Research in aeronautics and air transportation  
Period Obligations  
03/30/71-11/15/80 FY80: \$1,965 TOTAL: \$667,850  
Prin Invest NASA Tech Officer CASE Category  
Holt, M. ARC/Lee, G. 41-Aero Engr

**NGR 05-003-452** University of California - Berkeley 1543  
Infrared spectra of planetary atmospheres  
Period Obligations  
02/18/72-06/30/81 FY80: \$55,000 TOTAL: \$425,384  
Prin Invest NASA Tech Officer CASE Category  
Townes, C. H. HD-SL/Brunk, W. E. 11-Astronomy  
HD-SL/Murphy, R. E.

**NGR 05-003-460** University of California - Berkeley 1544  
The chemistry of living systems  
Period Obligations  
07/21/71-10/31/80 FY80: \$87,553 TOTAL: \$731,303  
Prin Invest NASA Tech Officer CASE Category  
Jukes, J. H. HD-SB/Devincenzi, D. L. 12-Chemistry

**NGR 05-003-511** University of California - Berkeley 1545  
Spectrographic observation of infrared lines  
Period Obligations  
03/01/73-10/31/80 FY80: \$54,043 TOTAL: \$351,215  
Prin Invest NASA Tech Officer CASE Category  
Townes, C. H. ARC/Haughney, L. C. 11-Astronomy

**NGR 05-003-513** University of California - Berkeley 1546  
Heavy ion fragment experiments at the bevatron  
Period Obligations  
10/01/73-09/30/80 FY80: \$129,200 TOTAL: \$959,520  
Prin Invest NASA Tech Officer CASE Category  
Heckman, H. H. HD-SC/Kaluzienski, L. J. 11-Astronomy  
HD-SC/Opp, A. G.

**NGR 05-003-553** University of California - Berkeley 1547  
High energy primary cosmic radiation measured by superconducting magnetic spectrometer  
Period Obligations  
05/10/73-06/30/81 FY80: TOTAL: \$1,850,164  
Prin Invest NASA Tech Officer CASE Category  
Buffington, A. HD-SC/Kaluzienski, L. J. 11-Astronomy

**NGR 05-003-578** University of California - Berkeley 1548  
Theoretical X-ray and gamma-ray astronomy  
Period Obligations  
08/01/73-08/31/81 FY80: \$77,933 TOTAL: \$268,773  
Prin Invest NASA Tech Officer CASE Category  
Silk, J. I. HD-SC/Weiler, E. J. 11-Astronomy  
HD-SC/Roman, N. G.

**NSG 1637** University of California - Berkeley 1549  
Integrated-optics cadmium/telluride electro-optic modulator for the 10 um region  
Period Obligations  
08/01/79-09/30/81 FY80: \$63,320 TOTAL: \$103,320  
Prin Invest NASA Tech Officer CASE Category  
Chiao, R. Y. LARC/Sachse, G. W. 13-Physics

**NSG 3028** University of California - Berkeley 1550  
Techniques for stabilization of lean combustion systems  
Period Obligations  
07/01/74-02/01/79 FY80: TOTAL: \$337,152  
Prin Invest NASA Tech Officer CASE Category  
Daily, J. W. LERC/Marek, C. J. 46-Mech Engr  
Oppenheim, A. K. LERC/Diehl, L. A.  
Sawyer, R. F.

**NSG 3227** University of California - Berkeley 1551  
Study of the mechanism of flashback  
Period Obligations  
10/01/78-10/01/81 FY80: TOTAL: \$122,445  
Prin Invest NASA Tech Officer CASE Category  
Oppenheim, A. K. LERC/Marek, C. J. 41-Aero Engr

**NSG 5256** University of California - Berkeley 1552  
Water quality mapping and location of entrapment zone in San Francisco Bay delta  
Period Obligations  
03/15/78-08/14/79 FY80: TOTAL: \$20,000  
Prin Invest NASA Tech Officer CASE Category  
Colwell, R. N. GSFC/Kim, H. H. 33-Oceanography  
Knight, A. W.

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**NSG 5292** University of California - Berkeley 1553  
Simultaneous X-ray and optical observations  
*Period* *Obligations*  
08/01/78-07/31/79 FY80: TOTAL: \$9,500  
*Prin Invest* NASA Tech Officer CASE Category  
Bowyer, S. GSFC/Kupperian, J. E., Jr. 11-Astronomy

**NSG 5360** University of California - Berkeley 1554  
Ultraviolet observations of stars: A cosmological comparison  
*Period* *Obligations*  
06/01/79-05/31/80 FY80: TOTAL: \$4,267  
*Prin Invest* NASA Tech Officer CASE Category  
Spinrad, H. GSFC/Bogges, A. 11-Astronomy

**NSG 7127** University of California - Berkeley 1555  
Map lunar surface remanent magnetic fields and to develop the theory of solar winds cavity  
*Period* *Obligations*  
03/25/75-02/28/81 FY80: \$63,682 TOTAL: \$310,295  
*Prin Invest* NASA Tech Officer CASE Category  
Anderson, K. A. HD-SL/Quaide, W. L. 39-Env Sci, NEC  
HD-SL/French, B. E.

**NSG 7152** University of California - Berkeley 1556  
Studies of the solar system objects with the new hat creek millimeter wave length radio interferometer  
*Period* *Obligations*  
07/01/75-10/31/80 FY80: \$32,005 TOTAL: \$173,138  
*Prin Invest* NASA Tech Officer CASE Category  
Welch, W. J. HD-SL/Brunk, W. F. 11-Astronomy  
HD-SL/Quaide, W. L.

**NSG 7205** University of California - Berkeley 1557  
Far infrared all-sky survey  
*Period* *Obligations*  
02/01/76-10/31/80 FY80: TOTAL: \$127,500  
*Prin Invest* NASA Tech Officer CASE Category  
Richards, P. L. HD-SC/Bogges, N. W. 11-Astronomy  
HD-SC/Weiler, E. J.

**NSG 7220** University of California - Berkeley 1558  
Remote sensing to selected problems within the state of California  
*Period* *Obligations*  
05/01/76-04/30/83 FY80: \$250,000 TOTAL: \$1,090,000  
*Prin Invest* NASA Tech Officer CASE Category  
Colwell, R. N. HD-ET/Vitale, J. A. 39-Env Sci, NEC

**NSG 7262** University of California - Berkeley 1559  
Primate hemodynamics and metabolism under conditions of weightlessness  
*Period* *Obligations*  
07/01/76-09/30/80 FY80: \$60,000 TOTAL: \$272,641  
*Prin Invest* NASA Tech Officer CASE Category  
Pace, N. HD-SB/Halstead, T. W. 51-Biological Sci

**NSG 7336** University of California - Berkeley 1560  
Gravity, body mass, and composition and metabolic rate  
*Period* *Obligations*  
12/01/76-11/30/80 FY80: \$55,000 TOTAL: \$205,000  
*Prin Invest* NASA Tech Officer CASE Category  
Pace, N. HD-SB/Halstead, T. W. 51-Biological Sci

**NSG 7401** University of California - Berkeley 1561  
Theoretical study of equatorial F region irregularities  
*Period* *Obligations*  
11/01/77-10/31/80 FY80: \$55,000 TOTAL: \$104,874  
*Prin Invest* NASA Tech Officer CASE Category  
Hudson, M. R. HD-ST/Schmerling, E. R. 19-Phys Sci, NEC

**NSG 7455** University of California - Berkeley 1562  
Cosmic microwave background isotropy research  
*Period* *Obligations*  
04/15/78-10/31/79 FY80: TOTAL: \$29,992  
*Prin Invest* NASA Tech Officer CASE Category  
Smoot, G. F. HD-SC/Bogges, N. W. 11-Astronomy  
HD-SC/Roman, N. G.

**NSG 7522** University of California - Berkeley 1563  
Social issues and implications of remote sensing applications: Paradigms of technology transfer  
*Period* *Obligations*  
01/01/79-10/31/80 FY80: \$140,000 TOTAL: \$268,125  
*Prin Invest* NASA Tech Officer CASE Category  
Colwell, R. N. HD-ET/Tuyahov, A. J. 79-Soc Sci, NEC  
Hoos, I. R. HD-ET/Weinstein, R. H.

**NSG 7527** University of California - Berkeley 1564  
A balloon-borne high resolution X- and gamma-ray spectrometer  
*Period* *Obligations*  
02/01/79-10/31/80 FY80: \$28,837 TOTAL: \$52,837  
*Prin Invest* NASA Tech Officer CASE Category  
Lin, R. P. HD-ST/Bohlin, J. D. 13-Physics

**NSG 7592** University of California - Berkeley 1565  
A balloon-borne high resolution X- and gamma-ray spectrometer  
*Period* *Obligations*  
05/01/79-01/31/81 FY80: \$19,989 TOTAL: \$43,989  
*Prin Invest* NASA Tech Officer CASE Category  
Lin, R. P. HD-SC/Kaluzienski, L. J. 11-Astronomy  
Anderson, K. A. HD-SC/Opp, A. G.

**NAS 2-10258** University of California - Davis 1566  
Study of conductivity in modified graphite  
*Period* *Obligations*  
07/16/79-08/30/80 FY80 TOTAL: \$19,071  
*Prin Invest* NASA Tech Officer CASE Category  
Fong, C. Y. ARC/Hansen, C. F. 13-Physics

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**NAS 5-22964** University of California - Davis 1567  
 Nimbus-G experiment team support for Earth radiation budget  
*Period* Obligations  
 02/18/76-08/31/79 FY80: TOTAL: \$62,187  
*Prin Invest* NASA Tech Officer CASE Category  
 Coulson, K. L. GSFC/Nelson, D. 13-Physics

**NCA 2-180901** University of California - Davis 1568  
 Remote measurement of crop moisture stress utilizing the stress degree day concept  
*Period* Obligations  
 10/01/78-09/30/80 FY80: TOTAL: \$15,000  
*Prin Invest* NASA Tech Officer CASE Category  
 Hatfield, J. L. ARC/Millard, J. P. 31-Atmos Sci

**NCA 2-180903** University of California - Davis 1569  
 Wind-tunnel determination of particle to fluid speed for saltating flow  
*Period* Obligations  
 06/15/79-06/15/81 FY80: \$18,500 TOTAL \$37,000  
*Prin Invest* NASA Tech Officer CASE Category  
 White, B. R. ARC/Pollack, J. B. 46-Mech Engr

**NCA 2-180905** University of California - Davis 1570  
 Development of a special purpose system for assessment of 24 hour biorhythm desynchronization and its effects on performance and psychological state  
*Period* Obligations  
 07/01/79-06/30/81 FY80: TOTAL: \$28,800  
*Prin Invest* NASA Tech Officer CASE Category  
 Chapman, L. F. ARC/Winget, C. M. 51-Biological Sci

**NCC 2-20** University of California - Davis 1571  
 Improvement in mechanical properties of low conductivity carbon fibers by impregnating with polymers and metals  
*Period* Obligations  
 09/01/79-12/31/80 FY80: \$36,000 TOTAL: \$51,000  
*Prin Invest* NASA Tech Officer CASE Category  
 Needles, H. L. ARC/Fish, R. H. 12-Chemistry  
 Varma, D. S. ARC/Cagliostro, D. E.

**NCC 2-48** University of California - Davis 1572  
 An analysis of anticipated psychosocial requirements for future space flight  
*Period* Obligations  
 11/01/79-04/20/81 FY80 \$5,965 TOTAL \$5,965  
*Prin Invest* NASA Tech Officer CASE Category  
 Harrison, A. A. ARC/Conners, M. 61-Biol Aspects

**NSG 2256** University of California - Davis 1573  
 Turbulent transport modeling of separating and reattaching shear flow  
*Period* Obligations  
 10/01/77-12/31/80 FY80: \$6,000 TOTAL: \$123,540  
*Prin Invest* NASA Tech Officer CASE Category  
 Launder, B. ARC/Marvin, J. G. 41-Aero Engr  
 Sindir, M.

**NSG 2383** University of California - Davis 1574  
 Correlation of theoretical prediction with tunnel data and flight data on the Advanced Technology Light Twin engine (ATLIT) airplane niobium  
*Period* Obligations  
 03/01/79-02/28/81 FY80: \$1,950 TOTAL: \$3,915  
*Prin Invest* NASA Tech Officer CASE Category  
 Fong, C. Y. ARC/Cooper, D. M. 13-Physics

**NSG 2406** University of California - Davis 1575  
 Matching crop varieties to efficient use of nitrates ammonium and urea for the Controlled Ecology Life Support System (CELSS)  
*Period* Obligations  
 08/01/79-10/31/80 FY80: \$7,832 TOTAL: \$48,563  
*Prin Invest* NASA Tech Officer CASE Category  
 Huffaker, R. C. ARC/Zill, L. P. 51-Biological Sci  
 Ratt, D. W.  
 Qualset, C. O.

**NSG 5092** University of California - Davis 1576  
 Use of remote data in hydrologic engineering models  
*Period* Obligations  
 02/01/76-09/30/80 FY80: TOTAL: \$180,000  
*Prin Invest* NASA Tech Officer CASE Category  
 Algazi, V. R. GSFC/Rango, A. 39-Env Sci, NEC  
 GSFC/Salomonsen, V. V.

**NSG 7493** University of California - Davis 1577  
 Avian embryonic development in hyperdynamic environments  
*Period* Obligations  
 10/01/78-09/30/80 FY80: \$46,000 TOTAL: \$92,000  
*Prin Invest* NASA Tech Officer CASE Category  
 Smith, A. H. HD-SB/Halstead, T. W. 51-Biological Sci  
 Abbott, U. K. HD-SB/Geib, D. S.

**NAGW 93** University of California - Irvine 1578  
 Research in solar plasma theory  
*Period* Obligations  
 06/01/80-05/31/81 FY80: \$76,000 TOTAL: \$76,000  
*Prin Invest* NASA Tech Officer CASE Category  
 Vanhoven, G. HD-ST/Birmingham, T. J. 13-Physics  
 HD-ST/Newton, G. P.

**NAS 2-10522** University of California - Irvine 1579  
 Life science experiment arc 781-127, effect of zero-gravity on biochemical and metabolic properties of skeletal muscle  
*Period* Obligations  
 01/15/80-12/31/80 FY80 \$1,867 TOTAL \$1,867  
*Prin Invest* NASA Tech Officer CASE Category  
 Baldwin, K. M. ARC/Rasmussen, D. N. 51-Biological Sci  
 ARC/Sebesta, P. D.



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**NAS 3-21963** University of California - Irvine 1580  
Development and evaluation of an ion-beam sputter-ventilated  
ventricular catheter  
Period Obligations  
09/27/79-06/13/81 FY80: TOTAL: \$45,463  
Pnn Invest NASA Tech Officer CASE Category  
Foltz, E. L. LERC/Weigand, A. J. 56-Medical Sciences

**NGR 05-041-012** University of California - Irvine 1581  
Diagnosis of preclinical viral illness and prophylaxis against viral  
disease  
Period Obligations  
07/13/71-11/30/80 FY80: \$35,000 TOTAL: \$314,342  
Pnn Invest NASA Tech Officer CASE Category  
Tilles, J. G. ARC/Mandel, A. D. 56-Medical Sciences

**NSG 7208** University of California - Irvine 1582  
gas phase reactions of chlorine and fluorine compound of interest  
for stratospheric chemistry  
Period Obligations  
01/01/76-09/30/80 FY80 \$84,525 TOTAL: \$416,636  
Pnn Invest NASA Tech Officer CASE Category  
Molina, M. J. HD-EB/Seals, R. K., Jr. 31-Atmos Sci  
HD-EB/Tilford, S. G.

**NSG 7375** University of California - Irvine 1583  
Coronal plasma structures  
Period Obligations  
06/01/77-10/31/80 FY80: \$49,958 TOTAL: \$124,958  
Pnn Invest NASA Tech Officer CASE Category  
VanHoven, G. HD-ST/Chipman, F. 13-Physics  
HD-ST/Timothy, A. F.

**NSG 7472** University of California - Irvine 1584  
Research on some properties of nearly perfect crystals at very  
low temperatures  
Period Obligations  
07/01/78-06/30/80 FY80: TOTAL: \$23,397  
Pnn Invest NASA Tech Officer CASE Category  
Wallis, R. F. HD-RT/Whiting, F. E. 13-Physics

**NAG 2-41** University of California - Los Angeles 1585  
Graduate student researchers program simulation  
Period Obligations  
05/01/80-04/30/81 FY80: \$17,385 TOTAL: \$17,385  
Pnn Invest NASA Tech Officer CASE Category  
Karplus, W. J. ARC/Raby, J. S. 22-Computer Science  
ARC/Jacoby, F. A.

**NAG 3-69** University of California - Los Angeles 1586  
Selection and testing of diaphragm materials for high temperature  
pressure transducers  
Period Obligations  
05/15/80-05/14/81 FY80: \$60,280 TOTAL: \$60,280  
Pnn Invest NASA Tech Officer CASE Category  
MacKenzie, J. D. LERC/Barranger, J. P. 47-Materials Engr

**NAG 4-3** University of California - Los Angeles 1587  
Recent studies in cloud physics and their relevance for a better  
understanding of aircraft icing. Work includes literature  
survey, calculation of droplet spray and deposition processes  
Period Obligations  
04/01/80-10/31/80 FY80: \$10,000 TOTAL: \$10,000  
Pnn Invest NASA Tech Officer CASE Category  
Pruppacher, H. R. DFRC/Ehernberger, L. J. 31-Atmos Sci

**NAG 5-112** University of California - Los Angeles 1588  
Observations of selected astronomical emission lines  
Period Obligations  
10/01/80-09/30/81 FY80: \$3,574 TOTAL: \$3,574  
Pnn Invest NASA Tech Officer CASE Category  
Plavec, M. J. GSFC/Corrigan, J. P. 11-Astronomy

**NAG 5-116** University of California - Los Angeles 1589  
Observations of interstellar cloud densities and detection of  
interstellar neutral chlorine  
Period Obligations  
10/01/80-09/30/81 FY80: \$3,000 TOTAL: \$3,000  
Pnn Invest NASA Tech Officer CASE Category  
Jura, M. GSFC/Corrigan, J. P. 11-Astronomy

**NAGW 41** University of California - Los Angeles 1590  
High pressure cosmochemistry applied to major planetary  
interiors  
Period Obligations  
03/01/80-02/28/81 FY80: \$21,441 TOTAL: \$21,441  
Pnn Invest NASA Tech Officer CASE Category  
Stevenson, D. J. HD-SL/Quaide, W. L. 32-Geological Sci  
HD-SL/French, B. M.

**NAGW 74** University of California - Los Angeles 1591  
A three dimensional model of bow shock location and motion  
Period Obligations  
07/01/80-06/30/81 FY80: \$18,856 TOTAL: \$18,856  
Pnn Invest NASA Tech Officer CASE Category  
Holzer, R. F. HD-ST/Hedin, A. E. 19-Phys Sci, NEC  
HD-ST/Schmerling, F. R.

**NAGW 78** University of California - Los Angeles 1592  
Space plasma physics theory and simulation  
Period Obligations  
07/01/80-06/30/81 FY80: \$171,000 TOTAL: \$171,000  
Pnn Invest NASA Tech Officer CASE Category  
Kennel, C. F. HD-ST/Birmingham, T. J. 13-Physics  
HD-ST/Newton, G. P.

**NAGW 80** University of California - Los Angeles 1593  
Theoretical studies of extragalactic grains  
Period Obligations  
10/01/80-09/30/81 FY80: \$33,377 TOTAL: \$33,377  
Pnn Invest NASA Tech Officer CASE Category  
Jura, M. HD-SC/Weiler, E. J. 11-Astronomy  
Ulrich, R. K. HD-SC/Bogges, N. W.

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**NAGW 87** University of California - Los Angeles 1594  
Theoretical studies of the plasma environments of Jupiter and Saturn, their magnetospheres and their satellites

<i>Period</i>	<i>Obligations</i>	
07/01/80-06/30/81	FY80: \$68,484	TOTAL: \$68,484
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Siscoe, G. L.	HD-SL/Murphy, R. E.	31-Atmos Sci
	HD-SL/Brunk, W. E.	

**NAS 5-25772** University of California - Los Angeles 1601  
International Sun-Earth Explorers A and B data reduction and analysis for the magnetic field investigation

<i>Period</i>	<i>Obligations</i>	
11/01/79-10/31/80	FY80: \$336,293	TOTAL: \$336,293
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Russell, C. T.	GSFC/Corrigan, J. P.	11-Astronomy

**NAS 2-9128** University of California - Los Angeles 1595  
Interdisciplinary scientist, Pioneer Venus program

<i>Period</i>	<i>Obligations</i>	
02/09/76-12/31/80	FY80: \$22,900	TOTAL: \$24,659
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kaula, W. H.	ARC/Fimmel, R. O.	11-Astronomy
	ARC/Dyer, J.	

**NAS 8-32571** University of California - Los Angeles 1602  
Tethered sub-satellite study

<i>Period</i>	<i>Obligations</i>	
05/02/77-01/14/79	FY80:	TOTAL: \$35,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Coleman, P. J.	MSFC/Page, M. A.	32-Geological Sci
	MSFC/Siebel, M. P.	

**NAS 2-9131** University of California - Los Angeles 1596  
Interdisciplinary scientist, Pioneer Venus program

<i>Period</i>	<i>Obligations</i>	
02/09/76-10/01/81	FY80:	TOTAL: \$35,642
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Schubert, G.	ARC/Fimmel, R. O.	11-Astronomy
	ARC/Dyer, J.	

**NAS 8-33115** University of California - Los Angeles 1603  
Experiment for materials processing in space entitled ultra pure metals preparation in space

<i>Period</i>	<i>Obligations</i>	
08/07/78-12/07/79	FY80:	TOTAL: \$67,118
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bunshah, P. F.	MSFC/Williams, J. R.	47-Materials Engr
	MSFC/Oran, W. A.	

**NAS 2-9491** University of California - Los Angeles 1597  
Pioneer Venus data analysis of magnetic fields experiment

<i>Period</i>	<i>Obligations</i>	
08/01/77-01/31/81	FY80: \$275,824	TOTAL: \$579,973
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Russell, C. T.	ARC/Fimmel, R. O.	31-Atmos Sci
	ARC/Dyer, J.	

**NAS 8-33353** University of California - Los Angeles 1604  
X-ray imagery of nearby GSO 0241 - 622

<i>Period</i>	<i>Obligations</i>	
06/05/79-06/04/80	FY80:	TOTAL: \$7,990
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Margon, B. H.	MSFC/Jones, J. B., Jr.	11-Astronomy

**NAS 5-20064** University of California - Los Angeles 1598  
Magnetic field investigation for ISEE: mother/ daughter spacecraft

<i>Period</i>	<i>Obligations</i>	
06/05/74-12/30/81	FY80: \$15,200	TOTAL: \$1,030,108
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Russell, C. T.	GSFC/Kowalski, G. E.	13-Physics

**NAS 9-16047** University of California - Los Angeles 1605  
Life science flight experiment. Pulmonary blood flow

<i>Period</i>	<i>Obligations</i>	
01/17/80-05/31/81	FY80: \$10,000	TOTAL: \$10,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wiberg, D. M.	JSC/French, B. O.	59-Life Sci, NEC

**NAS 5-25039** University of California - Los Angeles 1599  
Theory formulation and analysis support for the Dynamics Explorer (DE) project

<i>Period</i>	<i>Obligations</i>	
08/08/78-02/28/83	FY80:	TOTAL: \$10,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Coroniti, F. V.	GSFC/Hoffman, R. A.	13-Physics

**NASW 3416** University of California - Los Angeles 1606  
Support of the Conference on Mathematical Problems of the Thermal and Dynamic State of the Earth

<i>Period</i>	<i>Obligations</i>	
06/15/80-09/30/80	FY80: \$13,999	TOTAL: \$13,999
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Knopoff, L.	HD-ER/Murphy, J. P.	32-Geological Sci
	Jones, G. M.	

**NAS 5-25657** University of California - Los Angeles 1600  
Space telescope/high resolution spectrograph interstellar medium studies

<i>Period</i>	<i>Obligations</i>	
04/25/79-01/31/82	FY80: \$9,060	TOTAL: \$17,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Jura, M.	GSFC/Liberatore, F. J.	11-Astronomy

**NCA 2-390001** University of California - Los Angeles 1607  
Characterization of esterasepeptidases in rat tissues by gel electrophoresis

<i>Period</i>	<i>Obligations</i>	
10/01/79-09/30/81	FY80: \$22,942	TOTAL: \$22,942
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Parlow, A.	ARC/Ellis, S.	51-Biological Sci

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**NCA 2-390002** University of California - Los Angeles 1608  
Numerical solution of transonic flow problems

Period	Obligations	
10/01/79-10/31/80	FY80: \$15,000	TOTAL: \$15,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Osher, S.	ARC/Bailhaus, W. F.	21-Mathematics
Engquist, B.	ARC/Holst, T. L.	

**NGI 05-007-367** University of California - Los Angeles 1615  
Lunar sample analysis

Period	Obligations	
06/30/72-01/31/81	FY80: \$75,000	TOTAL: \$653,570
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wasson, J. T.	JSC/Harris, J. W.	12-Chemistry

**NCA 2-390903** University of California - Los Angeles 1609  
A study of dry-chemical fire-extinguishing mechanisms

Period	Obligations	
09/01/79-10/31/80	FY80:	TOTAL: \$29,579
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Knuth, E. L.	ARC/Altman, R. L.	12-Chemistry

**NGR 05-007-221** University of California - Los Angeles 1616  
Nature and changes of organic matter in deep ocean cores

Period	Obligations	
08/08/69-12/31/80	FY80: \$69,550	TOTAL: \$656,012
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kaplan, I. R.	HD-SB/Devincenzi, D. L.	32-Geological Sci

**NCC 2-7** University of California - Los Angeles 1610  
Composite class fibers with ultra-high modulus

Period	Obligations	
06/01/79-06/01/80	FY:0:	TOTAL: \$26,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
MacKenzie, J. D.	ARC/Riccitiello, S. R.	47-Materials Engr
Wakaki, J.	ARC/Goldstein, H.	

**NGR 05-007-276** University of California - Los Angeles 1617  
Data analysis on the OGO-3 and OGO-4 search coil magnetometers

Period	Obligations	
04/03/70-04/30/79	FY80:	TOTAL: \$180,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Holzer, R. E.	HD-ST/Taylor, W. W.	13-Physics

**NCC 2-64** University of California - Los Angeles 1611  
Vapor-liquid phase separator

Period	Obligations	
03/01/80-10/31/80	FY80: \$22,236	TOTAL: \$22,236
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Frederking, T. H.	ARC/Vorreit., J. W.	46-Mech Engr
	ARC/Pappas, C. C.	

**NGR 05-007-289** University of California - Los Angeles 1618  
Lunar sample analysis

Period	Obligations	
12/29/70-01/31/81	FY80: \$50,810	TOTAL: \$712,709
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kaplan, I. R.	JSC/Harris, J. W.	13-Physics

**NGI 05-007-402** University of California - Los Angeles 1612  
Theoretical evaluation of the internal structures and atmospheres of planets and the Moon

Period	Obligations	
01/01/62-12/31/80	FY80: \$66,213	TOTAL: \$934,290
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kaula, W. M.	HD-SL/Quaide, W. I.	32-Geological Sci
	HD-SL/French, B. E.	

**NGR 05-007-317** University of California - Los Angeles 1619  
Photogeologic interpretation of Mariner Mars 1969 imagery

Period	Obligations	
03/09/71-03/14/81	FY80: \$17,923	TOTAL: \$161,800
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Schubert, G.	HD-SL/Boyce, J. M.	32-Geological Sci
	HD-SL/Quaide, W. L.	

**NGI 05-007-004** University of California - Los Angeles 1613  
Theoretical and experimental investigations of particles and fields in space, including construction of prototype instrumentation

Period	Obligations	
03/01/62-10/01/81	FY80: \$102,000	TOTAL: \$2,887,554
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Coleman, P. J.	HD-ST/Hedin, A. E.	39-Env Sci, NEC
	HD-ST/Schmerling, E. R.	

**NGR 05-007-328** University of California - Los Angeles 1620  
Numerical modeling of the global atmosphere and the world oceans

Period	Obligations	
08/15/71-11/30/80	FY80: \$55,000	TOTAL: \$495,649
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Suarez, J.	GSFC/Halem, M.	31-Atmos Sci

**NGI 05-007-190** University of California - Los Angeles 1614  
Theoretical space plasma physics

Period	Obligations	
06/27/68-09/30/81	FY80: \$96,000	TOTAL: \$689,307
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kennel, C. F.	HD-ST/Glaser, H.	19-Phys Sci, NEC
	HD-ST/Schmerling, E. R.	

**NGR 05-007-329** University of California - Los Angeles 1621  
Elemental variations in genetically related meteorites

Period	Obligations	
04/27/71-01/31/81	FY80: \$88,000	TOTAL: \$514,995
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wasson, J. T.	HD-SL/French, B. M.	32-Geological Sci
	HD-SL/Quaide, W. L.	

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**NGR 05-007-351 University of California - Los Angeles 1622**  
Correlative studies of Apollo 15 and 16 satellite magnetometer data with the Explorer 35 and lunar surface magnetometer data

<i>Period</i>	<i>Obligations</i>	
05/25/72-01/31/81	FY80: \$51,559	TOTAL: \$756,633
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Coleman, P. J.	HD-SL/Quaide, W. L.	32-Geological Sci
	HD-SL/French, B. E.	

**NGR 05-007-447 University of California - Los Angeles 1623**  
Paleobiologic studies of the antiquity and precambrian evolution of life

<i>Period</i>	<i>Obligations</i>	
04/10/73-05/31/81	FY80: \$52,000	TOTAL: \$266,098
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Schopf, J. W.	HD-SB/Devincenzi, D. L.	32-Geological Sci

**NGR 05-007-418 University of California - Los Angeles 1624**  
Utricular influences on visual motor control research

<i>Period</i>	<i>Obligations</i>	
09/01/73-08/31/81	FY80: \$25,000	TOTAL: \$161,023
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Markham, C. H.	ARC/Daunton, N. G.	54-Env Biology

**NSG 1490 University of California - Los Angeles 1625**  
Fundamental studies of methods for structural synthesis

<i>Period</i>	<i>Obligations</i>	
02/01/80-01/31/83	FY80: \$79,283	TOTAL: \$266,699
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Schmit, L. A., Jr	LARC/Sobieski, J.	49-Engr, NEC

**NSG 1578 University of California - Los Angeles 1626**  
Response studies of rotors and rotor blades with applications to aeroelastic tailoring

<i>Period</i>	<i>Obligations</i>	
12/01/78-11/30/80	FY80: \$65,247	TOTAL: \$124,029
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Friedmann, P.	LARC/Hammond, C. E.	41-Aero Engr

**NSG 2290 University of California - Los Angeles 1627**  
Research program in jet/surface interactions

<i>Period</i>	<i>Obligations</i>	
11/01/77-10/31/80	FY80	TOTAL: \$50,000
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Meecham, W. C.	ARC/Ahtye, W.	41-Aero Engr
	ARC/Hckey, D. H.	

**NSG 3116 University of California - Los Angeles 1628**  
Forecast of future aviation fuels

<i>Period</i>	<i>Obligations</i>	
08/01/76-10/01/80	FY80: \$10,834	TOTAL: \$308,660
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Liu, C. Y.	LERC/Friedman, R.	41-Aero Engr

**NSG 3153 University of California - Los Angeles 1629**  
Cryo-coolant helium super conductor interaction

<i>Period</i>	<i>Obligations</i>	
06/01/77-01/15/80	FY80: \$2,272	TOTAL: \$45,272
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Frederking, T. H.	LERC/Burkhart, J. A.	46-Mech Engr
	LERC/Terdan, F. F.	

**NSG 3236 University of California - Los Angeles 1630**  
Investigations of the interaction between a grazing flow over a Helmholtz resonator orifice and the acoustically induced velocity in it

<i>Period</i>	<i>Obligations</i>	
11/14/78-11/19/81	FY80: \$33,000	TOTAL: \$93,352
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Charwat, A. F.	LERC/Rice, E. J.	13-Physics
	LERC/Baumeister, K. J.	

**NSG 4015 University of California - Los Angeles 1631**  
Modeling, identification and control with applications to flight vehicles

<i>Period</i>	<i>Obligations</i>	
02/01/78-01/31/83	FY80: \$63,449	TOTAL: \$190,750
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Balakrishnan, A. V.	DFRC/Edwards, J. W.	41-Aero Engr
	DFRC/Hiff, K. W.	

**NSG 4024 University of California - Los Angeles 1632**  
Models for numerical simulation of gravity waves and clear air turbulence formation

<i>Period</i>	<i>Obligations</i>	
05/01/79-04/30/81	FY80: \$40,586	TOTAL: \$90,586
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wurtele, M. G.	DFRC/Hernberger, L. J.	31-Atmos Sci
	Sharman, R.	

**NSG 5169 University of California - Los Angeles 1633**  
Physical conditions, abundances and chemistry in diffuse interstellar clouds

<i>Period</i>	<i>Obligations</i>	
03/14/77-11/13/80	FY80:	TOTAL: \$10,602
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Jura, M.	GSFC/Kupperian, J. F., Jr	11-Astronomy

**NSG 5190 University of California - Los Angeles 1634**  
Energetic particle precipitation effects on stratospheric and mesospheric composition and dynamics

<i>Period</i>	<i>Obligations</i>	
07/18/77-08/31/80	FY80: \$5,000	TOTAL: \$53,185
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Thorne, R. M.	GSFC/Reed, E. I.	31-Atmos Sci
	Siscoe, G. L.	
	Venkateswaran, S. V.	

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CALIFORNIA (Continued)**

**NSG 5263** University of California - Los Angeles **1635**  
Earth dynamics analyses

<i>Period</i>	<i>Obligations</i>	
03/15/78-04/14/81	FY80: \$69,594	TOTAL: \$198,594
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kaula, W. M.	GSFC/Holweck, E. C.	32-Geological Sci
Shubert, G.	GSFC/Smith, D. F.	

**NSG 7239** University of California - Los Angeles **1642**  
Possible correlations between the interplanetary magnetic field and zodiacal light polarization vectors

<i>Period</i>	<i>Obligations</i>	
06/01/76-06/30/81	FY80:	TOTAL: \$15,275
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Allen, L. H.	HD-SL/Murphy, R. E.	31-Atmos Sci

**NSG 5272** University of California - Los Angeles **1636**  
Problems of mass loss and mass transfer in close binary systems

<i>Period</i>	<i>Obligations</i>	
05/01/78-04/30/81	FY80: \$16,000	TOTAL: \$31,999
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Plavec, M. J.	GSFC/Bogges, A.	11-Astronomy
Keyes, C. K.		

**NSG 7282** University of California - Los Angeles **1643**  
Experimental study of Martian carbonate formation

<i>Period</i>	<i>Obligations</i>	
10/01/76-09/30/78	FY80:	TOTAL: \$41,276
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kieffer, H. H.	HD-SL/Quaide, W. L.	32-Geological Sci
	HD-SL/Boyce, J. M.	

**NSG 5351** University of California - Los Angeles **1637**  
Investigation of the wayside boundary region plasma and magnetic field

<i>Period</i>	<i>Obligations</i>	
05/01/77-10/31/81	FY80 \$29,952	TOTAL: \$60,523
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Siscoe, G. L.	GSFC/Corrigan, J. P.	32-Geological Sci

**NSG 7295** University of California - Los Angeles **1644**  
Analysis of data from the helium vector magnetometers on the Pioneers 10 and 11 spacecraft

<i>Period</i>	<i>Obligations</i>	
10/01/76-09/30/80	FY80: \$90,796	TOTAL: \$375,796
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Coleman, P. J.	HD-SL/Murphy, R. E.	31-Atmos Sci
	HD-ST/Schmerling, F. R.	

**NSG 5358** University of California - Los Angeles **1638**  
Ultraviolet observations of high excitation planetary nebulae

<i>Period</i>	<i>Obligations</i>	
05/09/79-05/08/81	FY80 \$8,134	TOTAL: \$14,234
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Aller, L. H.	GSFC/Bogges, A.	11-Astronomy

**NSG 7315** University of California - Los Angeles **1645**  
Theoretical studies of Moon plasma interactions

<i>Period</i>	<i>Obligations</i>	
02/01/77-01/31/81	FY80: \$64,552	TOTAL: \$187,137
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Schubert, G.	HD-SL/Quaide, W. L.	32-Geological Sci
	HD-SL/French, B. F.	

**NSG 5377** University of California - Los Angeles **1639**  
Observations of interstellar zinc

<i>Period</i>	<i>Obligations</i>	
06/01/79-05/31/81	FY80	TOTAL: \$6,100
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Jura, M.	GSFC/Bogges, A.	11-Astronomy

**NSG 7335** University of California - Los Angeles **1646**  
Rare earths in inclusions from different classes of carbonaceous chondrites

<i>Period</i>	<i>Obligations</i>	
03/01/77-02/28/80	FY80	TOTAL: \$75,295
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Boynnton, W. V.	HD-SL/French, B. M.	32-Geological Sci
	HD-SL/Quaide, W. L.	

**NSG 7052** University of California - Los Angeles **1640**  
Shock processes in terrestrial analogs of porous lunar and meteoritic materials

<i>Period</i>	<i>Obligations</i>	
04/01/74-07/31/80	FY80: \$3,469	TOTAL: \$140,955
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Christie, J. M.	HD-SL/Quaide, W. L.	32-Geological Sci
	HD-SL/French, B. M.	

**NSG 7341** University of California - Los Angeles **1647**  
Physics of astrophysical plasmas

<i>Period</i>	<i>Obligations</i>	
04/01/77-08/31/81	FY80 \$45,000	TOTAL: \$118,437
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kennel, C. F.	HD-SC/Kaluzeński, I. J.	11-Astronomy
	HD-SC/Holt, S. S.	

**NSG 7164** University of California - Los Angeles **1641**  
Dynamical studies of the Venus atmosphere

<i>Period</i>	<i>Obligations</i>	
09/01/75-08/31/81	FY80 \$67,782	TOTAL: \$156,033
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Schubert, G.	HD-SL/Murphy, R. E.	31-Atmos Sci
	HD-SL/Brunk, W. F.	

**NSG 7407** University of California - Los Angeles **1648**  
A three dimensional observational study of the solar five-minute oscillation

<i>Period</i>	<i>Obligations</i>	
10/01/77-03/31/81	FY80:	TOTAL: \$106,000
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ulrich, R. K.	HD-ST/Bohlin, J. D.	13 Physics

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**NSG 7484** University of California - Los Angeles **1649**  
Planetary dynamics  
*Period* *Obligations*  
08/01/78-01/31/82 FY80: \$22,200 TOTAL: \$55,332  
*Prin Invest* *NASA Tech Officer* *C&SF Category*  
Busse, F. W. HD-SL/Quaide, W. L. 32-Geological Sci

**NSG 7489** University of California - Los Angeles **1650**  
Paleobiologic studies of Archean evolution  
*Period* *Obligations*  
06/01/79-05/31/81 FY80: \$20,000 TOTAL: \$175,476  
*Prin Invest* *NASA Tech Officer* *C&SF Category*  
Schopf, J. W. HD-ST/Schmerling, F. R. 32-Geological Sci

**NSG 7581** University of California - Los Angeles **1651**  
Thermal behavior of the Martian north polar region during fall, winter and spring  
*Period* *Obligations*  
03/01/79-09/30/79 FY80 \$1,527 TOTAL \$3,606  
*Prin Invest* *NASA Tech Officer* *C&SF Category*  
Kieffer, H. H. HD-SL/Quaide, W. L. 32-Geological Sci  
HD-SL/Dwornik, S. F.

**NSG 7582** University of California - Los Angeles **1652**  
Viking orbiter combined infrared studies of Mars atmosphere and surface  
*Period* *Obligations*  
03/01/79-09/30/79 FY80 \$667 TOTAL \$6,932  
*Prin Invest* *NASA Tech Officer* *C&SF Category*  
Kieffer, H. H. HD-SL/Quaide, W. L. 32-Geological Sci  
HD-SL/Dwornik, S. F.

**NSG 7583** University of California - Los Angeles **1653**  
Thermal behavior of Martian regional and local features  
*Period* *Obligations*  
03/01/79-09/30/80 FY80 \$90,486 TOTAL \$132,784  
*Prin Invest* *NASA Tech Officer* *C&SF Category*  
Shubert, G. HD-SL/Quaide, W. L. 32-Geological Sci  
HD-SL/Boyce, J. M.

**NSG 7594** University of California - Los Angeles **1654**  
Thermal behavior of the Mars atmosphere  
*Period* *Obligations*  
03/01/79-09/30/79 FY80 TOTAL \$2,457  
*Prin Invest* *NASA Tech Officer* *C&SF Category*  
Martin, T. Z. HD-SL/Murphy, R. F. 31-Atmos Sci  
HD-SL/Brunk, W. F.

**NSG 7616** University of California - Los Angeles **1655**  
Beam-plasma interactions in a large laboratory plasma  
*Period* *Obligations*  
07/01/79-06/30/80 FY80 TOTAL \$50,000  
*Prin Invest* *NASA Tech Officer* *C&SF Category*  
Stenzel, R. L. HD-ST/Schmerling, F. R. 19-Phys Sci, NEC

**NSG 7621** University of California - Los Angeles **1656**  
Studies of circumstellar and interstellar grains  
*Period* *Obligations*  
09/01/79-08/31/80 FY80: TOTAL: \$21,339  
*Prin Invest* *NASA Tech Officer* *C&SF Category*  
Jura, M. HD-SC/Weiler, E. J. 11-Astronomy  
HD-SC/Roman, N. G.

**NAS 2-10536** University of California - Riverside **1657**  
Thermoregulation in primates in the space environment  
*Period* *Obligations*  
01/17/80-04/30/81 FY80: \$32,034 TOTAL: \$32,034  
*Prin Invest* *NASA Tech Officer* *C&SF Category*  
Fuller, C. A. ARC/Ferandin, J. 51-Biological Sci  
ARC/Connolly, J.

**NSR 05-008-022** University of California - Riverside **1658**  
Measurement of neutrons from Sun  
*Period* *Obligations*  
05/16/69-12/31/80 FY80 \$65,000 TOTAL \$584,669  
*Prin Invest* *NASA Tech Officer* *C&SF Category*  
White, R. S. HD-SC/Gilman, D. A. 11-Astronomy

**NAG 1-77** University of California - San Diego **1659**  
Scientific and applications investigations of stratospheric trace gases  
*Period* *Obligations*  
06/04/80-06/03/81 FY80 \$65,174 TOTAL \$65,174  
*Prin Invest* *NASA Tech Officer* *C&SF Category*  
Cicerone, R. J. IARC/Sullivan, F. M. 31-Atmos Sci  
Crutzen, P. J. IARC/Russell, J. M.

**NAG 5-11** University of California - San Diego **1660**  
Research relative to improvements in benchmark stability for precision tilt measurements of crustal dynamics  
*Period* *Obligations*  
02/15/80-02/14/81 FY80 \$40,000 TOTAL \$40,000  
*Prin Invest* *NASA Tech Officer* *C&SF Category*  
Berger, J. GSFC/Patterson, G. C. 32-Geological Sci  
Wyatt, F. GSFC/Carpenter, I. H.

**NAG 5-63** University of California - San Diego **1661**  
A study of extragalactic sources  
*Period* *Obligations*  
06/01/80-05/31/81 FY80: \$8,808 TOTAL: \$8,808  
*Prin Invest* *NASA Tech Officer* *C&SF Category*  
Worrall, D. M. GSFC/Boggess, A. 11-Astronomy  
Peterson, I. F.  
Bruhweiler, F. C.

**NAG 5-105** University of California - San Diego **1662**  
The nonlinear response in a baroclinic model to stationary forcings  
*Period* *Obligations*  
09/15/80-09/14/81 FY80: \$61,500 TOTAL \$61,500  
*Prin Invest* *NASA Tech Officer* *C&SF Category*  
Roads, J. O. GSFC/Shukla, J. 31-Atmos Sci

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**NAG 8-315** University of California - San Diego 1663  
X-ray observations of radio bursting quasars NRA0140 and  
NRA0530 on the High Energy Astronomical Observatory-B guest  
investigator program

<i>Period</i>	<i>Obligations</i>	
02/01/80-01/31/81	FY80: \$9,000	TOTAL: \$9,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Marscher, A. P.	MSFC/Jones, J. B.	11-Astronomy

**NAG 8-340** University of California - San Diego 1664  
X-ray observations of optical absorption-line quasi-stellar objects  
on the High Energy Astronomical Observatory-B guest investigator  
program

<i>Period</i>	<i>Obligations</i>	
03/01/80-02/28/81	FY80: \$6,500	TOTAL: \$6,500
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Burbidge, E. M.	MSFC/Jones, J. B.	11-Astronomy

**NAG 8-377** University of California - San Diego 1665  
IPC observations of 31 selected quasars for determination of  
their average 0.15 5000 keV spectrum 1

<i>Period</i>	<i>Obligations</i>	
09/22/80-09/21/81	FY80: \$6,542	TOTAL: \$6,542
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Worrall, D. M.	MSFC/Stone, J. F.	11-Astronomy

**NAGW 12** University of California - San Diego 1666  
Theoretical work in high energy astrophysics and extragalactic  
astronomy

<i>Period</i>	<i>Obligations</i>	
11/01/79-10/31/80	FY80: \$33,347	TOTAL: \$33,347
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Felten, J. E. Gould, R. J.	HD-SC/Kaluzeński, L. J. HD-SC/Opp, A. G.	11-Astronomy

**NAGW 20** University of California - San Diego 1667  
Mechanism of synthesis of amine, hydroly and dicarboxylic acids  
in carbonaceous chondrites

<i>Period</i>	<i>Obligations</i>	
12/01/79-11/30/80	FY80: \$40,000	TOTAL: \$40,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Miller, S. L.	HD-SB/Devincenzi, D. L.	32-Geological Sci

**NAGW 30** University of California - San Diego 1668  
Radioactive transfer effects in quasi-stellar object emission line  
clouds

<i>Period</i>	<i>Obligations</i>	
02/01/80-01/31/81	FY80: \$24,902	TOTAL: \$24,902
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Canfield, R. C.	HD-SC/Weiler, E. J. HD-SC/Boggett, N. W.	11-Astronomy

**NAGW 45** University of California - San Diego 1669  
Measurements of key biogeochemical gases and theoretical studies  
in atmospheric chemistry

<i>Period</i>	<i>Obligations</i>	
02/01/80-01/31/81	FY80: \$85,950	TOTAL: \$85,950
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Cicerow, R. J.	HD-EB/Toth, R. A. HD-EB/Tilford, S. G.	31-Atmos Sci

**NAGW 73** University of California - San Diego 1670  
Planetary biology and microbial ecology

<i>Period</i>	<i>Obligations</i>	
04/05/80-01/31/81	FY80: \$65,955	TOTAL: \$65,955
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Nealson, K. H.	HD-SB/Devincenzi, D. L.	51-Biological Sci

**NAS 5-22375** University of California - San Diego 1671  
Hard X-ray imaging system study

<i>Period</i>	<i>Obligations</i>	
05/13/75-02/28/79	FY80:	TOTAL: \$316,757
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Tabakoff, W. Hamed, A.	GSFC/Stouffer, C. G.	11-Astronomy

**NAS 5-24463** University of California - San Diego 1672  
Faint object spectrograph for space telescope

<i>Period</i>	<i>Obligations</i>	
09/15/78-02/01/84	FY80: \$6,103,493	TOTAL: \$14,827,486
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Harms, R. J.	GSFC/White, R. A.	11-Astronomy

**NAS 5-25054** University of California - San Diego 1673  
Development of digiton image tubes

<i>Period</i>	<i>Obligations</i>	
05/01/78-10/31/80	FY80: \$44,907	TOTAL: \$439,770
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Beaver, F. A.	GSFC/Shannon, J. L.	11-Astronomy

**NAS 5-25448** University of California - San Diego 1674  
Gamma-ray spectroscopy experiment for the gamma ray  
observatory final definition phase

<i>Period</i>	<i>Obligations</i>	
01/16/79-09/30/80	FY80: \$215,962	TOTAL: \$385,962
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Peterson, L. F.	GSFC/Davis, M. A.	11-Astronomy

**NAS 5-25450** University of California - San Diego 1675  
Remote sensing surface truth cruise of the horizon

<i>Period</i>	<i>Obligations</i>	
01/30/79-09/30/80	FY80: \$5,368	TOTAL: \$125,315
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Austin, R. W.	GSFC/Nelsen, D.	33-Oceanogr

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**NAS 5-26249** University of California - San Diego 1676  
Coastal zone scanner validation studies

<i>Period</i>	<i>Obligations</i>	
07/23/80-09/30/81	FY80: \$40,000	TOTAL: \$40,000
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Austin, R. W.	GSFC/Nelsen, D.	33-Oceanography

**NCA 2-658001** University of California - San Diego 1683  
High deformation-rate extensional rheology of of polymeric anti-misting additives

<i>Period</i>	<i>Obligations</i>	
02/01/80-01/31/81	FY80: \$10,000	TOTAL: \$10,000
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Middleman, S.	ARC/Altman, R. L.	46-Mech Engr

**NAS 8-27974** University of California - San Diego 1677  
Design and development of AGR-4 MeV range gamma ray telescope experiment under the HEAO program

<i>Period</i>	<i>Obligations</i>	
06/22/72-09/30/81	FY80: \$596,000	TOTAL: \$7,991,119
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Peterson, L. E.	MSFC/Stone, J. F.	11-Astronomy

**NGL 05-005-003** University of California - San Diego 1684  
Laboratory and balloon experiments in X-ray and gamma ray astronomy

<i>Period</i>	<i>Obligations</i>	
09/15/62-11/30/80	FY80: \$155,000	TOTAL: \$2,560,752
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Peterson, L. E.	HD-SC/Kaluzienski, L. J.	13-Physics
Pelling, R. M.	HD-SC/Opp, A. G.	

**NAS 8-32984** University of California - San Diego 1678  
Analysis of soft X-ray data

<i>Period</i>	<i>Obligations</i>	
02/01/79-01/31/81	FY80:	TOTAL: \$41,184
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Svestka, Z.	MSFC/DeLoach, A. C.	13-Physics
	MSFC/Snoddy, W. C.	

**NGL 05-005-004** University of California - San Diego 1685  
Theoretical studies in astrophysics

<i>Period</i>	<i>Obligations</i>	
02/04/63-04/01/81	FY80: \$38,482	TOTAL: \$840,843
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Gould, R. J.	HD-SC/Kaluzienski, L. J.	11-Astronomy
	HD-SC/Opp, A. G.	

**NAS 8-33795** University of California - San Diego 1679  
Solar terrestrial observatory science study group

<i>Period</i>	<i>Obligations</i>	
06/23/80-06/22/81	FY80: \$35,000	TOTAL: \$35,000
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Canfield, R. C.	MSFC/Chappell, C. R.	31-Atmos Sci
	MSFC/Fields, S. A.	

**NGL 05-005-007** University of California - San Diego 1686  
Study of geomagnetically trapped particles by Explorer and Injun satellite data, refining particle detectors, detector systems and telemetered-data processing equipment

<i>Period</i>	<i>Obligations</i>	
02/20/64-09/30/80	FY80: \$198,773	TOTAL: \$2,571,364
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
McIlwain, C. E.	HD-ST/Hedin, A. E.	13-Physics
	HD-ST/Schmerling, E. R.	

**NAS 9-16033** University of California - San Diego 1680  
Effect of weightlessness on the fluid physiology of the inner ear

<i>Period</i>	<i>Obligations</i>	
01/17/80-10/31/80	FY80: \$16,448	TOTAL: \$16,448
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ryan, A. F.	JSC/Lintott, J	59-Life Sci, NEC

**NGL 05-009-002** University of California - San Diego 1687  
Studies of the composition and structure of meteorites

<i>Period</i>	<i>Obligations</i>	
10/1/63-02/28/81	FY80: \$53,816	TOTAL: \$806,687
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Arrhenius, G.	HD-SL/Quaide, W. L.	32-Geological Sci
	HD-SL/French, B. M.	

**NAS 9-16037** University of California - San Diego 1681  
Pulmonary functions during weightlessness function during weightlessness

<i>Period</i>	<i>Obligations</i>	
01/17/80-01/16/81	FY80: \$55,801	TOTAL: \$55,801
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
West, J. B.	JSC/French, B.	59-Life Sci, NEC

**NGL 05-009-004** University of California - San Diego 1688  
Research on interaction of meteorites and cosmic rays and consideration of origin and history of meteorites and separation in gas phase at time of

<i>Period</i>	<i>Obligations</i>	
12/19/62-03/14/80	FY80:	TOTAL: \$1,002,694
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Arnold, J. R.	HD-SL/French, B. M.	32-Geological Sci
Fruchter, J. S.	HD-SL/Quaide, W. L.	
Kohl, C. P.		

**NAS 9-16039** University of California - San Diego 1682  
Tissue shifts and muscle function in hormone during weightlessness

<i>Period</i>	<i>Obligations</i>	
01/17/80-05/31/81	FY80: \$21,176	TOTAL: \$21,176
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Morgens, A. R.	JSC/White, T.	59-Life Sci, NEC



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**NGI 05-009-005 University of California - San Diego 1689**  
 Research on general geochemical problems, including meteorite materials, rare gas content of meteorites and separation in gas phase at time of formation of solar system  
*Period* *Obligations*  
 10/31/62-05/31/81 FY80: TOTAL: \$536,253  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Suess, H. F. HD-SL/Quaide, W. L. 19-Phys Sci, NEC

**NGI 05-009-109 University of California - San Diego 1690**  
 In-flight evaluation of weightlessness and gravity on cardio-pulmonary function of man  
*Period* *Obligations*  
 02/17/69-10/31/80 FY80 TOTAL: \$873,139  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 West, J. B. ARC Greenleaf, J. F. 56-Medical Sciences

**NGI 05-009-148 University of California - San Diego 1691**  
 Lunar sample analysis  
*Period* *Obligations*  
 02/11/71-01/21/81 FY80: \$120,000 TOTAL \$1,035,124  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Arnold, J. R. JSC/Harris, J. W. 12-Chemistry

**NGI 05-009-150 University of California - San Diego 1692**  
 Lunar sample analysis  
*Period* *Obligations*  
 02/01/71-01/31/81 FY80: \$180,300 TOTAL \$1,615,622  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Marti, K. HD-ET/Harrison, J. O. 12-Chemistry

**NGR 05-005-005 University of California - San Diego 1693**  
 Study of lunar gamma ray emission  
*Period* *Obligations*  
 09/10/63-05/31/81 FY80: \$93,331 TOTAL \$860,836  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Arnold, J. R. HD-SL/Quaide, W. L. 32-Geological Sci  
 HD-SL/French, B. M.

**NGR 05-005-055 University of California - San Diego 1694**  
 Infrared astronomic observation from high altitude airplane telescope program  
*Period* *Obligations*  
 06/05/73-10/31/80 FY80: \$60,734 TOTAL \$426,014  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Willner, S. P. ARC Haughney, L. C. 11-Astronomy  
 ARC Gillespie, C. M.

**NGR 05-009-110 University of California - San Diego 1695**  
 The structure and evolution of the asteroid belt  
*Period* *Obligations*  
 01/23/70-11/30/81 FY80: \$95,000 TOTAL: \$603,690  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Alfven, H. HD-SL/Murphy, R. F. 11-Astronomy  
 Mendis, D. A. HD-SL/Brunk, W. F.

**NGR 05-009-188 University of California - San Diego 1696**  
 Construction of a 200 channel photometer for use in low light level astronomy  
*Period* *Obligations*  
 05/17/72-12/31/80 FY80: \$24,065 TOTAL: \$588,928  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Mellwam, C. E. HD-SC/Weiler, F. J. 11-Astronomy  
 HD-SC/Bogges, N. W.

**NGR 05-009-246 University of California - San Diego 1697**  
 Geophysical perturbations on satellite geodesy  
*Period* *Obligations*  
 11/01/73-12/31/80 FY80: \$134,521 TOTAL: \$1,077,854  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Berger, J. GSFC/Smith, D. F. 39-Env Sci, NEC  
 Brune, J. N.

**NSG 1641 University of California - San Diego 1698**  
 Ship and satellite bio-optical research in the California light  
*Period* *Obligations*  
 08/01/79-01/31/81 FY80: \$130,241 TOTAL: \$158,638  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Smith, R. C. LARC/Whitlock, C. H. 33-Oceanography  
 LARC/Maddrea, G. I.

**NSG 2376 University of California - San Diego 1699**  
 Three inch dimensional bispectra and the mean rate of transfer of energy in turbulence  
*Period* *Obligations*  
 03/01/79-10/30/80 FY80: TOTAL: \$35,119  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Rosenblatt, M. ARC/Rubens, M. W. 19-Phys Sci, NEC  
 Helland, K. N. ARC/Leonard, A.  
 Lu, K. S.

**NSG 3150 University of California - San Diego 1700**  
 Analysis of interaction between spacecraft and artificially injected particles  
*Period* *Obligations*  
 05/01/77-12/31/79 FY80 TOTAL: \$180,671  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Whipple, E. C., Jr. LERC/Purvis, C. K. 39-Env Sci, NEC  
 Deforest, S. F. LERC/Stevens, N. J.

**NSG 3219 University of California - San Diego 1701**  
 Research on variable density turbulence  
*Period* *Obligations*  
 10/01/78-11/30/80 FY80: \$65,577 TOTAL: \$131,154  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Libby, P. A. LERC/Marek, C. J. 41-Aero Engr  
 Larue, J. C.

**NSG 3296 University of California - San Diego 1702**  
 Studies related to droplet burning at zero g  
*Period* *Obligations*  
 10/01/79-03/30/81 FY80 TOTAL: \$30,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Williams, F. A. LERC/Cochran, T. H. 13-Physics

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<b>NSG 5321</b>	<b>University of California - San Diego</b>	<b>1703</b>
Coronal nonthermal processes		
<i>Period</i>	<i>Obligations</i>	
01/15/79-03/31/81	FY80: \$24,042	TOTAL: \$46,019
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hudson, H. S.	GSFC/Donley, J. L.	31-Atmos Sci
<b>NSG 5322</b>	<b>University of California - San Diego</b>	<b>1704</b>
Solar analysis of the solar-constant monitoring package		
<i>Period</i>	<i>Obligations</i>	
01/15/79-03/31/81	FY80: \$34,457	TOTAL: \$64,892
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hudson, H. S.	GSFC/Donley, J. L.	31-Atmos Sci
<b>NSG 5331</b>	<b>University of California - San Diego</b>	<b>1705</b>
Measurement of vertical crustal motion with superconducting gravimeters		
<i>Period</i>	<i>Obligations</i>	
02/01/79-01/31/81	FY80: \$132,138	TOTAL: \$178,138
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Goodkind, J. M.	GSFC/Holweck, E. C.	19-Phys Sci, NEC
Warburton, R. J.		
<b>NSG 7027</b>	<b>University of California - San Diego</b>	<b>1706</b>
Orbital geochemical data analysis and synthesis		
<i>Period</i>	<i>Obligations</i>	
03/01/74-01/31/81	FY80: \$31,000	TOTAL: \$418,568
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Arnold, J. R.	HD-SL/Quaide, W. L.	32-Geological Sci
	HD-SL/French, B. M.	
<b>NSG 7102</b>	<b>University of California - San Diego</b>	<b>1707</b>
Research on processes controlling the formation and evolution of the small bodies in the solar system		
<i>Period</i>	<i>Obligations</i>	
09/01/74-09/30/80	FY80: \$46,204	TOTAL: \$283,408
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Alfven, H.	HD-SL/Quaide, W. L.	32-Geological Sci
	HD-SL/French, B. M.	
<b>NSG 7121</b>	<b>University of California - San Diego</b>	<b>1708</b>
Carbonaceous chondrites early irradiation and <sup>244</sup> Pu fission records		
<i>Period</i>	<i>Obligations</i>	
02/27/75-01/31/81	FY80: \$80,795	TOTAL: \$268,217
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
MacDougall, J. D.	HD-SL/French, B. M.	32-Geological Sci
	HD-SL/Quaide, W. L.	
<b>NSG 7161</b>	<b>University of California - San Diego</b>	<b>1709</b>
Analysis and interpretation of solar X-ray data from OSO-7		
<i>Period</i>	<i>Obligations</i>	
07/01/75-09/30/80	FY80: \$63,453	TOTAL: \$278,453
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Peterson, L. E.	HD-ST/Chipman, E.	13-Physics
<b>NSG 7294</b>	<b>University of California - San Diego</b>	<b>1710</b>
Preparation of a set of sky maps in hard X-rays from OSO-1 data		
<i>Period</i>	<i>Obligations</i>	
10/01/76-02/28/81	FY80:	TOTAL: \$84,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Rothschild, R. E.	HD-SC/Kaluzienski, L. J.	11-Astronomy
<b>NSG 7377</b>	<b>University of California - San Diego</b>	<b>1711</b>
Ultraviolet spectra of quasars related extra galactic sources, and X-ray sources		
<i>Period</i>	<i>Obligations</i>	
09/15/77-09/14/80	FY80: \$30,422	TOTAL: \$84,622
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Burbidge, M.	HD-SC/Weiler, E. J.	11-Astronomy
	HD-SC/Roman, N. G.	
<b>NSG 7406</b>	<b>University of California - San Diego</b>	<b>1712</b>
Hydrodynamic models of flares		
<i>Period</i>	<i>Obligations</i>	
03/01/78-01/31/81	FY80: \$69,886	TOTAL: \$186,871
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Canfield, R. C.	HD-ST/Chipman, E.	13-Physics
<b>NSG 7541</b>	<b>University of California - San Diego</b>	<b>1713</b>
Theoretical studies in gamma ray line astronomy		
<i>Period</i>	<i>Obligations</i>	
02/01/80-01/31/81	FY80: \$38,500	TOTAL: \$73,500
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lingenfelter, R. E.	HD-SC/Kaluzienski, L. J.	11-Astronomy
	HD-SC/Opp, A. G.	
<b>NSG 7623</b>	<b>University of California - San Diego</b>	<b>1714</b>
The new plasmas and its applications to planetary magnetospheres and the heliosphere		
<i>Period</i>	<i>Obligations</i>	
07/01/79-12/31/80	FY80:	TOTAL: \$60,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Alfven, H.	HD-ST/Schmerling, E. R.	19-Phys Sci, NEC
<b>NSG 9048</b>	<b>University of California - San Diego</b>	<b>1715</b>
Mechanism of compensation for vestibular lesions and integrative functions in control of equilibrium		
<i>Period</i>	<i>Obligations</i>	
01/01/77-04/30/81	FY80: \$36,000	TOTAL: \$182,250
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bullock, T. H.	JSC/Hornick, J. L.	56-Medical Sciences
<b>NSG 9075</b>	<b>University of California - San Diego</b>	<b>1716</b>
In-flight evaluation of weightlessness and gravity on cardiopulmonary function in man		
<i>Period</i>	<i>Obligations</i>	
12/01/78-11/30/80	FY80: \$15,000	TOTAL: \$65,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
West, J. B.	JSC/Hornigan, D. J.	56-Medical Sciences

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**NAS 2-10164** University of California - San Francisco 1717  
Quantitative analysis of selected bone parameters

Period	Obligations	
02/12/79-09/15/80	FY80:	TOTAL: \$44,876
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Arnaud, C	ARC/Souza, K. A.	51-Biological Sci
	ARC/Holton, E. M.	

**NAS 2-10350** University of California - San Francisco 1718  
Bone resorption and calcium absorption in rats during space-flight

Period	Obligations	
09/04/79-08/31/80	FY80: \$6,071	TOTAL: \$16,071
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Cann, C E	ARC/Souza, K. A.	59-Life Sci, NEC

**NAS 9-15887** University of California - San Francisco 1719  
Computerized tomographic determination of spinal bone mineral content

Period	Obligations	
09/15/79-09/14/80	FY80:	TOTAL: \$53,400
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Genant, H. K.	JSC/Alchuler, S. I.	56-Medical Sciences
Cann, C E		

**NAS 9-16027** University of California - San Francisco 1720  
Determination of human 1, 25 dihydroxy vitamin D3 (1, 25 OH D3), calcitonin (CT) and parathormone (PHT) levels during the development of disuse osteoporosis

Period	Obligations	
01/01/80-12/31/81	FY80: \$24,527	TOTAL: \$24,527
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Arnaud, C.	JSC/Alchuler, S. I.	56-Medical Sciences

**NAS 9-16038** University of California - San Francisco 1721  
Life science flight experiment insulin and glucose metabolism in man

Period	Obligations	
01/17/80-10/31/80	FY80: \$13,673	TOTAL: \$13,673
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Searle, D. L.	JSC/White, T. T.	59-Life Sci, NEC

**NCA 2-665001** University of California - San Francisco 1722  
Mechanisms of hormone-tissue interactions in altered gravity states

Period	Obligations	
10/01/79-12/31/80	FY80: \$12,951	TOTAL: \$12,951
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Goldfine, I	ARC/Heinrich, M.	56-Medical Sciences

**NCA 2-665002** University of California - San Francisco 1723  
Exploratory studies of the relationship of gastric activity and other physiological measures to motion sickness

Period	Obligations	
10/01/79-09/30/81	FY80: \$49,446	TOTAL: \$49,446
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kamiya, J	ARC/Cowings, P. S.	56-Medical Sciences

**NCA 2-665003** University of California - San Francisco 1724  
Studies on the localization and interconnections of emetic trigger zones in the central nervous system

Period	Obligations	
01/01/80-12/31/81	FY80: \$23,616	TOTAL: \$23,616
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Snyder, R. L.	ARC/Mehler, W. R.	51-Biological Sci

**NCA 2-665004** University of California - San Francisco 1725  
Evaluation of osteocalcin as the homeostatic control mechanism for mineralization in bone

Period	Obligations	
01/01/80-12/31/81	FY80: \$27,826	TOTAL: \$27,826
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Asling, C. W.	ARC/Callahan, P. X.	51-Biological Sci

**NCA 2-665005** University of California - San Francisco 1726  
Effects of adrenergic agents on vasopressin secretion

Period	Obligations	
04/01/80-03/31/81	FY80: \$5,400	TOTAL: \$5,400
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Reid, I. A.	ARC/Keil, L. C.	51-Biological Sci

**NCA 2-665006** University of California - San Francisco 1727  
Interactions between osmolality and blood volume in the control of vasopressin secretion

Period	Obligations	
06/01/80-05/31/82	FY80: \$10,000	TOTAL: \$10,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ramsay, D. J.	ARC/Keil, L. C.	51-Biological Sci

**NCA 2-665007** University of California - San Francisco 1728  
Exploratory studies of the cardiovascular parameters of motion sickness

Period	Obligations	
07/01/80-06/30/81	FY80: \$18,787	TOTAL: \$18,787
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Naifeh, K.	ARC/Cowings, P. S.	69-Psych, NEC

**NCA 2-665008** University of California - San Francisco 1729  
Calcium kinetics during hypokinesia

Period	Obligations	
07/15/80-07/14/82	FY80: \$25,736	TOTAL: \$25,736
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Cann, C E	ARC/Holton, E. M.	51-Biological Sci

**NCA 2-665006** University of California - San Francisco 1730  
Regulation of adrenal glucocorticoid response to hemorrhage in the conscious dog

Period	Obligations	
06/01/78-12/31/80	FY80:	TOTAL: \$34,672
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Dallman, M. F.	ARC/Keil, L. C.	59-Life Sci, NEC

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**NCA 2-665810 University of California - San Francisco 1731**  
Autogenic-feedback training for vestibular symptomatology:  
Massed vs. distributed training schedules

<i>Period</i>	<i>Obligations</i>	
09/01/78-08/31/80	FY80: \$22,900	TOTAL: \$42,700
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kamiya, J.	ARC/Cowings, P. S.	61-Biol Aspects
Toscano, W. B.		
Johnston, J.		

**NCA 2-665901 University of California - San Francisco 1732**  
Studies on the muscle peptidases and myosin properties after  
freeze-injury, cross reinnervation, immobilization and thyroid  
status

<i>Period</i>	<i>Obligations</i>	
02/01/79-01/31/81	FY80: \$25,428	TOTAL: \$45,358
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Riley, D. A.	ARC/Ellis, S.	51-Biological Sci

**NCA 2-665902 University of California - San Francisco 1733**  
Bone turnover and endocrine status in rats on a model system  
that simulates weightlessness

<i>Period</i>	<i>Obligations</i>	
04/15/79-04/14/81	FY80: \$20,000	TOTAL: \$40,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Arnaud, C.	ARC/Holton, E. M.	51-Biological Sci

**NCA 2-665903 University of California - San Francisco 1734**  
Localization of tripeptidyl aminopeptidase and carbonic anhydrase  
III in rat muscles by light and electron microscopy

<i>Period</i>	<i>Obligations</i>	
06/01/79-05/31/81	FY80: \$20,598	TOTAL: \$40,308
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Riky, D. A.	ARC/Ellis, S.	51-Biological Sci

**NCA 2-665904 University of California - San Francisco 1735**  
Development of computer-controlled studies and a record  
management system for psychophysiological research

<i>Period</i>	<i>Obligations</i>	
05/01/79-04/30/81	FY80: \$12,400	TOTAL: \$21,200
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kamiya, J.	ARC/Cowings, P. S.	69-Psych, NEC
Capparell, J.		

**NCA 2-665905 University of California - San Francisco 1736**  
Quantitative determination of diastolic left ventricular properties  
and dynamic geometry in the dog

<i>Period</i>	<i>Obligations</i>	
07/01/79-06/30/81	FY80: \$9,963	TOTAL: \$12,463
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Glantz, S. A.	ARC/Sandler, H.	56-Medical Sciences

**NCA 2-665906 University of California - San Francisco 1737**  
Ultrastructural studies of ionic transfer through bone cell sheets  
in isolated perfusion culture

<i>Period</i>	<i>Obligations</i>	
07/01/79-06/30/81	FY80: \$21,853	TOTAL: \$21,853
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Arnaud, C.	ARC/Philpott, D.E.	56-Medical Sciences

**NGT 05-029-800 University of California - San Francisco 1738**  
Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
09/01/80-08/31/81	FY80: \$10,000	TOTAL: \$10,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kuntz, I.	ARC/MacElroy, R. D.	51-Biological Sci
	ARC/Billingham, J.	

**NSG 7151 University of California - San Francisco 1739**  
Light energy conversion in halobacterium

<i>Period</i>	<i>Obligations</i>	
07/01/75-09/30/80	FY80: \$49,985	TOTAL: \$269,605
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Stoekemus, W.	HD-SB/Young, R. S.	51-Biological Sci
Bogomolni, R. A.		
Lozier, R. H.		

**NAG 2-20 University of California - Santa Barbara 1740**  
Modeling the relations of land use/land cover to resource  
demands

<i>Period</i>	<i>Obligations</i>	
01/01/80-12/31/80	FY80: \$42,990	TOTAL: \$42,990
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Clayton, C.	ARC/Norman, S.	39-Env Sci, NEC
	ARC/Lozier, D.	

**NAG 2-24 University of California - Santa Barbara 1741**  
Prime agricultural land monitoring and assessment component  
of the California integrated remote sensing system

<i>Period</i>	<i>Obligations</i>	
01/01/80-12/31/80	FY80: \$59,997	TOTAL: \$59,997
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Fstes, J. E.	ARC/Norman, S.	39-Env Sci, NEC
Tinney, L. R.	ARC/Hlavka, C.	

**NAG 2-27 University of California - Santa Barbara 1742**  
Analytical and experimental investigation of liquid double drop  
dynamics: Preliminary design for space shuttle experiments

<i>Period</i>	<i>Obligations</i>	
04/01/80-03/31/81	FY80: \$23,943	TOTAL: \$23,943
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Vanyo, J.	ARC/Brooks, W. F.	13-Physics
	ARC/Lum, H.	

**NAG 2-48 University of California - Santa Barbara 1743**  
Thermodynamics of free electron lasers

<i>Period</i>	<i>Obligations</i>	
05/01/80-11/30/80	FY80: \$21,500	TOTAL: \$21,500
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Colson, W. B.	ARC/McKenzie, R. I.	13-Physics

**NASA'S UNIVERSITY PROGRAM  
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**NAS 9-15509 University of California - Santa Barbara 1744**  
Forest classification and inventory system using LANDSAT, digital terrain, and ground sample data

<i>Period</i>	<i>Obligations</i>	
04/01/78-10/31/80	FY80:	TOTAL: \$108,927
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Strahler, A. H.	JSC/Amsbury, D. L.	32-Geological Sci

**NAS 9-16077 University of California - Santa Barbara 1745**  
Develop a plan to define a program of basic research in utilization and evaluation of information derived from remotely sensed data

<i>Period</i>	<i>Obligations</i>	
02/01/80-03/31/81	FY80: \$83,628	TOTAL: \$83,628
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Estes, J. E.	JSC/MacDonald, R. B.	32-Geological Sci

**NASW 3392 University of California - Santa Barbara 1746**  
Conference on fundamental issues in global ecology

<i>Period</i>	<i>Obligations</i>	
03/01/80-11/30/80	FY80: \$60,372	TOTAL: \$60,372
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Botkin, D. B.	HD-SB/Soffen, G. A.	54-Env Biology

**NCA 2-680805 University of California - Santa Barbara 1747**  
Studies of rotational gas cloud collapse, fragmentation and disk formation

<i>Period</i>	<i>Obligations</i>	
09/01/78-03/31/81	FY80: \$1,980	TOTAL: \$3,410
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Peale, S. J.	ARC/Cassen, P.	13-Physics

**NCC 2-43 University of California - Santa Barbara 1748**  
Proposed university regional applications program work plan FY 1980

<i>Period</i>	<i>Obligations</i>	
11/01/79-10/31/80	FY80: \$40,836	TOTAL: \$40,836
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Estes, J. E.	ARC/Jones, H. W. ARC/Lumb, D. R.	49-Engr. NEC

**NCC 2-63 University of California - Santa Barbara 1749**  
An investigation of the effect of surface impurities on the absorption kinetics of hydrogen chemisorbed iron

<i>Period</i>	<i>Obligations</i>	
04/01/80-03/31/81	FY80: \$48,668	TOTAL: \$48,668
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Shanabarger, M. R.	ARC/Nelson, H. G.	47-Materials Engr

**NCC 5-5 University of California - Santa Barbara 1750**  
Soil moisture detection using Seasat data and radar scatterometers

<i>Period</i>	<i>Obligations</i>	
04/01/79-03/31/81	FY80: \$30,000	TOTAL: \$60,003
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Estes, J. E. Simonett, D. S.	GSFC/Chang, A.	32-Geological Sci

**NGR 05-010-062 University of California - Santa Barbara 1751**  
Planetary geophysics

<i>Period</i>	<i>Obligations</i>	
03/01/73-01/31/81	FY80: \$11,939	TOTAL: \$156,767
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Peale, S. J.	HD-SL/Quaide, W. L.	32-Geological Sci
	HD-SL/French, B.	

**NGT 05-010-800 University of California - Santa Barbara 1752**  
Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
09/01/80-08/31/81	FY80: \$8,700	TOTAL: \$8,700
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Strahler, A. H.	JSC/Graybeal, G. E.	39-Env Sci, NEC

**NSG 2377 University of California - Santa Barbara 1753**  
Use of collateral information to improve LANDSAT classification accuracies

<i>Period</i>	<i>Obligations</i>	
04/01/79-03/31/81	FY80: \$44,126	TOTAL: \$91,726
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Strahler, A. H. Estes, J. E.	ARC/Peterson, D.	39-Env Sci, NEC

**NSG 3256 University of California - Santa Barbara 1754**  
Laser fluorescence studies of the chemical interactions of sodium species with sulfur bearing fuels

<i>Period</i>	<i>Obligations</i>	
03/01/79-09/30/81	FY80: \$40,271	TOTAL: \$75,266
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Steinberg, M. Schofield, K.	LERC/Kohl, F. J. LERC/Stearns, C. A.	12-Chemistry

**NSG 5262 University of California - Santa Barbara 1755**  
Calibration of satellite data for input to distributed parameter hydrologic models

<i>Period</i>	<i>Obligations</i>	
04/01/78-07/31/81	FY80: \$25,258	TOTAL: \$180,232
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Dozier, J.	GSFC/Rango, A. GSFC/Chang, A.	39-Env Sci, NEC

**NSG 7586 University of California - Santa Barbara 1756**  
Magnetization of lunar samples

<i>Period</i>	<i>Obligations</i>	
05/01/79-01/31/81	FY80: \$38,587	TOTAL: \$58,587
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Fuller, M. D.	HD-SL/Quaide, W. L.	32-Geological Sci
	HD-SL/French, B. M.	

**NSG 9020 University of California - Santa Barbara 1757**  
Remanent magnetization of lunar samples

<i>Period</i>	<i>Obligations</i>	
10/31/74-01/31/81	FY80:	TOTAL: \$401,356
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Fuller, M. D.	JSC/Harris, J. W.	19-Phys Sci, NEC

**NASA'S UNIVERSITY PROGRAM  
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<b>NAG 8-352</b>	<b>University of California - Santa Cruz</b>	<b>1758</b>
The relations between optical and X-ray emission from quasars and BL lagertae objects		
<i>Period</i>	<i>Obligations</i>	
06/27/80-06/26/81	FY80: \$6,963	TOTAL: \$6,963
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Miller, J. S.	MSFC/Swearingen, J. C.	11-Astronomy
Blumenthal, G.		
<b>NAS 8-33347</b>	<b>University of California - Santa Cruz</b>	<b>1759</b>
Correlative study of optical and X-ray observations of Seyfert galaxy nuclei		
<i>Period</i>	<i>Obligations</i>	
03/26/79-03/25/80	FY80:	TOTAL: \$1,400
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Davies, R. L.	MSFC/Jones, J. B., Jr.	11-Astronomy
<b>NCA 2-690001</b>	<b>University of California - Santa Cruz</b>	<b>1760</b>
Comparison of calculated and observed properties of collapsing protostellar gas clouds		
<i>Period</i>	<i>Obligations</i>	
10/01/79-08/31/81	FY80: \$49,079	TOTAL: \$49,079
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bodenheimer, P.	ARC/Black, D. C.	11-Astronomy
Villere, K. R.		
<b>NGR 05-061-015</b>	<b>University of California - Santa Cruz</b>	<b>1761</b>
Infrared instrumentation		
<i>Period</i>	<i>Obligations</i>	
07/06/72-03/31/81	FY80:	TOTAL: \$193,385
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Rank, D. M.	HD-SC/Bogges, N. W.	11-Astronomy
<b>NSG 5361</b>	<b>University of California - Santa Cruz</b>	<b>1762</b>
Ultraviolet spectroscopy of Tauri stars		
<i>Period</i>	<i>Obligations</i>	
06/01/79-11/30/80	FY80:	TOTAL: \$5,400
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Herbig, G. H.	GSFC/Bogges, A.	11-Astronomy
<b>NSG 7503</b>	<b>University of California - Santa Cruz</b>	<b>1763</b>
Astronomical applications of charged coupled device technology		
<i>Period</i>	<i>Obligations</i>	
11/01/78-10/31/80	FY80:	TOTAL: \$38,559
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Miller, J. S.	HD-SC/Weiler, E. J.	11-Astronomy
	HD-SC/Roman, N. G.	
<b>NCA 2-588001</b>	<b>University of The Pacific</b>	<b>1764</b>
Laser holographic interferometry for aerodynamics		
<i>Period</i>	<i>Obligations</i>	
01/01/80-10/31/80	FY80: \$15,297	TOTAL: \$15,297
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Perry, R. L.	ARC/Lee, G.	13-Physics
<b>NCA 2-588002</b>	<b>University of The Pacific</b>	<b>1765</b>
Proliferation and differentiation of periodontal ligament cells and bone cells during simulated weightlessness		
<i>Period</i>	<i>Obligations</i>	
03/01/80-02/28/82	FY80: \$11,000	TOTAL: \$11,000
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Roberts, W. E.	ARC/Holton, E. M.	59-Life Sci, NEC
<b>NAS 2-10161</b>	<b>University of San Francisco</b>	<b>1766</b>
US/USSR radiation protection studies		
<i>Period</i>	<i>Obligations</i>	
02/01/79-07/31/80	FY80:	TOTAL: \$76,789
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Benton, E. V.	ARC/Souza, K. A.	59-Life Sci, NEC
<b>NAS 8-26758</b>	<b>University of San Francisco</b>	<b>1767</b>
Study for heavy particle, passive, personnel dosimetry using etched particles		
<i>Period</i>	<i>Obligations</i>	
01/21/71-04/30/81	FY80: \$15,000	TOTAL: \$142,704
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Benton, E. V.	MSFC/Parnell, T. A.	13-Physics
	MSFC/Watts, J. W., Jr.	
<b>NAS 9-15152</b>	<b>University of San Francisco</b>	<b>1768</b>
Automated analysis system for haze particle trace dosimeters		
<i>Period</i>	<i>Obligations</i>	
02/01/77-12/31/81	FY80: \$100,000	TOTAL: \$348,007
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Benton, E. V.	JSC/Rundel, R.	56-Medical Sciences
<b>NAS 9-15337</b>	<b>University of San Francisco</b>	<b>1769</b>
Definition of Spacelab I experiment on high energy particle dosimetry		
<i>Period</i>	<i>Obligations</i>	
04/01/77-12/31/81	FY80:	TOTAL: \$50,000
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Benton, E. V.	JSC/Throloff, R. G.	13-Physics
	JSC/Huffstetler, W. J.	
<b>NCA 2-670902</b>	<b>University of San Francisco</b>	<b>1770</b>
The evaluation of structural and chemical alterations of bone and red blood cells in the restrained monkey model		
<i>Period</i>	<i>Obligations</i>	
07/01/79-06/30/81	FY80: \$22,500	TOTAL: \$37,500
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Furst, A.	ARC/Young, D. R.	51-Biological Sci
	ARC/Leon, H. A.	
<b>NCC 2-47</b>	<b>University of San Francisco</b>	<b>1771</b>
Histopathological changes in rodents caused by haze particle irradiation		
<i>Period</i>	<i>Obligations</i>	
01/01/80-12/31/80	FY80: \$33,998	TOTAL: \$33,998
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Benton, E. V.	ARC/Kraft, L. M.	51-Biological Sci



**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**SAG 1-19** University of Southern California 1786  
A study of streamwise vortices

<i>Period</i>	<i>Obligations</i>	
12/05/79-12/04/80	FY80: \$74,078	TOTAL: \$74,078
<i>Pnn Invest</i>	NASA Tech Officer	CASE Category
Blackwelder, R. F.	LARC/Hefner, J. N.	41-Aero Engr
	LARC/Anders, J. B.	

**SAGW 13** University of Southern California 1787  
A three-dimensional observational study of the solar 5-minute oscillations

<i>Period</i>	<i>Obligations</i>	
01/01/80-12/31/80	FY80: \$68,000	TOTAL: \$68,000
<i>Pnn Invest</i>	NASA Tech Officer	CASE Category
Rhodes, E. J.	HD-ST/Chipman, E.	11-Astronomy
Ulrich, R. K.	HD-ST/Tomayko, D. W.	

**SAGW 43** University of Southern California 1788  
Creep of orthoentstatite at high temperature and low strain rates

<i>Period</i>	<i>Obligations</i>	
03/01/80-02/28/81	FY80: \$39,832	TOTAL: \$39,832
<i>Pnn Invest</i>	NASA Tech Officer	CASE Category
Sammis, C. G.	HD-SL/Quaide, W. L.	32-Geological Sci
	HD-SL/French, B. M.	

**SAGW 57** University of Southern California 1789  
Comparative planetary aeronomy Venus studies

<i>Period</i>	<i>Obligations</i>	
04/01/80-03/31/81	FY80: \$20,000	TOTAL: \$20,000
<i>Pnn Invest</i>	NASA Tech Officer	CASE Category
Kumar, S.	HD-SL/Murphy, R. F.	31-Atmos Sci
	HD-SL/Brunk, W. E.	

**SAGW 62** University of Southern California 1790  
A scientific program in planetary atmospheric studies

<i>Period</i>	<i>Obligations</i>	
05/01/80-10/31/81	FY80: \$200,000	TOTAL: \$200,000
<i>Pnn Invest</i>	NASA Tech Officer	CASE Category
Broadfoot, A. L.	HD-SL/Murphy, R. F.	11-Astronomy
	HD-SL/Brunk, W. E.	

**NAS 2-6558** University of Southern California 1791  
Pioneer F-G analysis of ultraviolet experiment

<i>Period</i>	<i>Obligations</i>	
09/01/71-12/31/80	FY80: \$165,000	TOTAL: \$1,351,116
<i>Pnn Invest</i>	NASA Tech Officer	CASE Category
Judge, D. L.	ARC/Fimmel, R. O.	11-Astronomy
	ARC/Dyer, J.	

**NAS 2-10794** University of Southern California 1792  
Technology identification and application for the advanced technology display house

<i>Period</i>	<i>Obligations</i>	
10/01/80-06/30/81	FY80: \$40,135	TOTAL: \$40,135
<i>Pnn Invest</i>	NASA Tech Officer	CASE Category
Mixer, R.	ARC/Holley, H.	

**NASW 3235** University of Southern California 1793  
Operation of NASA Industrial Application Center

<i>Period</i>	<i>Obligations</i>	
04/01/78-03/31/81	FY80: \$282,502	TOTAL: \$905,429
<i>Pnn Invest</i>	NASA Tech Officer	CASE Category
Mixer, R.	HD-ET/Bivins, R. G.	99-Multi-Discip
	HD-ET/Ault, L. A.	

**NCC 1-38** University of Southern California 1794  
Workshops on automated decision making and problem solving

<i>Period</i>	<i>Obligations</i>	
03/06/80-12/05/80	FY80: \$61,720	TOTAL: \$61,720
<i>Pnn Invest</i>	NASA Tech Officer	CASE Category
Heer, E.	LARC/Pennington, J. E.	22-Computer Science
	LARC/Hankins, W. W.	

**NGR 05-018-178** University of Southern California 1795  
Dynamics of rotating-stratified flows with applications to the Jovian atmosphere

<i>Period</i>	<i>Obligations</i>	
09/11/72-08/31/80	FY80: \$75,117	TOTAL: \$37,432
<i>Pnn Invest</i>	NASA Tech Officer	CASE Category
Maxworthy, T.	HD-SL/Murphy, R. F.	31-Atmos Sci
Redekopp, L. G.	HD-SL/Brunk, W. E.	

**NGR 05-018-180** University of Southern California 1796  
Photon-molecule interaction studies of the atmospheric gases

<i>Period</i>	<i>Obligations</i>	
08/31/72-04/30/81	FY80: \$68,434	TOTAL: \$400,527
<i>Pnn Invest</i>	NASA Tech Officer	CASE Category
Judge, D. L.	HD-SL/Murphy, R. F.	31-Atmos Sci
	HD-SL/Brunk, W. E.	

**NGR 05-018-181** University of Southern California 1797  
Analysis of Pioneer solar wind observations of the interplanetary medium

<i>Period</i>	<i>Obligations</i>	
10/25/72-09/30/80	FY80	TOTAL: \$196,000
<i>Pnn Invest</i>	NASA Tech Officer	CASE Category
Intriligator, D. S.	HD-ST/Schmerling, F. R.	13-Physics

**NGR 05-018-185** University of Southern California 1798  
Study of the structure of magnetopause using simultaneous OGO-5 magnetic field light ion mass

<i>Period</i>	<i>Obligations</i>	
06/27/73-06/30/80	FY80	TOTAL: \$25,795
<i>Pnn Invest</i>	NASA Tech Officer	CASE Category
Intriligator, D. S.	HD-ST/Cauffman, D. P.	13-Physics

**NSG 1401** University of Southern California 1799  
Investigation of an improved theory for the analysis of natural and manmade layered structures

<i>Period</i>	<i>Obligations</i>	
03/15/77-02/28/81	FY80	TOTAL: \$112,203
<i>Pnn Invest</i>	NASA Tech Officer	CASE Category
Seide, P.	LARC/Stein, M.	41-Aero Engr



**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NSG 1536** University of Southern California 1800  
Electro-deposition of III-V compounds and their alloys from molten salts with special reference large area solar cells

<i>Period</i>	<i>Obligations</i>	
09/01/78-05/31/81	FY80: \$52,061	TOTAL \$96,312
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>
Kroger, F. A.	LARC/Conway, E. J.	47-Materials Engr
	LARC/Walker, G. H.	

**NSG 7367** University of Southern California 1807  
Complementary pairing of amino acids, Schiff bases and a reverse translation mechanism for the origin of the genetic code under pre-biotic conditions

<i>Period</i>	<i>Obligations</i>	
10/01/77-01/31/81	FY80: \$83,999	TOTAL \$211,102
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>
Strehler, B. L.	HD-SB/Devincenzi, D. L.	51-Biological Sci

**NSG 2351** University of Southern California 1801  
Theoretical developments in the computation of the electronic properties of molecules

<i>Period</i>	<i>Obligations</i>	
01/01/79-12/31/80	FY80: \$24,820	TOTAL \$48,560
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>
Segal, G. A.	ARC/Jaffee, R. L.	31-Mathematics

**NSG 7535** University of Southern California 1808  
Development of room temperature mercuric iodide X-ray detectors for in-site analysis of extra terrestrial objects

<i>Period</i>	<i>Obligations</i>	
01/26/79-02/28/81	FY80: \$60,000	TOTAL \$116,453
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>
Huth, G. C.	HD-SL/French, L. M.	32-Geological Sci
	HD-SL/Quade, W. I.	

**NSG 3243** University of Southern California 1802  
Axial field permanent magnet motors for electrical vehicles

<i>Period</i>	<i>Obligations</i>	
01/08/79-01/07/81	FY80:	TOTAL \$124,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>
Maslowski, P. A.	LERC/Secunde, R. R.	45-Elec Engr

**NSG 7595** University of Southern California 1809  
A study of atmospheric development of exospheric planetary bodies

<i>Period</i>	<i>Obligations</i>	
05/01/79-04/30/81	FY80: \$43,046	TOTAL \$85,917
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>
Shemansky, D. E.	HD-SL/Murphy, R. E.	31-Atmos Sci
	HD-SL/Brunk, W. F.	

**NSG 5108** University of Southern California 1803  
Rocket experiments to measure the solar intensity and profile

<i>Period</i>	<i>Obligations</i>	
04/01/76-12/31/80	FY80: \$47,948	TOTAL \$376,176
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>
Judge, D. L.	GSFC/Bissell, E. F.	13-Physics
Carlson, R. W.	HD-SL/Murphy, R. E.	

**NSG 7644** University of Southern California 1810  
Application of improved detector technology to a continuing program of solar-system observations

<i>Period</i>	<i>Obligations</i>	
11/02/79-07/31/80	FY80: \$100,000	TOTAL \$100,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>
Broadfoot, A. L.	HD-SL/Murphy, R. E.	31-Atmos Sci
	HD-SL/Brunk, W. E.	

**NSG 55.6** University of Southern California 1804  
Study of the nature of shells in stars

<i>Period</i>	<i>Obligations</i>	
06/01/79-05/31/81	FY80:	TOTAL \$4,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>
Peters, G. J.	GSFC/Kupperian, J. E., Jr.	11-Astronomy

**COLORADO**

**NSG 5412** University of Southern California 1805  
Observations of the Sun, Alpha Centauri and cluster stars

<i>Period</i>	<i>Obligations</i>	
11/01/79-10/31/80	FY80 \$13,600	TOTAL \$13,600
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>
Barry, D. C.	GSFC/Bogges, A.	11-Astronomy

**NSG 3122** Colorado School of Mines 1811  
Determination of the mechanism of influence of organic compounds on the thermal instability of fuels

<i>Period</i>	<i>Obligations</i>	
11/01/76-10/31/80	FY80 \$3,657	TOTAL \$111,217
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>
Daniel, S. R.	LERC/Antoine, A. C.	12-Chemistry
Gary, J. H.		

**NSG 5422** University of Southern California 1806  
A comparative study of the far ultraviolet spectra of BE stars

<i>Period</i>	<i>Obligations</i>	
10/15/79-08/14/81	FY80 \$20,900	TOTAL \$20,900
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>
Peters, G. J.	GSFC/Bogges, A.	11-Astronomy
Polidan, R. S.		

**NSG 3-25** Colorado State University 1812  
Ion implantation to inhibit the corrosion of ferrous metals

<i>Period</i>	<i>Obligations</i>	
02/01/80-01/31/81	FY80: \$9,554	TOTAL \$9,554
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>
Wilbur, P. J.	LERC/Kerslake, W. R.	47-Materials Engr
Robinson, R. S.		

**NASA'S UNIVERSITY PROGRAM  
COLORADO (Continued)**

**NAG 3-34** Colorado State University 1813  
Atomic hydrogen rocket engine  
*Period* *Obligations*  
02/01/80-01/31/81 FY80: \$24,981 TOTAL: \$24,981  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Etters, R. D. LERC/Nakanishi, S. 13-Physics

**NAS 1-15580** Colorado State University 1820  
Satellite and digital data tapes (GOES)  
*Period* *Obligations*  
03/13/79-03/12/80 FY80: \$47,990 TOTAL: \$111,990  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Vonderhaar, T. H. LARC/Harrison, E. F. 31-Atmos Sci  
LARC/Cooper, J. E.

**NAG 3-40** Colorado State University 1814  
Development of models for nonlinear fracture processes  
*Period* *Obligations*  
06/01/80-11/30/80 FY80: \$20,271 TOTAL: \$20,271  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Smith, F. W. LERC/Smith, G. T. 46-Mech Engr

**NAS 1-15925** Colorado State University 1821  
Study of building effects on exhaust plume  
*Period* *Obligations*  
09/05/79-01/04/80 FY80: TOTAL: \$15,000  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Meroney, R. N. LARC/Lassiter, W. S. 31-Atmos Sci  
LARC/Lovell, J. B.

**NAG 3-43** Colorado State University 1815  
Ion beam microtexturing of surfaces  
*Period* *Obligations*  
03/01/80-02/28/81 FY80: \$19,962 TOTAL: \$19,962  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Robinson, R. S. LERC/Mirtuch, M. J. 19-Phys Sci, NEC  
Kaufman, H. A.

**NAS 1-16465** Colorado State University 1822  
Scientific investigations for the Earth Radiation Budget Experiment (ERBE)  
*Period* *Obligations*  
09/30/80-09/29/85 FY80: \$25,000 TOTAL: \$25,000  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Vonderhaar, T. H. LARC/Hall, J. B. 31-Atmos Sci  
LARC/Barkstrom, B. R.

**NAG 5-58** Colorado State University 1816  
A laboratory investigation of the reflective properties of simulated, optically thick clouds  
*Period* *Obligations*  
05/15/80-05/14/81 FY80: \$72,009 TOTAL: \$72,009  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
McKee, T. B. GSFC/King, M. D. 31-Atmos Sci

**NAS 5-22959** Colorado State University 1823  
Earth radiation budget sensor support  
*Period* *Obligations*  
01/23/76-10/01/81 FY80: \$20,000 TOTAL: \$216,000  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Vonderhaar, T. H. GSFC/Nelsen, F. D. 39-Env Sci, NEC

**NAG 5-88** Colorado State University 1817  
Radiometer measurements of snowpack  
*Period* *Obligations*  
08/01/80-07/31/81 FY80: \$40,508 TOTAL: \$40,508  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Boyne, H. S. GSFC/Rango, A. 19-Phys Sci, NEC

**NAS 5-25696** Colorado State University 1824  
Processing of LANDSAT data for charge detection research  
*Period* *Obligations*  
06/06/79-12/08/80 FY80 TOTAL: \$5,100  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Maxwell, E. GSFC/Toll, D. 39-Env Sci, NEC

**NAG 9-10** Colorado State University 1818  
Life spans of skin fibroblasts from irradiated primates  
*Period* *Obligations*  
06/16/80-06/15/81 FY80: \$25,000 TOTAL: \$25,000  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Lett, J. T. JSC/Hoffman, R. A. 54-Env Biology

**NAS 5-26127** Colorado State University 1825  
Urban area change detection procedures with remote sensing data  
*Period* *Obligations*  
04/15/80-12/30/80 FY80: \$32,500 TOTAL: \$32,500  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Maxwell, E. GSFC/Toll, D. 21-Mathematics

**NAGW 8** Colorado State University 1819  
Experiments with phase transitions at very high pressure  
*Period* *Obligations*  
10/01/79-11/30/80 FY80: \$85,000 TOTAL: \$85,000  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Spain, I. L. LERC/Jones, W. R. 13-Physics

**NAS 9-16016** Colorado State University 1826  
Development of a plan for fundamental research in electromagnetic radiation characteristics for renewable resources and features  
*Period* *Obligations*  
10/01/79-09/30/80 FY80: \$75,900 TOTAL: \$75,900  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Smith, J. A. JSC/MacDonald, R. B. 31-Atmos Sci

**NASA'S UNIVERSITY PROGRAM  
COLORADO (Continued)**

<b>NCA 2-165001</b>	<b>Colorado State University</b>	<b>1827</b>
A vectorized multigrid for the Cauchy-Riemann equations		
<i>Period</i>	<i>Obligations</i>	
05/01/80-12/31/80	FY80: \$4,950	TOTAL: \$4,950
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Thomas, J. W.	ARC/Lomax, H.	21-Mathematics
<b>NCA 2-165901</b>	<b>Colorado State University</b>	<b>1828</b>
Applications of Gaussian collocation to the solution of the compressible Navier-Stokes equations		
<i>Period</i>	<i>Obligations</i>	
10/01/78-09/30/80	FY80:	TOTAL: \$22,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Prenter, P. M.	ARC/Murphy, J. D.	21-Mathematics
<b>NGR 06-002-095</b>	<b>Colorado State University</b>	<b>1829</b>
Combustion instability with partial length acoustic lines		
<i>Period</i>	<i>Obligations</i>	
12/02/69-03/01/80	FY80:	TOTAL: \$348,949
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Mitchell, C. I.	IFRC/Priem, R. J.	42-Astro Engr
<b>NGR 06-002-112</b>	<b>Colorado State University</b>	<b>1830</b>
An experimental investigation of hollow cathode discharge start-up and operation		
<i>Period</i>	<i>Obligations</i>	
12/21/70-11/30/80	FY80: \$92,342	TOTAL: \$640,086
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wilbur, P. J.	IFRC/Kerslake, W. R.	46-Mech Engr
<b>NGR 06-002-159</b>	<b>Colorado State University</b>	<b>1831</b>
Bulk properties of atomic triplet hydrogen and high pressure equation of state for solid hydrogen		
<i>Period</i>	<i>Obligations</i>	
12/04/72-04/30/81	FY80: \$45,668	TOTAL: \$195,077
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hiers, R. D.	IFRC/Hendricks, R. C.	13-Physics
<b>NGF 06-002-800</b>	<b>Colorado State University</b>	<b>1832</b>
Graduate student researchers program		
<i>Period</i>	<i>Obligations</i>	
09/01/80-08/31/81	FY80: \$9,810	TOTAL: \$9,810
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Smith, J. A.	JSC/Pitts, D.	54-Env. Biology
<b>NSG 1594</b>	<b>Colorado State University</b>	<b>1833</b>
Approaching the ultimate velocimeter Laser techniques for measuring molecular flows		
<i>Period</i>	<i>Obligations</i>	
02/01/79-02/28/81	FY80: \$99,701	TOTAL: \$121,637
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
She, C. Y.	IFRC/Faxon, R. J.	13-Physics
Fairbanks, W. M., Jr.		
<b>NSG 2232</b>	<b>Colorado State University</b>	<b>1834</b>
Effects of the hypokinetic state on bioenergetic balance using the rat as a model mammalian system		
<i>Period</i>	<i>Obligations</i>	
05/01/77-12/31/80	FY80:	TOTAL: \$75,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Jordan, J. P.	ARC/Holton, E. M.	51-Biological Sci
<b>NSG 2287</b>	<b>Colorado State University</b>	<b>1835</b>
Velocity measurements by laser resonance fluorescence from a single atom		
<i>Period</i>	<i>Obligations</i>	
12/01/77-10/31/80	FY80: \$6,000	TOTAL: \$65,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
She, C. Y.	ARC/McKenzie, R. L.	13-Physics
Fairbanks, W. M.		
<b>NSG 3011</b>	<b>Colorado State University</b>	<b>1836</b>
Experimental investigations of argon and xenon ion sources		
<i>Period</i>	<i>Obligations</i>	
07/01/74-10/31/80	FY80: \$50,000	TOTAL: \$315,926
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kaufman, H. R.	IFRC/Kerslake, W. R.	42-Astro Engr
Robinson, R. S.		
<b>NSG 3086</b>	<b>Colorado State University</b>	<b>1837</b>
Industrial ion source technology		
<i>Period</i>	<i>Obligations</i>	
11/15/75-12/14/80	FY80: \$35,068	TOTAL: \$215,315
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kaufman, H. R.	IFRC/Mirtch, M. J.	13-Physics
Robinson, R. S.	IFRC/Banks, B. A.	
<b>NSG 3127</b>	<b>Colorado State University</b>	<b>1838</b>
Effects of turbulence on laminar separation on aerodynamic surfaces such as airfoils blading		
<i>Period</i>	<i>Obligations</i>	
10/01/76-04/15/81	FY80: \$70,606	TOTAL: \$258,837
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sadeh, W. Z.	IFRC/Socket, P. M.	41-Aero Engr
<b>NSG 3145</b>	<b>Colorado State University</b>	<b>1839</b>
Laboratory simulation of irradiation-induced dielectric breakdown in spacecraft charging		
<i>Period</i>	<i>Obligations</i>	
04/01/77-12/01/79	FY80:	TOTAL: \$95,490
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Yadlowsky, F. J.	IFRC/Staskus, J. V.	13-Physics
Churchill, R. J.		
<b>NSG 3196</b>	<b>Colorado State University</b>	<b>1840</b>
Space environmental effects on high voltage solar arrays		
<i>Period</i>	<i>Obligations</i>	
05/15/78-05/13/81	FY80: \$39,993	TOTAL: \$119,302
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kaufman, H. R.	IFRC/Grier, N. E.	13-Physics

**NASA'S UNIVERSITY PROGRAM  
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**NSG 5258** **Colorado State University** **1841**  
Tropical cyclone intensities from satellite microwave data  
*Period* *Obligations*  
04/01/78-03/31/80 **FY80:** **TOTAL \$56,897**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Vonderhaar, T. H. GSFC/Rodgers, F. B. 31-Atmos Sci  
Kidder, S. Q.

**NSG 5340** **Colorado State University** **1842**  
Atmospheric variability and air-sea interaction  
*Period* *Obligations*  
04/01/79-07/31/80 **FY80** **TOTAL \$20,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Reiter, F. R. GSFC/Arking, A. 31-Atmos Sci

**NSG 5341** **Colorado State University** **1843**  
Research of satellite inferences of convective storm intensity  
*Period* *Obligations*  
05/01/79-04/30/81 **FY80 \$77,502** **TOTAL \$143,423**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Cotton, W. R. GSFC/Heymsfield, G. M. 31-Atmos Sci  
Tripoli, G. J.  
Reynolds, D. W.

**NSG 5352** **Colorado State University** **1844**  
Study of the global positioning system for maritime concepts  
*Period* *Obligations*  
06/01/79-10/31/81 **FY80** **TOTAL \$54,910**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Parkenson, B. W. GSFC/Taylor, M. B. 45-lec Engr  
Winn, C. B.

**NSG 5357** **Colorado State University** **1845**  
Initial studies of middle and upper tropospheric stratiform clouds  
*Period* *Obligations*  
06/01/79-05/31/81 **FY80 \$94,000** **TOTAL \$157,649**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Cox, S. K. GSFC/Curran, R. J. 31-Atmos Sci

**NSG 9045** **Colorado State University** **1846**  
Effects of heavy ions on optic tissues  
*Period* *Obligations*  
10/01/76-05/31/81 **FY80 \$35,000** **TOTAL \$209,500**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Lett, J. T. JSC/Hoffman, R. A. 59-Life Sci, NLC

**NAG 5-1** **Fort Lewis College** **1847**  
Investigations relative to statistical procedures for thermal vacuum test optimization  
*Period* *Obligations*  
01/15/80-01/14/81 **FY80 \$32,991** **TOTAL \$32,991**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Williams, R. F. GSFC/Kruger, R. 49-Engr, NLC  
Byrd, J. W.

**NAG 1-59** **University of Colorado - Boulder** **1848**  
Effect of external flow in existing turbulence  
*Period* *Obligations*  
04/03/80-04/02/81 **FY80 \$20,000** **TOTAL \$20,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Uberoi, M. S. LARC/Stainback, P. C. 41-Aero Engr  
LARC/Harvey, W. D.

**NAG 2-58** **University of Colorado - Boulder** **1849**  
Influence of gravity independent parameters on the constitutive behavior of soil  
*Period* *Obligations*  
08/01/80-01/31/81 **FY80 \$33,140** **TOTAL \$33,140**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Sture, S. ARC/Brooks, W. F. 44-Civil Engr  
ARC/Lum, H.

**NAG 5-15** **University of Colorado - Boulder** **1850**  
Study of circumstellar shells and stellar wind variability in supergiant stars  
*Period* *Obligations*  
03/01/80-02/28/82 **FY80 \$10,067** **TOTAL \$10,067**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Snow, T. P. GSFC/Corrigan, J. P. 11-Astronomy

**NAG 5-21** **University of Colorado - Boulder** **1851**  
Gravity measurements in support of long baseline  
*Period* *Obligations*  
03/01/80-02/28/81 **FY80 \$40,000** **TOTAL \$40,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Whitcomb, J. H. GSFC/Harper, F. L. 32-Geological Sci  
Anderson, D. GSFC/Allenby, R. J.

**NAG 5-22** **University of Colorado - Boulder** **1852**  
Modeling of tectonophysical distortion from measurements of long-baseline geodetic data and other  
*Period* *Obligations*  
03/01/80-02/28/81 **FY80 \$27,512** **TOTAL \$27,512**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Whitcomb, J. H. GSFC/Harper, F. L. 32-Geological Sci  
Harrison, J. C. GSFC/Allenby, R. J.

**NAG 5-78** **University of Colorado - Boulder** **1853**  
Spectroscopic observations of selected stellar systems  
*Period* *Obligations*  
07/01/80-11/30/80 **FY80 \$10,000** **TOTAL \$10,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Conti, P. S. GSFC/Bogges, A. 11-Astronomy  
Garmany, C. D.

**NAG 5-82** **University of Colorado - Boulder** **1854**  
International Ultraviolet Explorer (IUE) studies of cool stars  
*Period* *Obligations*  
07/01/80-11/30/80 **FY80 \$17,800** **TOTAL \$17,800**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Linsky, J. L. GSFC/Bogges, A. 11-Astronomy  
Stencel, R. F.



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**NAS 5-22833** University of Colorado - Boulder 1867  
Theoretical calculations of spectral features in the expanding envelopes of early-type stars  
*Period* 11/03/75-07/01/80 *Obligations* FY80: TOTAL: \$83,380  
*Prin Invest* Contl, P. S. *NASA Tech Officer* GSFC/Boggess, A. *CASE Category* 11-Astronomy

**NAS 5-23274** University of Colorado - Boulder 1868  
Development of models for physical properties of stellar chromospheres  
*Period* 08/01/73-09/30/80 *Obligations* FY80: TOTAL: \$129,753  
*Prin Invest* Linsky, J. L. *NASA Tech Officer* GSFC/Boggess, A. *CASE Category* 11-Astronomy

**NAS 5-25887** University of Colorado - Boulder 1869  
Nutation and polar motion of the Earth LAGEOS number three  
*Period* 09/25/79-12/24/80 *Obligations* FY80: TOTAL: \$26,745  
*Prin Invest* Smith, M. L. *NASA Tech Officer* GSFC/Stephanides, C. C. *CASE Category* 32-Geological Sci

**NAS 5-25957** University of Colorado - Boulder 1870  
Magnetic field monitor satellite investigation of geomagnetic field forecasting and fluid dynamics of the core  
*Period* 12/27/79-08/27/82 *Obligations* FY80: \$73,248 TOTAL: \$73,248  
*Prin Invest* Benton, E. R. *NASA Tech Officer* GSFC/Oseroff, H. *CASE Category* 32-Geological Sci

**NAS 5-26170** University of Colorado - Boulder 1871  
Study of the ultraviolet ozone spectrometer for the Upper Atmosphere Research Satellites (UARS)  
*Period* 09/23/80-06/30/81 *Obligations* FY80: \$150,597 TOTAL: \$150,597  
*Prin Invest* Mount, G. H. *NASA Tech Officer* GSFC/Donley, J. L. *CASE Category* 31-Atmos Sci

**NAS 5-26172** University of Colorado - Boulder 1872  
Study of the ultraviolet solar spectral irradiance experiment for the Upper Atmosphere Research Satellites (UARS)  
*Period* 09/23/80-06/30/81 *Obligations* FY80: \$139,111 TOTAL: \$139,111  
*Prin Invest* Rottman, G. J. *NASA Tech Officer* GSFC/Donley, J. L. *CASE Category* 31-Atmos Sci

**NAS 5-26303** University of Colorado - Boulder 1873  
Study of the response of upper atmosphere parameters to variation of solar activity (UARS)  
*Period* 10/01/80-12/30/81 *Obligations* FY80: \$11,000 TOTAL: \$11,000  
*Prin Invest* London, J. *NASA Tech Officer* GSFC/Reber, C. A. *CASE Category* 31-Atmos Sci

**NAS 8-31958** University of Colorado - Boulder 1874  
Study of geophysical fluid dynamics with electro-hydrodynamics polarization forces  
*Period* 03/26/76-08/31/81 *Obligations* FY80: \$65,000 TOTAL: \$295,000  
*Prin Invest* Toomre, J. *NASA Tech Officer* MSFC/Jones, C. T. *CASE Category* 39-Env Sci, NEC  
Hart, J. F. *CASE Category* MSFC/Fichtl, G. H.

**NAS 8-33084** University of Colorado - Boulder 1875  
A study of stellar coronae using the HEAO-A spacecraft  
*Period* 06/16/78-06/15/79 *Obligations* FY80: TOTAL: \$9,900  
*Prin Invest* Linsky, J. L. *NASA Tech Officer* MSFC/Dailey, C. C. *CASE Category* 11-Astronomy  
Ayres, T. R.

**NAS 8-33333** University of Colorado - Boulder 1876  
A coordinated X-ray, optical and microwave study of the flare stars Proxima Centauri, YZ Canis Minoris and UV Ceti  
*Period* 02/15/79-08/14/80 *Obligations* FY80: TOTAL: \$5,440  
*Prin Invest* Haisch, B. M. *NASA Tech Officer* MSFC/Jones, J. P., Jr. *CASE Category* 11-Astronomy  
Linsky, J. L.  
Slee, O. B.

**NAS 8-33338** University of Colorado - Boulder 1877  
Soft X-ray spectroscopy of Hercules X-1  
*Period* 02/16/79-11/15/80 *Obligations* FY80: TOTAL: \$9,000  
*Prin Invest* McCray, R. *NASA Tech Officer* MSFC/Jones, J. B., Jr. *CASE Category* 11-Astronomy  
Boynton, P. E.  
Shull, J. M.

**NAS 8-33342** University of Colorado - Boulder 1878  
A coordinated X-ray and ultraviolet study of stellar coronae, transition regions and chromospheres  
*Period* 02/16/79-02/15/80 *Obligations* FY80: TOTAL: \$6,560  
*Prin Invest* Ayres, T. R. *NASA Tech Officer* MSFC/Jones, J. B., Jr. *CASE Category* 11-Astronomy  
Linsky, J. L.

**NGI 06-003-052** University of Colorado - Boulder 1879  
Theoretical and experimental research program in physics of planetary atmospheres  
*Period* 06/28/66-06/30/81 *Obligations* FY80: \$217,487 TOTAL: \$4,465,954  
*Prin Invest* Lamont, P. J. *NASA Tech Officer* HD-SL/Murphy, R. E. *CASE Category* 31-Atmos Sci  
HD-SL/Brunk, W. E.

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**NSG 06-003-057 University of Colorado - Boulder 1880**  
 Basic research in solar physics  
*Period Obligations*  
 09/05/67-09/30/80 FY80: \$80,000 TOTAL: \$1,143,000  
*Prin Invest NASA Tech Officer CASE Category*  
 Linsky, J. L. HD-ST/Chipman, F 13-Physics

**NSG 5178 University of Colorado - Boulder 1887**  
 Rocket research in solar ultraviolet spectroscopy  
*Period Obligations*  
 06/01/77-12/10/80 FY80: \$145,000 TOTAL: \$533,590  
*Prin Invest NASA Tech Officer CASE Category*  
 Rottman, G. T. GSFC/Bissell, E. E. 13-Physics  
 Chipman, E. HD-ST/Bohlin, J. D.  
 Orrall, F. Q

**NSG 06-003-200 University of Colorado - Boulder 1881**  
 Application of space technology to practical problems such as those currently facing the mountain sections of the state of Colorado  
*Period Obligations*  
 07/11/72-04/30/82 FY80 TOTAL: \$825,000  
*Prin Invest NASA Tech Officer CASE Category*  
 Ives, J. D. HD-ET/Vitale, J. A. 39-Env Sci, NEC

**NSG 5300 University of Colorado - Boulder 1888**  
 Research of stellar wind velocity in alpha cam using ultraviolet data from the International Ultraviolet Explorer (IUE)  
*Period Obligations*  
 09/15/78-11/15/80 FY80: \$31,300 TOTAL: \$41,297  
*Prin Invest NASA Tech Officer CASE Category*  
 Snow, T. P. GSFC/Bogges, A. 11-Astronomy  
 Shull, J. M.

**NSG 06-003-127 University of Colorado - Boulder 1882**  
 Data reduction-coordinated experiments  
*Period Obligations*  
 08/18/69-09/30/80 FY80 TOTAL: \$996,906  
*Prin Invest NASA Tech Officer CASE Category*  
 Barth, C. A. HD-SL/Murphy, R. F. 31-Atmos Sci  
 HD-ET/Boyce, J. M.

**NSG 5303 University of Colorado - Boulder 1889**  
 Ultraviolet measurements with high spectral resolution  
*Period Obligations*  
 09/15/78-11/14/81 FY80: \$449,989 TOTAL: \$650,596  
*Prin Invest NASA Tech Officer CASE Category*  
 Snow, T. P. GSFC/Giudotti, J. 11-Astronomy  
 McClintock, W. I.

**NSG 2248 University of Colorado - Boulder 1883**  
 Heterogeneous chemistry Association reactions, cluster formation, and surface phenomena  
*Period Obligations*  
 07/01/77-06/30/81 FY80 \$51,000 TOTAL \$181,595  
*Prin Invest NASA Tech Officer CASE Category*  
 Castleman, A. W. ARC/Whitten, R. C. 12-Chemistry  
 ARC/Farlow, N. H.

**NSG 5318 University of Colorado - Boulder 1890**  
 Supergranulation velocity fields and their relation to magnetically active regions  
*Period Obligations*  
 01/15/79-02/14/81 FY80: \$35,439 TOTAL: \$40,000  
*Prin Invest NASA Tech Officer CASE Category*  
 Gibbie, K. B. GSFC/Donley, J. I. 31-Atmos Sci

**NSG 3181 University of Colorado - Boulder 1884**  
 Effect of contraction on turbulence  
*Period Obligations*  
 01/16/78-03/20/80 FY80 TOTAL \$80,000  
*Prin Invest NASA Tech Officer CASE Category*  
 Uberoi, M. S. 11 RC/Groeneweg, J. F. 41-Aero Engr

**NSG 5355 University of Colorado - Boulder 1891**  
 Analysis of interstellar and circumstellar absorption line profiles  
*Period Obligations*  
 06/01/79-06/30/81 FY80 \$13,624 TOTAL: \$28,229  
*Prin Invest NASA Tech Officer CASE Category*  
 Snow, T. P., Jr. GSFC/Wende, C. D. 11-Astronomy

**NSG 5103 University of Colorado - Boulder 1885**  
 Rocket research in the ultraviolet airglow and aurora of planetary atmospheres  
*Period Obligations*  
 02/01/76-03/31/81 FY80 \$200,000 TOTAL \$949,811  
*Prin Invest NASA Tech Officer CASE Category*  
 Barth, C. A. GSFC/Guarda, J. 19-Phys Sci, NEC  
 Hathaway, D. D. HD-SL/Murphy, R.

**NSG 5365 University of Colorado - Boulder 1892**  
 Studies for atomic intersystem lines in interstellar gas and stellar winds  
*Period Obligations*  
 06/01/79-05/31/80 FY80 TOTAL \$3,580  
*Prin Invest NASA Tech Officer CASE Category*  
 Shull, J. M. GSFC/Bogges, A. 11-Astronomy

**NSG 5153 University of Colorado - Boulder 1886**  
 Research of observed and theoretical variations of atmospheric ozone  
*Period Obligations*  
 01/17/77-01/31/81 FY80 \$81,733 TOTAL \$287,898  
*Prin Invest NASA Tech Officer CASE Category*  
 London, J. GSFC/Reber, C. A. 31-Atmos Sci

**NSG 5372 University of Colorado - Boulder 1893**  
 Theoretical studies of odd nitrogen in the mesosphere and lower thermosphere  
*Period Obligations*  
 06/01/79-11/30/80 FY80 \$50,000 TOTAL: \$78,000  
*Prin Invest NASA Tech Officer CASE Category*  
 Rusch, D. W. GSFC/Reed, F. I. 31-Atmos Sci

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**NSG 7128** University of Colorado - Boulder 1894  
Studies of X-ray ultraviolet and optical emission from galactic X-ray sources  
*Period* *Obligations*  
03/01/75-09/30/81 FY80: \$62,728 TOTAL \$201,728  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
McCray, R. HD-SC/Kaluzeński, L. J. 11-Astronomy  
HD-SC/Holt, S. S.

**NSG 7430** University of Colorado - Boulder 1901  
Theoretical calculations of spectral features in the expanding envelopes of early-type stars  
*Period* *Obligations*  
03/01/78-02/29/80 FY80: TOTAL \$21,646  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Conti, P. S. HD-SC/Roman, N. G. 11-Astronomy  
HD-SC/Rosendhal, J. D.

**NSG 7165** University of Colorado - Boulder 1895  
Theoretical studies of the solar corona and chromosphere  
*Period* *Obligations*  
07/01/75-09/30/79 FY80: TOTAL \$128,987  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Chipman, F. HD-ST/Bohlin, J. D. 13-Physics

**NSG 7459** University of Colorado - Boulder 1902  
Development and test of multi-anode microchannel array detector system  
*Period* *Obligations*  
06/01/78-05/31/81 FY80 \$280,419 TOTAL \$778,078  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Timothy, G. HD-SC/Weiler, E. J. 13-Physics  
HD-SC/Bogges, N. W.

**NSG 7231** University of Colorado - Boulder 1896  
A rocket program to measure minor neutral species in the Earth's atmosphere from 30 km to 110 km  
*Period* *Obligations*  
04/01/76-09/30/80 FY80: \$101,334 TOTAL \$401,340  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Thomas, R. J. HD-EB/Toth, R. A. 31-Atmos Sci  
Rusch, D. W. HD-FB/Seals, R. K.

**NSG 7477** University of Colorado - Boulder 1903  
High-resolution spectrophotometric observations of interstellar absorption lines  
*Period* *Obligations*  
07/01/78-06/30/79 FY80: TOTAL \$24,413  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Snow, F. P. HD-SC/Roman, N. G. 11-Astronomy  
HD-SC/Rosendhal, J. D.

**NSG 7287** University of Colorado - Boulder 1897  
Study of the solar corona using radio observation  
*Period* *Obligations*  
07/01/76-10/31/80 FY80 \$50,000 TOTAL \$142,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Dulk, G. A. HD-ST Chipman, F. 13-Physics

**NSG 7507** University of Colorado - Boulder 1904  
X-ray emission, electron acceleration, and related flare problems  
*Period* *Obligations*  
10/01/78-09/30/80 FY80 \$48,170 TOTAL \$93,170  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Smith, D. F. HD-ST, Chipman, F. 13-Physics

**NSG 7291** University of Colorado - Boulder 1898  
Research in solar physics with emphasis on empirical non-equilibrium thermodynamics  
*Period* *Obligations*  
09/01/76-12/31/80 FY80 \$26,333 TOTAL \$102,333  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Thomas, R. N. HD-ST Chipman, F. 13-Physics

**NSG 7511** University of Colorado - Boulder 1905  
Basic research in solar physics. Energy transport in the solar envelope and atmosphere  
*Period* *Obligations*  
10/01/78-09/30/80 FY80 \$55,000 TOTAL \$105,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Gebbie, K. B. HD-ST, Chipman, F. 13-Physics

**NSG 7319** University of Colorado - Boulder 1899  
Nutation and polar motion of the Earth  
*Period* *Obligations*  
03/01/77-09/30/79 FY80 TOTAL \$84,297  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Smith, M. I. HD-SI Flinn, F. A. 32-Geological Sci

**NSG 7559** University of Colorado - Boulder 1906  
Measurement of solar spectral irradiances at wavelengths between 40 and 3100 angstroms  
*Period* *Obligations*  
03/01/79-12/31/80 FY80 \$271,819 TOTAL \$321,819  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Timothy, J. G. HD-EB/Toth, R. A. 31-Atmos Sci  
Mount, G. H. HD-EB, Tilford, S. G.

**NSG 7344** University of Colorado - Boulder 1900  
Construction of a three-wavelength electromagnetic distance-measuring system  
*Period* *Obligations*  
05/01/77-04/30/79 FY80 TOTAL \$100,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Levine, J. HD-SI Strickland, A. T. 13-Physics



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**NSG 7584** University of Colorado - Boulder 1907  
Mechanisms of deformation and failure appropriate to lunar conditions  
*Period* Obligations  
05/01/79-02/01/81 FY80: TOTAL: \$75,000  
*Prin Invest* NASA Tech Officer CASE Category  
Spetzler, H. A. HD-S1/Quaide, W. L. 32-Geological Sci  
HD-SL/French, B. M.

**NSG 7626** University of Colorado - Boulder 1908  
High resolution spectrophotometric observations of interstellar absorption lines  
*Period* Obligations  
08/01/79-07/31/81 FY80 \$27,973 TOTAL: \$53,882  
*Prin Invest* NASA Tech Officer CASE Category  
Snow, T. P. HD-SC/Weiler, E. J. 11-Astronomy  
HD-SC/Roman, N. G.

**NSG 7637** University of Colorado - Boulder 1909  
Accuracy of gravitational physics tests using ranges to the inner planets  
*Period* Obligations  
08/01/79-07/31/81 FY80: \$19,510 TOTAL \$36,812  
*Prin Invest* NASA Tech Officer CASE Category  
Ashby, N. HD-SC/Weiler, E. J. 11-Astronomy  
Bender, P. I. HD-SC/Bogges, N. W.

**NSG 5394** University of Colorado - Denver 1910  
International ultraviolet experiment observations of Mars  
*Period* Obligations  
07/01/79-07/31/81 FY80: \$8,000 TOTAL: \$15,600  
*Prin Invest* NASA Tech Officer CASE Category  
Lane, A. I. GSFC/Bogges, A. 11-Astronomy  
Conway, R.

**NAG 1-56** University of Denver 1911  
Solar extinction radiometry  
*Period* Obligations  
05/15/80-05/14/81 FY80 \$39,967 TOTAL \$39,967  
*Prin Invest* NASA Tech Officer CASE Category  
Goldman, A. LARC/Goad, J. H. 31-Atmos Sci  
Murcay, D. G. LARC/McCormick, M. P.

**NAG 1-57** University of Denver 1912  
Balloon-borne spectrometer measurements of ultraviolet visible solar limb extinction  
*Period* Obligations  
04/01/80-03/31/81 FY80 \$26,719 TOTAL \$26,719  
*Prin Invest* NASA Tech Officer CASE Category  
Murcay, D. G. LARC/Goad, J. H. 31-Atmos Sci  
Goldman, A. LARC/McCormick, M. P.  
Williams, W. J.

**NAS 1-14929** University of Denver 1913  
Stratospheric aerosol and gas experiment  
*Period* Obligations  
07/18/77-12/30/80 FY80: \$65,000 TOTAL: \$130,000  
*Prin Invest* NASA Tech Officer CASE Category  
Murcay, D. G. LARC/McMaster, L. R. 31-Atmos Sci  
LARC/McCormick, M. P.

**NAS 1-16306** University of Denver 1914  
Science support for Earth radiation budget satellite/stratospheric aerosol and gas experiment  
*Period* Obligations  
08/22/80-08/21/85 FY80: \$26,819 TOTAL: \$26,819  
*Prin Invest* NASA Tech Officer CASE Category  
Murcay, D. G. LARC/McMaster, I. R. 31-Atmos Sci  
LARC/McCormick, M. P.

**NAS 2-10158** University of Denver 1915  
Airborne measurements of minor gas constituents of the stratosphere  
*Period* Obligations  
02/01/79-01/31/82 FY80: \$421,000 TOTAL: \$564,700  
*Prin Invest* NASA Tech Officer CASE Category  
Murcay, D. G. ARC/Munoz, R. M. 31-Atmos Sci  
Goldman, A. ARC/Margozzi, A. P.  
Williams, W. J.

**NAS 5-25097** University of Denver 1916  
Stratospheric molecular spectral parameter study  
*Period* Obligations  
06/21/78-06/20/80 FY80: TOTAL: \$46,965  
*Prin Invest* NASA Tech Officer CASE Category  
Goldman, A. GSFC/Kunde, V. G. 31-Atmos Sci

**NAS 5-25862** University of Denver 1917  
Measurement of X-rays in the mesosphere  
*Period* Obligations  
09/19/79-03/02/81 FY80: \$15,290 TOTAL: \$39,185  
*Prin Invest* NASA Tech Officer CASE Category  
Barcus, J. GSFC/Goldberg, R. 13-Physics

**NAS 9-15991** University of Denver 1918  
Life sciences shuttle instrumentation development  
*Period* Obligations  
11/01/79-11/01/80 FY80 \$153,765 TOTAL \$153,765  
*Prin Invest* NASA Tech Officer CASE Category  
Sturm, R. E. JSC/Booher, C. R. 59-Life Sci. NEC

**NASW 3113** University of Denver 1919  
Collection and analysis of information relating to technology transfer and application  
*Period* Obligations  
02/01/78-07/31/80 FY80: \$404,471 TOTAL: \$834,471  
*Prin Invest* NASA Tech Officer CASE Category  
Johnson, F. D. HD-ET/Ault, L. A. 99-Multi-Discip

**NASA'S UNIVERSITY PROGRAM  
COLORADO (Continued)**

**NSG 1405**                      **University of Denver**                      **1920**  
Theoretical simulations of solar spectra in the middle ultraviolet and visible for atmospheric trace constituents measurements

<i>Period</i>	<i>Obligations</i>	
03/15/77-05/14/80	FY80: TOTAL: \$114,517	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Goldman, A.	LARC/Goad, J. H.	31-Atmos Sci
Murcray, D. G.	LARC/McCormick, M. P.	

**NSG 1432**                      **University of Denver**                      **1921**  
Ground monitoring of atmospheric constituents by high resolution infrared solar spectroscopy

<i>Period</i>	<i>Obligations</i>	
07/11/77-11/10/80	FY80 \$59,992 TOTAL: \$219,866	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Murcray, D. G.	LARC/Orr, H. D.	39-Env Sci, NEC
	LARC/Russell, J. M., III	

**NSG 5367**                      **University of Denver**                      **1922**  
Velocity fields and spectrum peculiarities in Beta Cephei stars

<i>Period</i>	<i>Obligations</i>	
06/01/79-11/30/80	FY80: TOTAL: \$16,100	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lesh, J. R.	GSFC/Bogness, A.	11-Astronomy

**NAG 2-2**                      **University of Southern Colorado**                      **1923**  
Investigation of distributed microcomputer methods for high authority auto flight systems

<i>Period</i>	<i>Obligations</i>	
10/01/79-09/30/80	FY80: \$76,464 TOTAL: \$76,464	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Dunn, W. R.	ARC/Meyer, G.	49-Engr, NEC

**NCC 2-41**                      **University of Southern Colorado**                      **1924**  
Technology research for strapdown inertial experiments

<i>Period</i>	<i>Obligations</i>	
10/01/79-08/31/81	FY80: \$107,948 TOTAL: \$107,948	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Carestia, R. A.	ARC/Hruby, R. J.	42-Astro Engr

**NCC 2-91**                      **University of Southern Colorado**                      **1925**  
Investigation of distributed microcomputer methods for high authority auto flight systems

<i>Period</i>	<i>Obligations</i>	
10/01/80-09/30/81	FY80: \$30,000 TOTAL: \$30,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Dunn, W. R.	ARC/Meyer, G.	49-Engr, NEC

**NSG 9051**                      **University of Southern Colorado**                      **1926**  
Electron microprobe study of lunar and planetary zoned plagioclase feldspars

<i>Period</i>	<i>Obligations</i>	
02/01/77-03/31/81	FY80: TOTAL: \$76,529	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Smith, R. K.	NSC/Lofgren, G.	19-Phys Sci, NEC

**CONNECTICUT**

**NCC 5-6**                      **Fairfield University**                      **1927**  
Measurement of hydroxyl temperature in the upper atmosphere

<i>Period</i>	<i>Obligations</i>	
09/01/79-09/30/80	FY80: TOTAL: \$8,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
McElaney, J. H.	GSFC/Heath, D. F.	31-Atmos Sci

**NGR 07-010-002**                      **Fairfield University**                      **1928**  
Investigation of energy deposition processes in the upper atmosphere, and the interaction between the mesosphere and the thermosphere

<i>Period</i>	<i>Obligations</i>	
04/24/68-03/31/79	FY80: TOTAL: \$57,028	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
McElaney, J. H.	GSFC/Heath, D. F.	31-Atmos Sci
Khadgavi, A.		

**NAG 3-64**                      **University of Connecticut**                      **1929**  
Droplet impact dynamics and heat transfer

<i>Period</i>	<i>Obligations</i>	
06/01/80-06/01/81	FY80: \$45,942 TOTAL: \$45,942	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bowley, W. W.	LERC/Olsen, W. A.	41-Aero Engr
Rivard, F. E.		

**NASW 3191**                      **University of Connecticut**                      **1930**  
Operation of an industrial applications center

<i>Period</i>	<i>Obligations</i>	
01/01/78-12/31/80	FY80: \$457,468 TOTAL: \$507,468	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wilde, D.	HD-ET/Bivins, R. G.	99-Multi-Discip

**NSG 3238**                      **University of Connecticut**                      **1931**  
Turbine endwall two-cylinder program

<i>Period</i>	<i>Obligations</i>	
01/02/79-01/01/82	FY80: TOTAL: \$99,410	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Langston, L. S.	LERC/Goldman, L. J.	46-Mech Engr

**NSG 5075**                      **University of Connecticut**                      **1932**  
Modeling the terrestrial hydrology of the global atmosphere

<i>Period</i>	<i>Obligations</i>	
08/17/75-02/28/81	FY80: \$66,195 TOTAL: \$284,055	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bock, P.	GSFC/Halem, M.	31-Atmos Sci
Lin, J. D.		

**NASA'S UNIVERSITY PROGRAM  
CONNECTICUT (Continued)**

<b>NSG 5346</b>	<b>University of Connecticut</b>	<b>1933</b>	<b>NASW 3430</b>	<b>Yale University</b>	<b>1940</b>
Hydro-meteorological modeling of soil moisture and interactive moisture transport processes			Conduct a conference entitled 'The Space Age: How do You Like it so Far?'		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
05/01/79-08/31/81	FY80: \$43,015	TOTAL: \$83,355	09/25/80-02/28/81	FY80: \$18,445	TOTAL: \$18,445
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lin, J. D.	GSFC/Halem, M.	31-Atmos Sci	Theodore, E.	HD-LH/Roland, A.	73-History
Bock, P.				HD-LH/Wright, M. D.	
<b>NSG 7450</b>	<b>University of Connecticut</b>	<b>1934</b>	<b>NGI 07-004-005</b>	<b>Yale University</b>	<b>1941</b>
Factors affecting assimilatory nitrate reduction by prokaryotes			Low-power, low-speed data storage and processing equipment		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
06/01/78-01/30/82	FY80: \$90,635	TOTAL: \$162,886	01/01/71-02/28/82	FY80:	TOTAL: \$896,619
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Leadbetter, E. R.	HD-SB/Devincenzi, D. L.	51-Biological Sci	Berker, R. C.	GSFC/Schaefer, D.	45-Elec Engr
<b>NAG 5-59</b>	<b>Wesleyan University</b>	<b>1935</b>	<b>NGI 07-004-043</b>	<b>Yale University</b>	<b>1942</b>
Distribution and kinematics of interstellar gas			Chemical reactions in the electron-volt region		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
06/01/80-05/31/81	FY80: \$3,312	TOTAL: \$3,312	10/26/65-09/30/79	FY80:	TOTAL: \$501,744
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Herbst, W.	GSFC/Gull, T. R.	11-Astronomy	Cross, R. J., Jr.	HD-SL/Murphy, R. E.	31-Atmos Sci
				HD-SL/Brunk, W. E.	
<b>NAG 8-335</b>	<b>Wesleyan University</b>	<b>1936</b>	<b>NSG 2185</b>	<b>Yale University</b>	<b>1943</b>
Optical and infrared studies of stars in reflection nebulae			Early detection of acute respiratory infections		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
01/15/80-01/14/81	FY80 \$13,707	TOTAL: \$13,707	10/01/76-11/30/80	FY80: \$45,000	TOTAL: \$140,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Herbst, W.	MSFC/Warner, J. R.	11-Astronomy	Evans, A. S.	ARC/Mandel, A.D.	56-Medical Sciences
			Niederman, J. C.		
<b>NAG 1-37</b>	<b>Yale University</b>	<b>1937</b>	<b>NSG 3107</b>	<b>Yale University</b>	<b>1944</b>
Rotational coherent anti-Stokes Raman spectroscopy (CARS)			Deposition of condensible impurities on surfaces immersed in hot gases		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
03/01/80-02/28/81	FY80: \$60,000	TOTAL: \$60,000	07/15/76-07/14/81	FY80 \$37,155	TOTAL: \$157,140
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Chang, R. K.	LARC/Hoppe, J. C.	13-Physics	Rosner, D. E.	LERC/Kohl, F. J.	47-Materials Engr
	LARC/Hunter, W. W.			LERC/Stearns, C. A.	
<b>NAG 2-15</b>	<b>Yale University</b>	<b>1938</b>	<b>NSG 3169</b>	<b>Yale University</b>	<b>1945</b>
Experimental and theoretical study of heteromolecular nucleation of vapors occurring in the atmosphere			Experimentation studies of the formation/ deposition of sodium sulfate in/from combustion gases		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
01/01/80-12/31/80	FY80: \$59,000	TOTAL \$59,000	11/15/77-11/14/80	FY80: \$55,000	TOTAL: \$149,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wegner, P. P.	ARC/Toon, O. B.	31-Atmos Sci	Rosner, D. E.	LERC/Kohl, F. J.	12-Chemistry
				LERC/Stearns, C. A.	
<b>NAS 8-33572</b>	<b>Yale University</b>	<b>1939</b>	<b>NSG 7290</b>	<b>Yale University</b>	<b>1946</b>
Experimental test for violations of the equivalence principle by weak interactions			Membranes and circadian rhythms in plants		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
09/05/79-09/04/80	FY80:	TOTAL: \$7,849	10/01/76-09/30/80	FY80: \$50,000	TOTAL: \$189,420
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Parker, P. D.	MSFC/Eby, P.	11-Astronomy	Galston, A. W.	HD-SB/Halstead, T. W.	51-Biological Sci
	MSFC/Decher, R.			HD-SB/Geib, D. S.	

**NASA'S UNIVERSITY PROGRAM  
DELAWARE**

**DELAWARE**

**NAG 5-107 University of Delaware 1947**  
Research relative to a climatically-derived global soil moisture data set

<i>Period</i>	<i>Obligations</i>	
09/15/80-09/14/81	FY80: \$73,233	TOTAL: \$73,233
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Willmott, C. J.	GSFC/Shukla, J.	31-Atmos Sci

**NAS 5-25934 University of Delaware 1948**  
Application of remote sensing to the management of Delaware's coastal resources

<i>Period</i>	<i>Obligations</i>	
11/14/79-07/14/80	FY80: \$6,000	TOTAL: \$6,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Klemas, V	GSFC/Gervin, J. C	39-Env Sci, NEC

**NAS 5-26254 University of Delaware 1949**  
University of Delaware LANDSAT applications technical assistance services

<i>Period</i>	<i>Obligations</i>	
08/21/80 08 20/81	FY80 \$14,021	TOTAL \$14,021
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Klemas, V	GSFC/Gervin, J. C	39-Env Sci, NEC

**NAS 5-26273 University of Delaware 1950**  
Investigation of the stability of naturally occurring glasses

<i>Period</i>	<i>Obligations</i>	
09/01/80-09/27/81	FY80 \$24,344	TOTAL \$24,344
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Glass, W. P	GSFC/Alterescu, S	43-Chem Engr
	GSFC/Okeefe, J	

**NSG 1304 University of Delaware 1951**  
Damage repair technology in composite materials

<i>Period</i>	<i>Obligations</i>	
05/01/76-04/30/81	FY80 \$70,000	TOTAL \$291,656
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Pipes, R. B.	LARC/Deaton, J. W	46-Mech Engr
Wilson, D. W	LARC/Baucom, R. M	

**NSG 1409 University of Delaware 1952**  
Elevated temperature bolted joint test technology in composite materials

<i>Period</i>	<i>Obligations</i>	
04/01/77-05/31/80	FY80	TOTAL \$115,040
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Pipes, R. B	LARC/Garcia, R	42-Astro Engr
Wilson, D. W	LARC/Cooper, P. A	

**NSG 3184 University of Delaware 1953**  
Heat storage in alloy transformation

<i>Period</i>	<i>Obligations</i>	
07/01/78-11/30/80	FY80	TOTAL: \$183,783
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Birchenall, C. E.	LERC/Vernon, R. W.	47-Materials Engr

**NSG 3189 University of Delaware 1954**  
Inlet flow distortion in turbomachinery

<i>Period</i>	<i>Obligations</i>	
04/01/78-11/31/78	FY80	TOTAL: \$25,154
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Seidel, B. S	LERC/Adameczyk, J. J.	41-Aero Engr

**NSG 3270 University of Delaware 1955**  
Effects of distorted inflow entering a fan in a tilt nacelle

<i>Period</i>	<i>Obligations</i>	
05/01/79-11/01/80	FY80	TOTAL: \$29,547
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Seidel, B. S.	LERC/Farrell, C. A., Jr	41-Aero Engr

**NSG 5144 University of Delaware 1956**  
Ultraviolet studies of heavy-element abundances in stars

<i>Period</i>	<i>Obligations</i>	
12-01/76-11/30/79	FY80	TOTAL: \$905
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Shipman, H. I.	GSFC Kupperman, J. E., Jr	11-Astronomy

**DISTRICT OF COLUMBIA**

**NAG 3-94 The Catholic University of America 1957**  
Rapid determination of aviation fuel freezing points

<i>Period</i>	<i>Obligations</i>	
10/01/80-09/30/81	FY80 \$47,735	TOTAL \$47,735
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Moynihan, C. T	IFRC/Friedman, R.	43-Chem Engr

**NAS 5-26226 The Catholic University of America 1958**  
Development of instrumentation for measurement of scattering from mirrors and black surfaces

<i>Period</i>	<i>Obligations</i>	
06 30/80-11/30/81	FY80: \$20,000	TOTAL: \$20,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lally, J. F	GSFC/Heaney, J. B	45-Elec Engr
Meister, R		

**NSG 09-005-063 The Catholic University of America 1959**  
Interaction of the solar wind with the Moon

<i>Period</i>	<i>Obligations</i>	
04/15/69-05/31/81	FY80: \$37,000	TOTAL: \$304,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Whang, Y. C	HD-ST/Hedin, A. F	13-Physics
	HD-ST/Schmerling, F. R	

**NASA'S UNIVERSITY PROGRAM  
DISTRICT OF COLUMBIA (Continued)**

**NGT 09-005-800 The Catholic University of America 1960**  
Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
09/01/80-08/31/81	FY80: \$7,830	TOTAL: \$7,830
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Werntz, C.	GSFC/Jones, F. C.	13-Physics

**NSG 5066 The Catholic University of America 1961**  
Research of solar hard X-rays and gamma rays

<i>Period</i>	<i>Obligations</i>	
05/01/75-06/31/81	FY80: \$15,157	TOTAL: \$103,751
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Werntz, C.	GSFC/Dennis, B. R.	12-Physics
	GSFC/Jones, F. C.	

**NSG 5111 The Catholic University of America 1962**  
Research of properties of material in the submillimeter wave region

<i>Period</i>	<i>Obligations</i>	
09/01/76-08/31/81	FY80:	TOTAL: \$70,647
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kelley, G. I	GSFC/McAvoy, N	13-Physics
Meister, R.		

**NSG 5173 The Catholic University of America 1963**  
Atom-molecule reactions of chemical importance in the stratosphere

<i>Period</i>	<i>Obligations</i>	
06/01/77-05/31/81	FY80: \$45,551	TOTAL: \$169,737
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hunt, J. B	GSFC/Nava, D. F.	12-Chemistry
Michael, J. V.		

**NSG 7422 The Catholic University of America 1964**  
Expansion of the solar wind from coronal holes

<i>Period</i>	<i>Obligations</i>	
04/01/78-03/31/81	FY80: \$44,000	TOTAL: \$124,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Whang, Y. C.	HD-ST/Chipman, F.	13-Physics

**NAG 1-13 George Washington University 1965**  
Program of research in helicopter aerodynamic theory

<i>Period</i>	<i>Obligations</i>	
12/01/79-11/30/80	FY80: \$25,721	TOTAL: \$25,721
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Liebowitz, H.	LARC/Demarais, R. N.	41-Aero Engr
Runyan, H. L.	LARC/Reed, W. H.	

**NAG 2-40 George Washington University 1966**  
Transonic airfoil-design by optimization methods in the Joint Institute for Advancement of Flight Sciences at NASA-Langley Research Center

<i>Period</i>	<i>Obligations</i>	
06/01/80-05/30/81	FY80: \$15,455	TOTAL: \$15,455
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hafez, M. M.	ARC/Chapman, G. T.	41-Aero Engr
	ARC/Hicks, R. M.	

**NAG 5-83 George Washington University 1967**  
Application of discrete random media techniques for active and passive modeling of subsurface media

<i>Period</i>	<i>Obligations</i>	
07/01/80-06/30/81	FY80: \$25,003	TOTAL: \$25,003
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lang, R. H.	GSFC/Meneghini, R.	45-Elec Engr

**NAS 1-14605 George Washington University 1968**  
Experimental and analytical engineering and applied science support of Langley Research Center programs

<i>Period</i>	<i>Obligations</i>	
09/02/76-09/01/81	FY80: \$30,748	TOTAL: \$203,881
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Liebowitz, H.	LARC/Duberg, J. E.	41-Aero Engr
Whitesides, J. L.	LARC/Erickson, W. D.	

**NAS 5-24431 George Washington University 1969**  
Concatenated coding system

<i>Period</i>	<i>Obligations</i>	
02/22/78-08/31/79	FY80:	TOTAL: \$21,658
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Helgert, H. J.	GSFC/Rende, J. V.	45-Elec Engr
	GSFC/Latos, S. C.	

**NASW 3165 George Washington University 1970**  
Scientific communication in planetary biology and bioscience

<i>Period</i>	<i>Obligations</i>	
04/17/78-06/15/81	FY80: \$53,000	TOTAL: \$150,977
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Waters, F.	HD-SB/Halstead, T. W.	
	HD-SB/Geib, D. S.	59-Life Sci, NEC

**NCC 1-1 George Washington University 1971**  
Data reduction techniques for a Pressure Modulator Radiometer (PMR)

<i>Period</i>	<i>Obligations</i>	
04/01/79-02/28/81	FY80:	TOTAL: \$4,589
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Liebowitz, H.	LARC/Orr, H. D.	31-Atmos Sci
Barkstrom, B. R.	LARC/Reichle, H. G., Jr.	

**NCC 1-14 George Washington University 1972**  
Aeroacoustics research program in Joint Institute for Advancement of Flight Services (JIAFS)

<i>Period</i>	<i>Obligations</i>	
05/15/79-01/31/81	FY80: \$87,259	TOTAL: \$176,470
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Liebowitz, H.	LARC/Lansing, D. L.	41-Aero Engr
	LARC/Hardin, J. C.	

**NASA'S UNIVERSITY PROGRAM  
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**NCC 1-19** George Washington University 1973  
A research program in atmospheric science

Period	Obligations	
07/01/79-05/31/81	FY80: \$74,660	TOTAL: \$167,755
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Liebowitz, H.	LARC/Callis, L. B.	31-Atmos Sci
	LARC/Tolson, R. H.	

**NGR 09-010-074** George Washington University 1980  
Programs of research in flight sciences

Period	Obligations	
04/01/71-07/31/80	FY80:	TOTAL: \$1,187,084
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Liebowitz, H.	LARC/Bobbitt, P. J.	41-Aero Engr
	LARC/Mulac, R. W.	

**NCC 1-24** George Washington University 1974  
Programs of research in flight sciences

Period	Obligations	
08/15/79-01/31/81	FY80: \$72,531	TOTAL: \$191,322
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Liebowitz, H.	LARC/Whitehead, A. H.	41-Aero Engr
Whitesides, J. L.		

**NGR 09-010-078** George Washington University 1981  
Research programs in structures and dynamics

Period	Obligations	
01/06/72-11/30/80	FY80: \$187,234	TOTAL: \$1,489,657
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Liebowitz, H.	LARC/McComb, H. G.	41-Aero Engr
	LARC/Anderson, R. A.	

**NCC 1-27** George Washington University 1975  
Cooperative graduate program in the flight sciences

Period	Obligations	
08/15/79-10/31/80	FY80:	TOTAL: \$53,319
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Liebowitz, H.	LARC/Erickson, W. D.	41-Aero Engr

**NGR 09-010-085** George Washington University 1982  
Aircraft noise reduction research

Period	Obligations	
02/21/73-06/30/81	FY80:	TOTAL: \$690,128
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Liebowitz, H.	LARC/Morgan, H. G.	41-Aero Engr

**NCC 1-29** George Washington University 1976  
Research program in flight dynamics in the Joint Institute for Advancement of Flight Sciences (JIAFS) at the NASA Langley Research Center

Period	Obligations	
12/01/79-11/30/80	FY80: \$61,830	TOTAL: \$61,830
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Liebowitz, H.	LARC/Sullivan, T.	41-Aero Engr
	LARC/Williamson, J.	

**NSG 09-010-096** George Washington University 1983  
Research program in microwave remote sensing

Period	Obligations	
09/01/74-11/30/80	FY80:	TOTAL: \$174,639
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Liebowitz, H.	LARC/Croswell, W. F.	45-Elec Engr
	LARC/Schrader, J. H.	

**NCC 1-36** George Washington University 1977  
Research program in materials science

Period	Obligations	
06/01/80-12/31/80	FY80: \$173,601	TOTAL: \$173,601
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Liebowitz, H.	LARC/Swan, B. C.	47-Materials Engr

**NSG 1026** George Washington University 1984  
A graduate research program in environmental modeling

Period	Obligations	
03/21/74-03/31/80	FY80:	TOTAL: \$623,422
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Rogerson, A. J.	LARC/Callis, L. B.	31-Atmos Sci
Brown, N. B., Jr.	LARC/Tolson, R. H.	

**NCC 1-39** George Washington University 1978  
Program of research in environmental modeling

Period	Obligations	
04/01/80-11/30/80	FY80: \$65,000	TOTAL: \$65,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Liebowitz, H.	LARC/Callis, L. B.	31-Atmos Sci
	LARC/Tolson, R. H.	

**NSG 1110** George Washington University 1985  
Antenna and wave propagation applied to avionics systems

Period	Obligations	
10/01/74-12/31/80	FY80:	TOTAL: \$159,194
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Liebowitz, H.	LARC/Croswell, W. F.	45-Elec Engr
	LARC/Gilreath, M. C.	

**NCC 1-44** George Washington University 1979  
Research program in aeronautics

Period	Obligations	
04/01/76-07/31/82	FY80: \$143,525	TOTAL: \$143,525
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Liebowitz, H.	LARC/Erickson, W. D.	41-Aero Engr
Whitesides, J. L.		

**NSG 1289** George Washington University 1986  
Research program in improved fracture toughness determination for aircraft structural materials

Period	Obligations	
03/01/76-12/31/80	FY80: \$68,163	TOTAL: \$282,627
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Liebowitz, H.	LARC/Roderick, G. L.	47-Materials Engr
Jones, D. L.	LARC/Whitcomb, J. D.	

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**NSG 1555**                      **George Washington University**                      **1987**  
 Studies of radiative transfer in the Earth's atmosphere with emphasis on the inference of the radiation budget

<i>Period</i>	<i>Obligations</i>	
08/01/78-07/31/81	FY80: TOTAL: \$64,931	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Liebowitz, H.	LARC/Smith, G. L.	31-Atmos Sci
Barkstrom, B. R.	LARC/Suttles, J. T.	

**NAG 1-23**                      **Howard University**                      **1994**  
 Effect of load introduction on graphite epoxy compression specimens

<i>Period</i>	<i>Obligations</i>	
01/01/80-12/31/80	FY80: \$21,144 TOTAL: \$21,144	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Reiss, R.	LARC/Clark, R. K.	47-Materials Engr
	LARC/Lisagor, W. B.	

**NSG 1585**                      **George Washington University**                      **1983**  
 Research program in laminar flow control

<i>Period</i>	<i>Obligations</i>	
11/15/78-11/14/80	FY80: \$70,775 TOTAL: \$133,638	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Liebowitz, H.	LARC/Kamp, W. B., Jr.	41-Aero Engr
	LARC/Bobbitt, P. J.	

**NAG 5-17**                      **Howard University**                      **1995**  
 Two photon excitation as a tool for atmospheric and kinetic investigation

<i>Period</i>	<i>Obligations</i>	
03/01/80-02/28/81	FY80: \$57,529 TOTAL: \$57,529	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Halpern, J. B.	GSFC/Miller, G. F.	13-Physics

**NSG 1604**                      **George Washington University**                      **1989**  
 Determination of load sequence effects on the degradation and failure of composite materials

<i>Period</i>	<i>Obligations</i>	
03/16/79-08/31/80	FY80 TOTAL: \$49,997	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lang, J. N.	LARC/O'Brien, T. K.	47-Materials Engr
Jones, D. I.	LARC/Roderick, G. I.	

**NAG 5-25**                      **Howard University**                      **1996**  
 Dynamic characteristics of linear hydrostatic gas bearings

<i>Period</i>	<i>Obligations</i>	
04/01/80-03/31/81	FY80: \$35,000 TOTAL: \$35,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Watkins, C. B.	GSFC/Cygnarowicz, T. A.	46-Mech Engr
Frononi, F. F.	GSFC/Sherman, A.	

**NSG 5109**                      **George Washington University**                      **1990**  
 Decoding and performance of error correcting codes

<i>Period</i>	<i>Obligations</i>	
07/16/76-08/31/81	FY80: \$31,769 TOTAL: \$119,183	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Helgert, H. J.	GSFC/Morales, J. C.	49-Engr, NEC

**NAG 5-65**                      **Howard University**                      **1997**  
 Cometary observations with the International Ultraviolet Explorer

<i>Period</i>	<i>Obligations</i>	
06/01/80-06/30/81	FY80: \$7,230 TOTAL: \$7,230	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Jackson, W. M.	GSFC/Bogges, A.	11-Astronomy
Delsemme, A. H.		
Donn, B. D.		

**NSG 5288**                      **George Washington University**                      **1991**  
 Comparison of passive and active microwave remote sensing

<i>Period</i>	<i>Obligations</i>	
08/01/78-12/31/79	FY80 TOTAL: \$19,998	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lang, R. H.	GSFC/LeVine, D. M.	45-Elec Engr

**NAG 5-79**                      **Howard University**                      **1998**  
 Research relative to optical constants and properties of material in the extreme ultraviolet

<i>Period</i>	<i>Obligations</i>	
06/15/80-06/14/81	FY80: \$47,355 TOTAL: \$47,355	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Catchings, R. M.	GSFC/Johnson, J. E.	13-Physics

**NASW 3152**                      **Georgetown University**                      **1992**  
 Potential impacts of space utilization

<i>Period</i>	<i>Obligations</i>	
04/01/78-05/01/79	FY80 TOTAL: \$15,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Cheston, T. S.	HD-MT/Puttkamer, J. V.	99-Multi-Discip

**NAG 8-371**                      **Howard University**                      **1999**  
 X-ray observations of runaway stars

<i>Period</i>	<i>Obligations</i>	
08/15/80-08/14/81	FY80: \$6,438 TOTAL: \$6,438	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kumar, C. K.	MSFC/Stone, J. T.	11-Astronomy

**NASW 3397**                      **Georgetown University**                      **1993**  
 Guide for the teaching and student research of the applications of shuttle derived space utilization technologies

<i>Period</i>	<i>Obligations</i>	
06/11/80-06/10/81	FY80: \$29,996 TOTAL: \$29,996	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Cheston, T. S.	HD-LF Tuttle, F. B.	79-Soc Sci, NEC
	HD-MT/Puttkamer, J. V.	

**NAG 10-2**                      **Howard University**                      **2000**  
 Feasibility study of using field effect transistors to measure electrical field strength

<i>Period</i>	<i>Obligations</i>	
05/15/80-05/14/81	FY80: \$39,915 TOTAL: \$39,915	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wang, Y. C.	MSFC/Perse, W. T.	13-Physics, NEC

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**NAS 5-23799 Howard University 2001**  
Quality assurance system in clinical practice settings  
*Period Obligations*  
12/07/76-11/30/81 FY80: \$53,491 TOTAL: \$142,791  
*Prin Invest NASA Tech Officer CASE Category*  
Chang, P. GSFC/Alterescu, S. 56-Medical Sciences

**NAS 5-24242 Howard University 2002**  
Study of aerodynamics for sounding rockets  
*Period Obligations*  
07/01/77-03/01/81 FY80. TOTAL: \$117,877  
*Prin Invest NASA Tech Officer CASE Category*  
Fan, D. GSFC/Barrowman, J. S. 41-Aero Engr  
GSFC/Mayo, E. E

**NAS 5-24251 Howard University 2003**  
Study of flexible body interaction  
*Period Obligations*  
08/08/77-12/08/80 FY80: TOTAL: \$19,980  
*Prin Invest NASA Tech Officer CASE Category*  
Choudhury, A. K. GSFC/Hui, P. S. 49-Engr, NEC

**NAS 5-25185 Howard University 2004**  
Study of tektites and other space related glasses  
*Period Obligations*  
08/17/78-08/05/81 FY80: \$60,000 TOTAL: \$110,000  
*Prin Invest NASA Tech Officer CASE Category*  
Thorpe, A. M. GSFC/Okeefe, J. 39-Env Sci, NEC  
GSFC/Alterescu, S.

**NAS 5-26019 Howard University 2005**  
Microwave circuit design  
*Period Obligations*  
02/01/80-02/01/81 FY80: \$63,321 TOTAL: \$63,321  
*Prin Invest NASA Tech Officer CASE Category*  
Chowdhary, R. GSFC/Santarpi, D. E. 45-Elec Engr  
GSFC/Chrissotimos, N. G.

**NCA 5-29 Howard University 2006**  
Godard introduction to engineering careers  
*Period Obligations*  
06/01/78-06/30/81 FY80: \$18,440 TOTAL: \$45,620  
*Prin Invest NASA Tech Officer CASE Category*  
Cox, F. L. GSFC/Chapman, J. W. 49-Engr, NEC

**NCA 5-91 Howard University 2007**  
Pretfreshmen and cooperative education program  
*Period Obligations*  
06/01/78-06/30/81 FY80: \$25,000 TOTAL: \$75,000  
*Prin Invest NASA Tech Officer CASE Category*  
Cox, F. L. GSFC/Chapman, J. W. 49-Engr, NEC

**NGR 09-011-057 Howard University 2008**  
Electron spectroscopy  
*Period Obligations*  
04/01/74-07/31/81 FY80: \$3,000 TOTAL: \$37,840  
*Prin Invest NASA Tech Officer CASE Category*  
Tsang, T. GSFC/Yin, L. I. 13-Physics

**NGT 09-011-060 Howard University 2009**  
Summer faculty fellowship program in research  
*Period Obligations*  
01/01/78-03/31/81 FY80: \$190,155 TOTAL: \$329,605  
*Prin Invest NASA Tech Officer CASE Category*  
Fan, D. HD-LU/Carter, C. H. 99-Multi-Discip

**NSG 1320 Howard University 2010**  
Graduate research program in advanced aerospace structures  
*Period Obligations*  
06/29/76-05/31/81 FY80: \$50,020 TOTAL: \$161,720  
*Prin Invest NASA Tech Officer CASE Category*  
Jones, I. W. LARC/Walz, J. 42-Astro Engr  
LARC/Anderson, M.

**NSG 1414 Howard University 2011**  
The dynamics and control of large flexible space structures  
*Period Obligations*  
05/16/77-05/15/81 FY80: \$68,278 TOTAL: \$210,954  
*Prin Invest NASA Tech Officer CASE Category*  
Bainum, P. M. LARC/Hammer, H. A. 49-Engr, NEC  
Kumar, V. K.  
Reddy, A. S.

**NSG 3071 Howard University 2012**  
Laser induced photoluminescence studies of primary photochemical production processes of cometary radicals  
*Period Obligations*  
08/01/75-03/31/81 FY80: \$15,000 TOTAL: \$246,625  
*Prin Invest NASA Tech Officer CASE Category*  
Jackson, W. M. HD-SL/Murphy, R. E. 12-Chemistry  
HD-SL/Brunk, W. E.

**NSG 5158 Howard University 2013**  
Research of microwave semiconductor devices  
*Period Obligations*  
02/01/77-04/30/81 FY80: \$160,000 TOTAL: \$609,800  
*Prin Invest NASA Tech Officer CASE Category*  
DeLoatch, E. M. GSFC/Alcorn, G. E. 13-Physics  
Chowdhary, R.

**NSG 5186 Howard University 2014**  
Research in space sciences  
*Period Obligations*  
07/01/77-11/30/79 FY80 TOTAL: \$150,000  
*Prin Invest NASA Tech Officer CASE Category*  
Wallace, W. J. GSFC/Okeefe, J. A. 13-Physics  
Chung, D.  
Tsang, T.





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**NAS 1-15724 Embry-Riddle Aeronautical University 2028**  
Development of training materials and concepts for terminal configured vehicle research programs

<i>Period</i>	<i>Obligations</i>	
02/22/79-01/30/80	FY80: TOTAL \$14,666	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Grandelman, J.	LARC/Houck, J. A.	41-Aero Engr
Connolly, T. J.	LARC/Bowles, R. L.	
Brachhold, A. F.		

**NAS 6-3040 Embry-Riddle Aeronautical University 2029**  
Study for the evaluation of in-flight instrument flight rules procedures trainer

<i>Period</i>	<i>Obligations</i>	
10/01/79-09/30/80	FY80: \$23,560 TOTAL: \$23,560	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Gandelman, J.	WFC/Aaron, J. B.	41-Aero Engr
	WFC/Parker, L. C.	

**NAS 5-25165 Florida A&M University 2030**  
Medical application for computer technology

<i>Period</i>	<i>Obligations</i>	
08/15/78-04/17/81	FY80 \$49,000 TOTAL \$97,317	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Fresh, F. A.	GSFC/Alterescu, S.	56-Medical Sciences

**NSG 2029 Florida A&M University 2031**  
Study of influence of amines on diurnal toxicity of stimulants and depressants

<i>Period</i>	<i>Obligations</i>	
07/01/74-10/31/80	FY80: TOTAL \$288,058	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Walker, C. A.	ARC/Winget, C. M.	59-Life Sci, NEC

**NSG 2183 Florida A&M University 2032**  
Regulation of the adrenal cortex function during stress

<i>Period</i>	<i>Obligations</i>	
09/01/76-10/31/80	FY80: TOTAL \$148,952	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Soliman, K. F.	ARC/Winget, C. M.	59-Life Sci, NEC

**NSG 5307 Florida A&M University 2033**  
Electron-impact excitation of molecular nitrogen

<i>Period</i>	<i>Obligations</i>	
11/15/78-11/14/81	FY80: \$66,641 TOTAL: \$177,075	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Jones, H. W.	GSFC/Temkin, A.	13-Physics
Wetherford, C. A.		
Jain, B. L.		

**NAG 5-6 Florida State University 2034**  
Investigation of microwave radiometer data in global numerical weather prediction

<i>Period</i>	<i>Obligations</i>	
02/01/80-01/31/81	FY80: \$63,090 TOTAL: \$63,090	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Krishnamurti, T. N.	GSFC/Halem, M.	31-Atmos Sci

**NAS 1-14930 Florida State University 2035**  
Science support for the stratospheric aerosol and gas experiment

<i>Period</i>	<i>Obligations</i>	
06/22/77-09/30/79	FY80: TOTAL: \$50,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Craig, R. A.	LARC/McMaster, L. R.	31-Atmos Sci
	LARC/McCormick, M. P.	

**NGR 10-004-056 Florida State University 2036**  
Infrared absorption from 0.8 to 1.5 microns of NH3, CH4 and CO2

<i>Period</i>	<i>Obligations</i>	
03/25/69-01/31/81	FY80: \$18,000 TOTAL: \$299,963	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hunt, R. H.	HD-SL/Brunk, W. E.	11-Astronomy
	HD-SL/Murphy, R. E.	

**NSG 7337 Florida State University 2037**  
Rock-inhabiting microorganisms from hot and cold deserts adaptations to extreme environments

<i>Period</i>	<i>Obligations</i>	
03/15/77-03/14/81	FY80: \$85,000 TOTAL: \$289,960	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Friedmann, F. I.	HD-SB/Devincenzi, D. L.	
Friedmann, R. O.		54-Env Biology

**NSG 7473 Florida State University 2038**  
Laboratory determination of infrared absorption line parameters for molecules of importance in upper atmospheric research

<i>Period</i>	<i>Obligations</i>	
07/01/78-07/01/81	FY80: \$35,000 TOTAL: \$105,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hunt, R. H.	HD-EB/Toth, R. A.	31-Atmos Sci
	HD-EB/Seals, R. K. Jr.	

**NSG 7629 Florida State University 2039**  
Meteorology studies of Mars

<i>Period</i>	<i>Obligations</i>	
03/01/79-09/30/80	FY80: \$51,000 TOTAL \$84,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hess, S. L.	HD-SL/Murphy, R. E.	31-Atmos Sci
	HD-SL/Brunk, W. E.	

**NASW 3060 State University System of Florida 2040**  
Operation of a state technology application center

<i>Period</i>	<i>Obligations</i>	
01/01/77-02/29/80	FY80: \$47,961 TOTAL: \$379,941	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Unavailable	HD-ET/Dolby, W.	99-Multi-Discip

**NASA'S UNIVERSITY PROGRAM  
FLORIDA (Continued)**

**NASW 3351 State University System of Florida 2041**  
 Operation of a State Technology Applications Center (STAC)  
*Period Obligations*  
 03/01/80-02/28/81 FY80: \$266,000 TOTAL: \$266,000  
*Pnn Invest NASA Tech Officer CASE Category*  
 Unavailable HD-ET/Harrison, J. 22-Computer Science

**NAS 8-32835 The University of Central Florida 2042**  
 Boundary integral fracture mechanics code  
*Period Obligations*  
 02/27/78-08/31/80 FY80: TOTAL: \$24,515  
*Pnn Invest NASA Tech Officer CASE Category*  
 Carroll, W. F. MSFC/Bianca, C. 47-Materials Engr  
 MSFC/Frederick, P. W.

**NAS 8-33071 The University of Central Florida 2043**  
 Study of cloud cover modeling  
*Period Obligations*  
 05/30/78-09/30/79 FY80: TOTAL \$20,000  
*Pnn Invest NASA Tech Officer CASE Category*  
 Somerville, P. N. MSFC/Smith, O. F. 31-Atmos Sci  
 MSFC/Brown, S. C.

**NAS 8-33761 The University of Central Florida 2044**  
 Domestic hot water system test support  
*Period Obligations*  
 12/14/79-12/14/80 FY80 \$14,367 TOTAL: \$14,367  
*Pnn Invest NASA Tech Officer CASE Category*  
 Gunter, R. D. MSFC/Thomas, C. N. 99-Multi-Discip  
 Gleman, S.

**NAS10-9841 The University of Central Florida 2045**  
 Kennedy Space Center precipitation monitoring program  
*Period Obligations*  
 06/15/80-06/14/81 FY80: \$40,683 TOTAL \$40,683  
*Pnn Invest NASA Tech Officer CASE Category*  
 Madsen, B. C. KSC/Rudolph, H. W. 39-Env Sci, NEC

**NAS10-9897 The University of Central Florida 2046**  
 Study entitled, air particulate sampling  
*Period Obligations*  
 07/30/80-07 29/81 FY80: \$19,479 TOTAL \$19,479  
*Pnn Invest NASA Tech Officer CASE Category*  
 Hudson, G. M. KSC/Rudolph, H. W. 31-Atmos Sci

**NAG 1-39 University of Florida 2047**  
 The numerical solution of partial differential equations by the  
 method of lines  
*Period Obligations*  
 02/01/80-02/28/81 FY80: \$11,875 TOTAL: \$11,875  
*Pnn Invest NASA Tech Officer CASE Category*  
 Edwards, B. H. LARC/Hagler, G. W. 21-Mathematics

**NAG 1-104 University of Florida 2048**  
 Investigation of flow instabilities on a rotating disk with curvature  
 in the radial direction  
*Period Obligations*  
 09/15/80-09/14/81 FY80: \$20,266 TOTAL: \$20,266  
*Pnn Invest NASA Tech Officer CASE Category*  
 Clarkson, M. H. LARC/Wilkinson, S. P. 41-Aero Engr  
 LARC/Bushnell, D. M.

**NAG 2-46 University of Florida 2049**  
 Studies in the accuracy of relative measurements  
*Period Obligations*  
 06/15/80-04/15/81 FY80: \$20,000 TOTAL: \$20,000  
*Pnn Invest NASA Tech Officer CASE Category*  
 Eichhorn, H. K. ARC/Black, D. C. 11-Astronomy

**NAG 5-110 University of Florida 2050**  
 Observation of the Lyman alpha line during primary eclipse of  
 Beta Persic  
*Period Obligations*  
 10/01/80-09/30/81 FY80: \$4,355 TOTAL: \$4,355  
*Pnn Invest NASA Tech Officer CASE Category*  
 Wood, F. B. GSFC/Corrigan, J. P. 11-Astronomy

**NAS 2-9976 University of Florida 2051**  
 Experiment implementation of a lightning and radio emission  
 detector  
*Period Obligations*  
 05/31/78-03/31/82 FY80: \$24,939 TOTAL: \$49,939  
*Pnn Invest NASA Tech Officer CASE Category*  
 Lanzerotti, L. J. ARC/Wilhelm, A. J. 31-Atmos Sci  
 Uman, M. A. ARC/Tischler, F. T.  
 Krider, F. P.

**NAS 5-22908 University of Florida 2052**  
 Nimbus-G experiment team for solar back-scattered ultraviolet  
 and total ozone mapping system  
*Period Obligations*  
 12/19/75-12/31/81 FY80: \$44,000 TOTAL: \$252,000  
*Pnn Invest NASA Tech Officer CASE Category*  
 Green, A. E. GSFC/Nelsen, F. D. 49-Engr, NEC

**NAS10-8920 University of Florida 2053**  
 Models to predict Earth-air interface temperature regimes during  
 freeze conditions  
*Period Obligations*  
 12/02/75-05/07/80 FY80 TOTAL: \$263,515  
*Pnn Invest NASA Tech Officer CASE Category*  
 Martsoff, J. D. KSC/Horn, F. W. 39-Env Sci, NEC

**NAS10-9168 University of Florida 2054**  
 Satellite freeze forecast system  
*Period Obligations*  
 05/10/77-07/30/80 FY80: \$35,000 TOTAL: \$299,230  
*Pnn Invest NASA Tech Officer CASE Category*  
 Martsoff, J. D. KSC/Horn, F. W. 39-Env Sci, NEC



**NASA'S UNIVERSITY PROGRAM  
FLORIDA (Continued)**

<b>NSG 1600</b>	<b>University of Florida</b>	<b>2069</b>	<b>NAS 5-22963</b>	<b>University of Miami</b>	<b>2076</b>
The photochemistry of tropospheric CO and NOx and the impact of anthropogenic emissions			Nimbus-G coastal zone color scanner sensor experiment		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
04/01/79-09/30/80	FY80: TOTAL: \$59,077		02/02/76-09/30/81	FY80: \$60,000 TOTAL: \$170,365	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Chameides, W. L.	LARC/Reichle, H. G., Jr	31-Atmos Sci	Gordon, H. R.	GSFC/Nelsen, E. D.	31-Atmos Sci
<b>NSG 2288</b>	<b>University of Florida</b>	<b>2070</b>	<b>NAS 5-25374</b>	<b>University of Miami</b>	<b>2077</b>
A jet in a crossflow			Data Systems Test (DST) evaluation and data sets		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
01/01/78-11/30/81	FY80: \$59,273 TOTAL: \$170,261		01/15/79-03/14/81	FY80: \$48,837 TOTAL: \$109,303	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Fearn, R. L.	ARC/Aoyagi, K. ARC/Koenig, D. G.	41-Aero Engr	Krause, E. B	GSFC/Greaves, J. R. GSFC/Rivas, E.	31-Atmos Sci
<b>NSG 3018</b>	<b>University of Florida</b>	<b>2071</b>	<b>NAS 5-26201</b>	<b>University of Miami</b>	<b>2078</b>
Silicon PN junction solar cells			Investigations of medium wavelength magnetic anomalies in the eastern Pacific using magnetic fields monitor satellite data		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
06/24/74-02/29/80	FY80: TOTAL: \$266,983		06/02/80-11/02/82	FY80: \$30,000 TOTAL: \$30,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lindholm, F. A. Neugroschel, A.	LERC/Godlewski, M. P. LERC/Brandt, H. W., Jr.	45-Elec Engr	Harrison, C. G.	GSFC/Oseff, H.	32-Geological Sci
<b>NSG 3254</b>	<b>University of Florida</b>	<b>2072</b>	<b>NAS 5-26241</b>	<b>University of Miami</b>	<b>2079</b>
Mechanisms of devitrification of grain boundary glassy phases in silicon nitride materials			Evolution and behavior of major pollution episodes over extended time and space scales		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
03/26/77-03/25/81	FY80: \$42,200 TOTAL: \$82,200		07/14/80-12/01/80	FY80: \$10,000 TOTAL: \$10,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hench, L. L.	LERC/Dutta, S	47-Materials Engr	Prospero, J. M	GSFC/Fraser, R.	31-Atmos Sci
<b>NSG 3273</b>	<b>University of Florida</b>	<b>2073</b>	<b>NAS 8-32898</b>	<b>University of Miami</b>	<b>2080</b>
Evaluation of ion beam sputtered bioglass coatings of prosthetic devices			Numerical study of baroclinic instability		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
07/01/79-06/29/81	FY80: \$15,785 TOTAL: \$25,525		06/02/78-06/14/79	FY80: TOTAL: \$23,260	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hench, L. L.	LERC/Weigand, A. J. LERC/Banks, B. A.	56-Medical Sciences	Geisler, J. E.	MSFC/Fowles, W. W. MSFC/Fichtl, G. H.	31-Atmos Sci
<b>NSG 7236</b>	<b>University of Florida</b>	<b>2074</b>	<b>NAS 8-33523</b>	<b>University of Miami</b>	<b>2081</b>
Use of remote sensing in solving Florida's geological and coastal engineering problems			Modification of a computer general circulation model of the Earth's atmosphere for the atmospheric general circulation experiment		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
07/01/76-06/30/83	FY80: \$100,000 TOTAL: \$599,622		04/16/80-04/15/81	FY80: \$59,092 TOTAL: \$59,092	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ruth, B. E.	HD-ET/Vitale, J. A.	39-Env Sci, NEC	Geisler, J. E.	MSFC/Fowles, W. W. MSFC/Torkar, J. E.	31-Atmos Sci
<b>NAS 2-10524</b>	<b>University of Miami</b>	<b>2075</b>	<b>NAS 8-33558</b>	<b>University of Miami</b>	<b>2082</b>
Life science experiment: Cell-to-cell communications in space			Numerical study of baroclinic instability		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
01/17/80-12/31/80	FY80: \$24,389 TOTAL: \$24,389		09/01/79-11/30/79	FY80: TOTAL: \$7,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Loewenstein, W. R.	ARC/Rasmussen, D. N. ARC/Martens, J.	51-Biological Sci	Geisler, J. E.	MSFC/Fowles, W. W. MSFC/Fichtl, G. H.	31-Atmos Sci

**NASA'S UNIVERSITY PROGRAM  
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**NAS 9-15473** University of Miami **2083**  
Study of sodium homeostasis and renin-aldosterone during water immersion  
*Period* *Obligations*  
11/21/77-01/31/81 FY80: \$25,000 TOTAL: \$90,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Epstein, M JSC/Huntoon, C. L. 56-Medical Sciences

**NAS10-9410** University of Miami **2084**  
Three dimensional thermal pollution mathematical model  
*Period* *Obligations*  
06/06/78-08/05/80 FY80: TOTAL: \$189,643  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Lee, S. S KSC/Bland, R. A. 46-Mech Engr  
Sengupta, S. KSC/Bairnett, U. R.

**NGR 10-007-008** University of Miami **2085**  
Research in the Institute of Molecular Evolution in the School of Environmental and Planetary Sciences  
*Period* *Obligations*  
06/09/64-09/30/80 FY80: \$65,000 TOTAL: \$2,587,040  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Fox, S. W HD-SB/Young, R. S. 12-Chemistry

**NSG 1283** University of Miami **2086**  
Effects of environmental variables on the crack initiation stages of the corrosion fatigue of high strength aluminum alloys  
*Period* *Obligations*  
03/01/76-09/30/80 FY80: TOTAL: \$108,383  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Poteat, L. E LARC/Lisagor, W. B. 47-Materials Engr  
LARC/Ransone, P. O.

**NSG 1436** University of Miami **2087**  
Development of Boolean calculus and its application  
*Period* *Obligations*  
08/15/77-12/31/80 FY80: TOTAL: \$59,797  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Tapia, M. A LARC/Tucker, J. H. 21-Mathematics

**NSG 5342** University of Miami **2088**  
Tropical disturbances in relation to general circulation modeling  
*Period* *Obligations*  
05/01/79-05/31/81 FY80 \$87,147 TOTAL: \$149,368  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Estoque, M. A GSFC/Halem, M. 31-Atmos Sci

**NSG 5344** University of Miami **2089**  
Research of ocean fronts and applications to Atlantic bluefish tuna utilization and management  
*Period* *Obligations*  
04/04/79-07/20/81 FY80: \$90,755 TOTAL: \$170,152  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Williams F. GSFC/McCain, C. R. 33-Oceanography  
Maul, G. A.

**NSG 7510** University of Miami **2090**  
Freezing brines: A Martian regolith model  
*Period* *Obligations*  
12/01/78-08/31/79 FY80: TOTAL: \$10,585  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Brass, G. B. HD-SL/Quaide, W. L. 32-Geological Sci  
HD-SL/French, B. M.

**NAG 1-9** University of South Florida **2091**  
Stochastic analysis of multiple-Passbano spectral classification systems affected by observation errors  
*Period* *Obligations*  
01/01/80-12/31/80 FY80: \$41,155 TOTAL: \$41,155  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Tsokos, C. P. LARC/Huck, F. O. 21-Mathematics  
LARC/Sterner, R. L.

**GEORGIA**

**NAG 10-3** Atlanta University **2092**  
Polymer fractography: A scanning electron microscopy atlas of fractures  
*Period* *Obligations*  
08/19/80-08/18/81 FY80: \$55,676 TOTAL: \$55,676  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Korda, E. J. KSC/Bryan, C. J. 47-Materials Engr

**NSG 8019** Atlanta University **2093**  
A study of the redox photo-chemistry of a number of iron complexes  
*Period* *Obligations*  
09/01/74-05/31/80 FY80: TOTAL: \$99,679  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Reed, J. L. MSFC/Kent, M. I. 12-Chemistry  
Johnson, J.

**NSG 2143** Clark College **2094**  
Aerosol formation and the space shuttle program  
*Period* *Obligations*  
04/15/76-07/31/81 FY80: \$31,502 TOTAL: \$131,589  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Veluri, V. R. ARC/Whitten, R. C. 12-Chemistry  
Utley, H. B. ARC/Farlow, N. H.

**NAS 2-10527** Emory University **2095**  
Cardiovascular adaptation of white rats to decreased gravity of space shuttle/spacelab inflight conditions  
*Period* *Obligations*  
01/17/80-12/31/80 FY80: \$7,914 TOTAL: \$7,914  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Popovic, V. P. ARC/Rasmussen, D.N. 51-Biological Sci  
ARC/Ginn, R.

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GEORGIA (Continued)**

<b>NAS 2-10627</b>	<b>Emory University</b>	<b>2096</b>			
Maintenance of NASA primate resources and primate baseline data					
<i>Period</i>		<i>Obligations</i>			
05/01/80-04/30/81	FY80	\$141,536	TOTAL	\$141,536	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>			<i>CASE Category</i>	
McClure, H M	ARC/Gomersall, F W.			59-Life Sci, NEC	
<b>NAG 2-11</b>	<b>Georgia Institute of Technology</b>	<b>2103</b>			
Molten carbonate CO2 concentrator					
<i>Period</i>		<i>Obligations</i>			
01/01/80-12/31/80	FY80	\$45,069	TOTAL	\$45,069	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>			<i>CASE Category</i>	
Winnick, J.	ARC/Quattrone, P D			59-Life Sci, NEC	
<b>NAG 3-38</b>	<b>Georgia Institute of Technology</b>	<b>2104</b>			
Finite strain creep and creep crack growth analysis					
<i>Period</i>		<i>Obligations</i>			
06/01/80-05/31/81	FY80	\$49,992	TOTAL	\$49,992	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>			<i>CASE Category</i>	
Atluri, S N.	LERC/Smith, G T			46-Mech Engr	
	LERC/Chamis, C C.				
<b>NAG 3-67</b>	<b>Georgia Institute of Technology</b>	<b>2105</b>			
Prediction of sound radiation from different practical jet engine inlets					
<i>Period</i>		<i>Obligations</i>			
06-02-80-06-01/81	FY80	\$50,559	TOTAL	\$50,559	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>			<i>CASE Category</i>	
Zinn, B T.	LERC/Saule, A V.			41-Aero Engr	
Meyer, W I	LERC/Rice, F J				
<b>NAG 3-77</b>	<b>Georgia Institute of Technology</b>	<b>2106</b>			
Surface temperatures and glassy state investigations in tribology					
<i>Period</i>		<i>Obligations</i>			
07-01-80-07-01/81	FY80	\$40,029	TOTAL	\$40,029	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>			<i>CASE Category</i>	
Winer, W O.	LERC/Jones, W R.			46-Mech Engr	
Bair, S					
<b>NAG 1-40</b>	<b>Georgia Institute of Technology</b>	<b>2100</b>			
Mean velocities and Reynolds stresses in a junction flow					
<i>Period</i>		<i>Obligations</i>			
03-31/80-12-31-80	FY80	\$29,982	TOTAL	\$29,982	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>			<i>CASE Category</i>	
McMahon, H M	LARC/Scheiman, J			41-Aero Engr	
Hubbart, J I	LARC/Dwyer, D L				
<b>NAG 1-50</b>	<b>Georgia Institute of Technology</b>	<b>2101</b>			
Development of an airborne laser photofragmentation					
<i>Period</i>		<i>Obligations</i>			
03-01-80-02-28-81	FY80	\$233,982	TOTAL	\$233,982	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>			<i>CASE Category</i>	
Davis, D D	LARC/Allario, F			31-Atmos Sci	
Rodgers, M					
Asai, K					
<b>NAG 1-85</b>	<b>Georgia Institute of Technology</b>	<b>2102</b>			
The photochemistry of tropospheric carbon-oxygen (CO) and nitrogen-oxygen (NOx) and the impact anthropogenic emissions					
<i>Period</i>		<i>Obligations</i>			
07-01-80-06-30-81	FY80	\$59,728	TOTAL	\$59,728	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>			<i>CASE Category</i>	
Chameides, W L	LARC/Reichle, H G			31-Atmos Sci	
	LARC/Wallio, H A				
<b>NAS 1-14351</b>	<b>Georgia Institute of Technology</b>	<b>2108</b>			
Benefit assessment of pollution monitoring satellites					
<i>Period</i>		<i>Obligations</i>			
02/26-76-09/05/79	FY80		TOTAL	\$72,339	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>			<i>CASE Category</i>	
Zimmer, R P	LARC/Lawrence, G F			31-Atmos Sci	
Sassone, P	LARC/Rarer, J I				
Haffer, S C					
<b>NAS 1-15158</b>	<b>Georgia Institute of Technology</b>	<b>2109</b>			
A study to interpret the surface pressure measurements at the tip of a model helicopter rotor in hover					
<i>Period</i>		<i>Obligations</i>			
11/01/77-01/31-80	FY80		TOTAL	\$29,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>			<i>CASE Category</i>	
Gray, R B	LARC/Young, W H, Jr			41-Aero Engr	
McMahon, H M	LARC/Mantay, W R				

**NASA'S UNIVERSITY PROGRAM**

**GEORGIA (Continued)**

<b>NAS 1-15370</b>	<b>Georgia Institute of Technology</b>	<b>2110</b>
Holographic data storage crystals experiment for the Long Duration Exposure Facility (LDEF)		
<i>Period</i>	<i>Obligations</i>	
04/21/78-10/20/80	FY80: TOTAL: \$24,838	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>
Gaylord, T. K.	LARC/ONeal, R. L.	45-Elec Engr
Callen, W. R.	LARC/Clark, L. G.	
<b>NAS 5-26220</b>	<b>Georgia Institute of Technology</b>	<b>2117</b>
Advanced Microwave Moisture Sounder (AMMS) Rain Mapping Radiometers (RMR) August 1980 B-57 mission		
<i>Period</i>	<i>Obligations</i>	
07/08/80-11/07/80	FY80: \$70,698 TOTAL: \$70,698	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>
Gagliano, J. A.	GSFC/King, L.	45-Elec Engr
<b>NAS 1-16222</b>	<b>Georgia Institute of Technology</b>	<b>2111</b>
Helicopter rotor loads using a matched asymptotic expansion technique study		
<i>Period</i>	<i>Obligations</i>	
07/01/80-03/15/81	FY80 \$20,465 TOTAL: \$20,465	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>
Pierce, G. A.	LARC/Berry, J. D.	41-Aero Engr
<b>NAS 5-26304</b>	<b>Georgia Institute of Technology</b>	<b>2118</b>
The prediction of the dynamical impact of changes in stratosphere ozone, phase I (UARS)		
<i>Period</i>	<i>Obligations</i>	
10/01/80-12/30/81	FY80: \$11,000 TOTAL: \$11,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>
Cunnold, D. M.	GSFC/Reber, C. A.	31-Atmos Sci
<b>NAS 1-16356</b>	<b>Georgia Institute of Technology</b>	<b>2112</b>
Science support for Earth Radiation Budget Satellite (ERBS)/ Stratospheric Aerosol and Gas Experiment (SAGE)		
<i>Period</i>	<i>Obligations</i>	
08/07/80-08/06/85	FY80 \$44,738 TOTAL \$44,738	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>
Grams, G. W.	LARC/McMaster, L. R.	31-Atmos Sci
	LARC/McCormick, M. P.	
<b>NAS 8-32897</b>	<b>Georgia Institute of Technology</b>	<b>2119</b>
Study-low latitude winds for orbital reentry		
<i>Period</i>	<i>Obligations</i>	
06/02/78-06/01/79	FY80 TOTAL: \$40,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>
Justus, C. G.	MSFC/Smith, O. E.	31-Atmos Sci
	MSFC/Johnson, D.	
<b>NAS 1-16357</b>	<b>Georgia Institute of Technology</b>	<b>2113</b>
Science support for Earth Radiation Budget Satellite (ERBS)/ Stratospheric Aerosol and Gas Experiment (SAGE)		
<i>Period</i>	<i>Obligations</i>	
08/07/80-08/06/85	FY80 \$26,528 TOTAL: \$26,528	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>
Cunnold, D. M.	LARC/McMaster, L. R.	31-Atmos Sci
	LARC/McCormick, M. P.	
<b>NAS 5-23710</b>	<b>Georgia Institute of Technology</b>	<b>2114</b>
Aircraft radiometer system for project storm fury		
<i>Period</i>	<i>Obligations</i>	
09/21/76-04/30/80	FY80: \$60,971 TOTAL: \$514,168	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>
Schuchardt, J. M.	GSFC/King, J. L.	45-Elec Engr
<b>NAS 8-33093</b>	<b>Georgia Institute of Technology</b>	<b>2120</b>
Applications of acoustics in the measurement of coal slab thicknesses		
<i>Period</i>	<i>Obligations</i>	
07/31/78-10/31/79	FY80. TOTAL: \$87,636	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>
Pierce, A. D.	MSFC/Reed, B.	49-Engr, NEC
Mills, J. M.	MSFC/Randall, J.	
Madden, J., Jr.		
<b>NAS 5-24148</b>	<b>Georgia Institute of Technology</b>	<b>2115</b>
Thunderstorm research international project, 1977		
<i>Period</i>	<i>Obligations</i>	
05/04/77-06/04/81	FY80: \$37,722 TOTAL: \$84,715	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>
Saxena, S. K.	GSFC/Levine, D. M.	31-Atmos Sci
<b>NAS 8-33438</b>	<b>Georgia Institute of Technology</b>	<b>2121</b>
Quantitative analysis of metallurgical specimens		
<i>Period</i>	<i>Obligations</i>	
06/04/79-06/03/81	FY80: \$4,999 TOTAL: \$15,968	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>
Brown, J. L.	MSFC/Johnston, M. H.	
Johnson, J. W.	MSFC/Parr, R. A.	47-Materials Engr
<b>NAS 5-25817</b>	<b>Georgia Institute of Technology</b>	<b>2116</b>
Study of Nimbus 7 applications investigation from priority I listing		
<i>Period</i>	<i>Obligations</i>	
08/20/79-02/19/81	FY80: TOTAL: \$68,113	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>
Cunn Id, D. M.	GSFC/Slajna, E. F.	39-Env Sci, NEC
<b>NAS 8-33605</b>	<b>Georgia Institute of Technology</b>	<b>2122</b>
High accuracy radiation efficiency measurement techniques Study is related to satellite power systems		
<i>Period</i>	<i>Obligations</i>	
09/27/79-03/31/80	FY80: TOTAL: \$19,928	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>
Wu, S. T.	MSFC/Irman, R. A.	45-Elec Engr
	MSFC/Finnell, W.	



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<b>NAS 8-33800</b>	<b>Georgia Institute of Technology</b>	<b>2123</b>
Ice/frost detection using millimeter wave radiometry		
<i>Period</i>	<i>Obligations</i>	
05/28/80-09/27/80	FY80: \$36,137	TOTAL: \$36,137
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Gagliano, J. A.	MSFC/Gleason, F. H.	45-Elec Engr
Schnhardt, J. M.	MSFC/Bowling, C. O.	
<b>NAS10-9757</b>	<b>Georgia Institute of Technology</b>	<b>2124</b>
Study entitled soil radar response study		
<i>Period</i>	<i>Obligations</i>	
02/15/80-08/15/80	FY80: \$9,985	TOTAL: \$9,985
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Steinway, W. J.	KSC/Kassak, J. E.	32-Geological Sci
	KSC/Wojtasinski, R. J.	
<b>NCC 2-9</b>	<b>Georgia Institute of Technology</b>	<b>2125</b>
Three-dimensional simulation of the Jovian circulation		
<i>Period</i>	<i>Obligations</i>	
07/01/79-07/31/81	FY80: \$13,025	TOTAL: \$25,994
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Alyea, F. N.	ARC/Young, R. E.	31-Atmos Sci
<b>NCC 3-14</b>	<b>Georgia Institute of Technology</b>	<b>2126</b>
Interdisciplinary collaboration in tribology		
<i>Period</i>	<i>Obligations</i>	
05/19/80-05/18/81	FY80: \$40,366	TOTAL: \$40,366
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Winer, W. O.	LI RC/Wedeven, L. D.	46-Mech Engr
Ramalingam, S.		
<b>NGL 11-002-004</b>	<b>Georgia Institute of Technology</b>	<b>2127</b>
Theoretical and experimental research program in geophysics with emphasis on upper atmosphere chemical release studies		
<i>Period</i>	<i>Obligations</i>	
09/27/62-08/31/80	FY80:	TOTAL: \$815,075
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Edwards, H. D.	HD-SL/Murphy, R. E.	31-Atmos Sci
	HD-SL/Brunk, W. E.	
<b>NSG 1493</b>	<b>Georgia Institute of Technology</b>	<b>2128</b>
Science support for solar occultation experiments with the Nimbus-G/SAM II and AEM-B/SAGE spacecraft sensors		
<i>Period</i>	<i>Obligations</i>	
01/16/78-10/15/80	FY80	TOTAL: \$224,399
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Grams, G. W.	LARC/McMaster, L. R.	31-Atmos Sci
	LARC/McCormick, M. P.	
<b>NSG 1592</b>	<b>Georgia Institute of Technology</b>	<b>2129</b>
Analysis and design of pendulum vibration absorbers for helicopters		
<i>Period</i>	<i>Obligations</i>	
01/15/79-01/14/81	FY80: \$48,796	TOTAL: \$93,780
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Pierce, G. A.	LARC/Lee, B. L.	41-Aero Engr
	LARC/Hammond, C. E.	
<b>NSG 1643</b>	<b>Georgia Institute of Technology</b>	<b>2130</b>
Ozone transport in the lower stratosphere and the ozone-NO2 relationship		
<i>Period</i>	<i>Obligations</i>	
08/01/79-07/31/81	FY80: \$20,000	TOTAL: \$40,000
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Cunnold, D. M.	LARC/Master, L. R.	31-Atmos Sci
	LARC/McCormick, M. P.	
<b>NSG 2306</b>	<b>Georgia Institute of Technology</b>	<b>2131</b>
Light-scattering calculations for the nephelometer experiment on the 1981/1982 Jupiter orbiter-probe mission		
<i>Period</i>	<i>Obligations</i>	
03/01/78-02/28/81	FY80: \$10,000	TOTAL: \$37,797
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Grams, G. W.	ARC/Ragent, B.	31-Atmos Sci
<b>NSG 2323</b>	<b>Georgia Institute of Technology</b>	<b>2132</b>
Chronology integration analyses for closed life support systems applicable to space habitats		
<i>Period</i>	<i>Obligations</i>	
06/01/78-12/31/80	FY80: \$74,654	TOTAL: \$309,654
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Carden, J. L.	ARC/Wyden, T. J.	59-Life Sci, NEC
Roper, D.		
<b>NSG 2356</b>	<b>Georgia Institute of Technology</b>	<b>2133</b>
Development of molded, coated fabric joints		
<i>Period</i>	<i>Obligations</i>	
12/01/78-08/31/81	FY80: \$44,000	TOTAL: \$128,308
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Olson, L. H.	ARC/Vykukal, H. C.	49-Engr, NEC
Freeston, W. D.		
<b>NSG 2363</b>	<b>Georgia Institute of Technology</b>	<b>2134</b>
In-situ measurements of optical properties of stratospheric aerosols using NASA U-2 aircraft		
<i>Period</i>	<i>Obligations</i>	
02/01/79-11/30/80	FY80: \$63,464	TOTAL: \$113,421
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Grams, G. W.	ARC/Page, W. A.	31-Atmos Sci
<b>NSG 3036</b>	<b>Georgia Institute of Technology</b>	<b>2135</b>
Acoustic properties of turbofan inlets		
<i>Period</i>	<i>Obligations</i>	
09/01/74-10/31/81	FY80:	TOTAL: \$134,633
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Zinn, B. T.	LERC/Baumeister, K. J.	41-Aero Engr
Sigman, R. K.	LERC/Rice, E. J.	
<b>NSG 3106</b>	<b>Georgia Institute of Technology</b>	<b>2136</b>
Surface temperatures and glassy state investigations in tribology		
<i>Period</i>	<i>Obligations</i>	
05/15/76-07/01/80	FY80:	TOTAL: \$119,983
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Winer, W. O.	LERC/Jones, W. R.	46-Mech Engr
Bair, S.		

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<b>NSG 3228</b>	<b>Georgia Institute of Technology</b>	<b>2137</b>
A study of poultry plant noise characteristics and potential noise control techniques		
<i>Period</i>	<i>Obligations</i>	
10/01/78-12/31/80	FY80: \$55,000 TOTAL: \$105,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wyvill, J. C.	LFRC/Feiler, C. E.	13-Physics
<b>NSG 3260</b>	<b>Georgia Institute of Technology</b>	<b>2138</b>
A viscous-inviscid interactive procedure for rotational flow in cascades of two-dimensional airfoils of arbitrary shape		
<i>Period</i>	<i>Obligations</i>	
03/15/79-06/13/81	FY80: \$25,806 TOTAL: \$47,695	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Johnston, W. A.	LERC/Sockol, P. M.	41-Aero Engr
<b>NSG 3297</b>	<b>Georgia Institute of Technology</b>	<b>2139</b>
Foreign labor and capital costs for the manufacture of balance of system components		
<i>Period</i>	<i>Obligations</i>	
08/15/79-04/30/80	FY80: TOTAL: \$22,308	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Jacobson, J. E.	LFRC/Scudder, L. R.	72-Economics
Hammond, R. W.		
James, B. E.		
<b>NSG 3307</b>	<b>Georgia Institute of Technology</b>	<b>2140</b>
A new numerical approach for compressible viscous flows		
<i>Period</i>	<i>Obligations</i>	
09/10/79-09/08/81	FY80 \$52,996 TOTAL \$98,674	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wu, J	LERC/McFarland, E. R.	41-Aero Engr
Lekoudis, S	LERC/Sockol, P. M.	
<b>NSG 5012</b>	<b>Georgia Institute of Technology</b>	<b>2141</b>
Research in millimeter wave techniques		
<i>Period</i>	<i>Obligations</i>	
06/15/74-02/28/81	FY80 \$50,000 TOTAL \$636,434	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Forsythe, R. F.	GSFC/King, J. L.	45-Elec Engr
	GSFC/Shue, J. C.	
<b>NSG 7069</b>	<b>Georgia Institute of Technology</b>	<b>2142</b>
Photocatalytic synthesis on planetary surfaces, molecular bases for the adaptation of halophilic microorganisms		
<i>Period</i>	<i>Obligations</i>	
09/15/74-09/30/80	FY80: TOTAL \$72,766	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hubbard, J. S.	HD-SB/Young, R. S.	51-Biological Sci
<b>NAG 8-3</b>	<b>Morehouse College</b>	<b>2143</b>
Numerical differentiation and interpolation procedure with error estimates for nonexact data		
<i>Period</i>	<i>Obligations</i>	
02/15/80-02/14/81	FY80: \$26,057 TOTAL: \$26,057	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bozeman, R. E.	MSFC/Campbell, W.	21-Mathematics
	MSFC/Kent, M. I.	
<b>NAS 5-23571</b>	<b>Morehouse College</b>	<b>2144</b>
Application of medical information management system for medical record keeping		
<i>Period</i>	<i>Obligations</i>	
06/09/76-10/08/81	FY80: \$50,000 TOTAL: \$122,865	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Barreras, R. J.	GSFC/Alterescu, S.	56-Medical Sciences
	GSFC/Friedman, D. S.	
<b>NSG 7652</b>	<b>Morehouse College</b>	<b>2145</b>
The matrix-isolation infrared-laser-Raman study of the molecular structure of chlorine nitrate		
<i>Period</i>	<i>Obligations</i>	
09/30/79-09/30/80	FY80: TOTAL: \$45,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hall, J. H.	HD-LU/Pohly, J. G.	12-Chemistry
	JPL/Watson, R. T.	
<b>NAS 5-26129</b>	<b>University of Georgia</b>	<b>2146</b>
Urban area change detection procedure with remote sensing data		
<i>Period</i>	<i>Obligations</i>	
04/23/80-12/30/80	FY80: \$19,961 TOTAL \$19,961	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Jensen, J. R.	GSFC/Toll, D.	21-Mathematics
<b>NASW 3247</b>	<b>University of Georgia</b>	<b>2147</b>
For operation of Cosmic		
<i>Period</i>	<i>Obligations</i>	
05/01/79-04/30/81	FY80: \$250,000 TOTAL: \$622,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hale, H.	HD-ET/Harrison, J. O.	22-Computer Science
<b>NAS13-121</b>	<b>University of Georgia</b>	<b>2148</b>
Investigation studies to apply LANDSAT technology to assess the structure and potential waste assimilation capability of wetlands located along the Savannah River from Augusta to Savannah		
<i>Period</i>	<i>Obligations</i>	
06/01/79-05/31/80	FY80: TOTAL: \$20,671	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Cooley, J. L.	NSTL/Butera, M. K.	32-Geological Sci
Odum, E. P.		
<b>NAS13-123</b>	<b>University of Georgia</b>	<b>2149</b>
Conduct short courses in remote sensing		
<i>Period</i>	<i>Obligations</i>	
05/18/79-05/31/80	FY80: TOTAL: \$19,946	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Welch, R.	NSTL/Atwell, B. H.	Geological Sci

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**NAS13-137** University of Georgia **2150**  
Development of a technique to assess wetlands waste assimilation potential incorporating LANDSAT technology

<i>Period</i>	<i>Obligations</i>	
12/20/79-01/03/81	FY80: \$40,298	TOTAL: \$40,298
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Cooley, J. L.	NSTL/Butera, M. K.	39-Env Sci, NEC

**NAS13-157** University of Georgia **2151**  
Remote sensing for state use

<i>Period</i>	<i>Obligations</i>	
07/18/80-07/17/81	FY80: \$18,218	TOTAL: \$18,218
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Welch, R.	NSTL/Atwell, B. H.	32-Geological Sci

**NGR 11-003-037** University of Georgia **2152**  
Interpretation of stratigraphy and geologic mapping of Mars from Mariner Mars 1971 television pictures

<i>Period</i>	<i>Obligations</i>	
05/24/72-04/14/79	FY80	TOTAL: \$79,800
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Howard, J. H.	HD-SL/Boyce, J. M.	32-Geological Sci

**NSG 7433** University of Georgia **2153**  
Irradiation effects on the surface of the Moon, Mercury, asteroids, and other airless solar system bodies due to solar high energy particles and cosmic rays

<i>Period</i>	<i>Obligations</i>	
03/01/78-02/28/81	FY80: \$25,690	TOTAL: \$66,367
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Wenner, D. B.	HD-SL/Quaide, W. L.	32-Geological Sci
	HD-SL/French, B. M.	

**NSG 7539** University of Georgia **2154**  
Comparative analysis of terrestrial and Martian labyrinth terrains

<i>Period</i>	<i>Obligations</i>	
03/01/79-02/28/81	FY80: \$21,000	TOTAL: \$35,650
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Brook, G.	HD-SL/Boyce, J. M.	32-Geological Sci
	HD-SL/Quaide, W. L.	

**HAWAII**

**NAG 2-59** University of Hawaii **2155**  
Submillimeter observations of solar limb brightening in the solar eclipse of 31 July 1981

<i>Period</i>	<i>Obligations</i>	
10/01/80-09/30/81	FY80: \$26,000	TOTAL: \$26,000
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Becklin, E.	ARC/Haughney, L. C.	11-Astronomy
Jefferies, J. T.		
Lindsay, C.		

**NACW 37** University of Hawaii **2156**  
User support and data reduction and analysis of lunar core images

<i>Period</i>	<i>Obligations</i>	
03/01/80-05/31/81	FY80: \$46,371	TOTAL: \$46,371
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
McCord, T. B.	HD-SL/Quaide, W. L.	32-Geological Sci
	HD-SL/French, B. M.	

**NAGW 42** University of Hawaii **2157**  
Research on remote sensing and geologic studies of the lunar crust

<i>Period</i>	<i>Obligations</i>	
03/01/80-02/28/81	FY80: \$61,094	TOTAL: \$61,094
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Hawke, B. R.	HD-SL/Quaide, W. L.	32-Geological Sci
	HD-SL/French, B. M.	

**NAGW 61** University of Hawaii **2158**  
International Conference on Infrared Astronomy

<i>Period</i>	<i>Obligations</i>	
05/01/80-04/30/81	FY80: \$4,035	TOTAL: \$4,035
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Cruikshank, D. P.	HD-SL/Brunk, W. E.	11-Astronomy
	HD-SL/Murphy, R. E.	

**NAGW 65** University of Hawaii **2159**  
Hold a colloquium on the satellites of Jupiter and publish the results in a book same title

<i>Period</i>	<i>Obligations</i>	
03/01/80-03/01/81	FY80: \$14,308	TOTAL: \$14,308
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Unavailable	HD-SL/Brunk, W. E.	11-Astronomy
	HD-SL/Murphy, R. E.	

**NAS 5-25181** University of Hawaii **2160**  
Modifications to and operations and maintenance of the lunar laser observatory at the University of Hawaii in support of various satellite missions

<i>Period</i>	<i>Obligations</i>	
08/09/78-10/31/80	FY80: \$561,216	TOTAL: \$818,226
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Jefferies, J. T.	GSFC/White, W. W.	11-Astronomy

**NAS 5-25376** University of Hawaii **2161**  
Data System test evaluation of global data sets of global data sets

<i>Period</i>	<i>Obligations</i>	
01/23/79-08/22/80	FY80:	TOTAL: \$54,775
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Sadler, J. C.	GSFC/Greaves, J. R.	31-Atmos Sci
	GSFC/Stetina, F. L.	



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**NSG 7312** University of Hawaii 2176  
Remote compositional mapping of the lunar surface  
*Period Obligations*  
02/01/77-03/31/81 FY80: \$180,000 TOTAL: \$931,112  
*Prin Invest NASA Tech Officer CASE Category*  
McCord, T. B. HD-SL/Quaide, W. L. 32-Geological Sci  
HD-SL/French, B. M.

**NSG 7590** University of Hawaii 2185  
Mars surface unit definition characterization  
*Period Obligations*  
03/01/79-09/30/80 FY80: \$140,000 TOTAL: \$204,854  
*Prin Invest NASA Tech Officer CASE Category*  
McCord, T. B. HD-SL/Quaide, W. L. 31-Atmos Sci  
HD-SL/Royce, J. M.

**NSG 7323** University of Hawaii 2177  
Research in planetary astronomy  
*Period Obligations*  
02/01/77-01/31/81 FY80: \$115,037 TOTAL: \$355,329  
*Prin Invest NASA Tech Officer CASE Category*  
McCord, T. B. HD-SL/Brunk, W. E. 11-Astronomy  
HD-SL/Murphy, R. E.

**NSG 7597** University of Hawaii 2184  
Geophysics and thermal evolution of small planetary objects  
*Period Obligations*  
05/01/79-01/31/81 FY80: TOTAL: \$30,446  
*Prin Invest NASA Tech Officer CASE Category*  
Gaffey, M. J. HD-SL/Quaide, W. L. 32-Geological Sci

**NSG 7403** University of Hawaii 2178  
Study of physical processes affecting water ice on outer solar system objects  
*Period Obligations*  
12/01/77-05/31/81 FY80 TOTAL: \$43,326  
*Prin Invest NASA Tech Officer CASE Category*  
Pilcher, C. B. HD-SL/Boyce, J. M. 32-Geological Sci

**NSG 7633** University of Hawaii 2185  
Thermophysics of satellites and asteroids  
*Period Obligations*  
07/01/79-09/30/80 FY80 TOTAL: \$12,142  
*Prin Invest NASA Tech Officer CASE Category*  
Morrison, D. HD-SL/Boyce, J. M. 13-Physics

**NSG 7423** University of Hawaii 2179  
Analysis of depth profiles of cosmic ray products in rocks  
*Period Obligations*  
03/01/78-10/31/79 FY80 TOTAL: \$9,960  
*Prin Invest NASA Tech Officer CASE Category*  
Russ, G. P. HD-SL/Quaide, W. L. 32-Geological Sci  
HD-SL/French, B. M.

**IDAHO**

**NAG 5-93** University of Idaho 2186  
Pipeline processor design for communication systems  
*Period Obligations*  
08/01/80-07/31/81 FY80: \$18,757 TOTAL: \$18,757  
*Prin Invest NASA Tech Officer CASE Category*  
Maki, G. K. GSFC/Miller, W. H. 22-Computer Science  
GSFC/Morakis, J. C.

**NSG 7443** University of Hawaii 2180  
Mineralogy of the surfaces of Mercury and Mars  
*Period Obligations*  
02/01/78-04/30/79 FY80: TOTAL: \$40,048  
*Prin Invest NASA Tech Officer CASE Category*  
McCord, T. B. HD-SL/Dwormik, S. F. 32-Geological Sci

**NSG 2307** University of Idaho 2187  
Perfluorether triazine elastomers  
*Period Obligations*  
03/01/79-02/28/81 FY80: \$10,481 TOTAL: \$20,281  
*Prin Invest NASA Tech Officer CASE Category*  
Korus, R. A. ARC/Rosser, R. W. 12-Chemistry  
ARC/Parker, J. A.

**NSG 7462** University of Hawaii 2181  
An investigation of the mineralogy and petrology of meteorite parent bodies utilizing reflectance spectroscopy  
*Period Obligations*  
07/15/78-02/28/81 FY80: \$37,072 TOTAL: \$52,072  
*Prin Invest NASA Tech Officer CASE Category*  
Gaffey, M. J. HD-SL/Quaide, W. L. 32-Geological Sci  
HD-SL/French, B. M.

**ILLINOIS**

**NSG 7536** University of Hawaii 2182  
Research in ultraviolet spectroscopy  
*Period Obligations*  
11/01/78-10/31/80 FY80: \$107,900 TOTAL: \$207,800  
*Prin Invest NASA Tech Officer CASE Category*  
Jefferies, J. T. HD-ST/Chipman, E. 13-Physics

**NAG 1-5** Illinois Institute of Technology 2188  
Structural optimization with damage tolerance constraints  
*Period Obligations*  
11/15/79-11/14/80 FY80: \$40,000 TOTAL: \$40,000  
*Prin Invest NASA Tech Officer CASE Category*  
Haftka, R. T. LARC/Starnes, J. H., Jr. 41-Aero Engr

**NASA'S UNIVERSITY PROGRAM**

**ILLINOIS (Continued)**

**NAG 1-74** **Illinois Institute of Technology** **2189**  
 Optimization of flow manipulation placement ahead of wind-tunnel contraction  
*Period* *Obligations*  
 07/01/80-06/30/81 **FY80: \$27,440** **TOTAL: \$27,440**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Tan-atchat, J. LARC/Harvey, W. D. 41-Aero Engr  
 LARC/Stainback, P. C

**NSG 1266** **Illinois Institute of Technology** **2190**  
 Automated sizing of aerospace structures under multiple constraints  
*Period* *Obligations*  
 12/01/75-10/31/80 **FY80: \$32,000** **TOTAL: \$180,610**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Haftka, R. LARC/Adelman, H. M. 41-Aero Engr

**NSG 1591** **Illinois Institute of Technology** **2191**  
 Management of turbulent flow structures in boundary layers aimed at drag reduction  
*Period* *Obligations*  
 01/15/79-01/14/81 **FY80: \$40,500** **TOTAL: \$80,622**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Nagib, H. M. LARC/Hefner, J. N. 41-Aero Engr  
 Corke, T. C. LARC/Bushnell, D. M.

**NSG 3220** **Illinois Institute of Technology** **2192**  
 Management of turbulence and vorticity in contracting flows with applications to simulations of flight fan noise  
*Period* *Obligations*  
 09/15/78-11/14/80 **FY80:** **TOTAL: \$117,340**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Nagib, H. M. LERC/Groeneweg, J. F. 41-Aero Engr  
 Wigeland, R. A.

**NAG 3-53** **Northwestern University** **2193**  
 Mechanisms of lean limit extinction  
*Period* *Obligations*  
 04/04/80-04/03/81 **FY80: \$30,000** **TOTAL: \$30,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Law, C. K. LERC/Baker, C. E. 46-Mech Engr

**NAG 8-326** **Northwestern University** **2194**  
 Observations of distant abell clusters discovered as X-ray sources by High Energy Astronomical Observatory-A-1 and observations of IC 3976 and NGC 4410 A/B  
*Period* *Obligations*  
 03/01/80-02/28/81 **FY80: \$13,000** **TOTAL: \$13,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Ulmer, M. P. MSFC/Jones, J. B., Jr. 11-Astronomy  
 Bhavsar, S.  
 Shulman, S.

**NAG 8-367** **Northwestern University** **2195**  
 Research in galactic and extragalactic X-ray astronomy  
*Period* *Obligations*  
 08/20/80-08/19/81 **FY80: \$13,688** **TOTAL: \$13,688**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Ulmer, M. P. MSFC/Stone, J. F. 11-Astronomy

**NAG 8-368** **Northwestern University** **2196**  
 Observations of abell clusters discovered as X-ray sources by HEAO-A-1, II  
*Period* *Obligations*  
 08/15/80-08/14/81 **FY80: \$13,747** **TOTAL: \$13,747**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Ulmer, M. P. MSFC/Stone, J. F. 11-Astronomy

**NAG 8-33010** **Northwestern University** **2197**  
 Research in galactic and extragalactic astronomy HEAO-1  
*Period* *Obligations*  
 06/01/78-09/30/81 **FY80:** **TOTAL: \$38,383**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Ulmer, M. P. MSFC/Jones, J. B., Jr. 11-Astronomy

**NAG 8-33354** **Northwestern University** **2198**  
 Observations of abell cluster  
*Period* *Obligations*  
 07/15/79-07/14/80 **FY80:** **TOTAL: \$7,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Ulmer, M. P. MSFC/Jones, J. B., Jr. 11-Astronomy

**NAG 8-33881** **Northwestern University** **2199**  
 Thermocapillary flows and their stability: Effects of surface layers and contamination  
*Period* *Obligations*  
 07/11/80-07/10/83 **FY80: \$123,874** **TOTAL: \$123,874**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Davis, S. H. MSFC/Moore, W. W. 19-Phys Sci, NEC  
 MSFC/Schafer, C. F.

**NCC 3-13** **Northwestern University** **2200**  
 Interdisciplinary collaboration in tribology  
*Period* *Obligations*  
 05/19/80-05/18/81 **FY80: \$18,757** **TOTAL: \$18,757**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Cheng, H. S. LERC/Wedeven, L. D. 46-Mech Engr

**NGL 14-007-041** **Northwestern University** **2201**  
 A study of celestial objects of high angular momenta  
*Period* *Obligations*  
 02/18/66-10/31/80 **FY80:** **TOTAL: \$265,251**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Huang, S. S. HD-SC/Weiler, E. J. 11-Astronomy  
 HD-SC/Rosendhal, J. D.

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**NASA'S UNIVERSITY PROGRAM  
ILLINOIS (Continued)**

**NCA 2-100902** University of Chicago 2216  
Numerical experiments in galactic dynamics and planetary formation  
*Period* *Obligations*  
11/15/76-11/14/80 FY80: \$13,292 TOTAL: \$20,992  
*Prin Invest* *NASA Tech Officer* *CASF Category*  
Miller, R. H. ARC/Smith, B. F. 11-Astronomy  
Arnett, W. D.

**NGI 14-001-001** University of Chicago 2217  
Investigation of effects of solar wind in interplanetary space  
*Period* *Obligations*  
08/01/60-12/31/81 FY80: \$62,500 TOTAL: \$1,241,572  
*Prin Invest* *NASA Tech Officer* *CASF Category*  
Parker, E. N. HD-SC Kaluzienski, L. J. 11-Astronomy  
HD-SC Opp, A. G.

**NGI 14-001-005** University of Chicago 2218  
High altitude balloon investigations on composition, energy spectrum and intensity of primary cosmic radiation at high and intermediate geomagnetic latitudes  
*Period* *Obligations*  
05 01 61-10 31 80 FY80 \$400,000 TOTAL \$6,335,258  
*Prin Invest* *NASA Tech Officer* *CASF Category*  
Meyer, P. HD-SC Gilman, D. A. 11-Astronomy  
HD-SC Opp, A. G.

**NGI 14-001-006** University of Chicago 2219  
Experimental and theoretical studies of energetic particles and electrodynamic processes in interplanetary space and in vicinity of planets  
*Period* *Obligations*  
08 01 61-12 31 80 FY80 \$440,000 TOTAL \$6,892,396  
*Prin Invest* *NASA Tech Officer* *CASF Category*  
Simpson, J. A. HD-SC Gilman, D. A. 11-Astronomy  
HD-SC Opp, A. G.

**NGI 14-001-010** University of Chicago 2220  
Research and investigation of origin, age and composition of meteorites  
*Period* *Obligations*  
03 11 63-03 31 81 FY80 \$121,330 TOTAL \$1,755,503  
*Prin Invest* *NASA Tech Officer* *CASF Category*  
Anders, I. HD-SI French, B. M. 32-Geological Sci  
HD-SI Quaide, W. I.

**NGI 14-001-167** University of Chicago 2221  
Lunar sample analysis  
*Period* *Obligations*  
03/29 72-01/31 81 FY80 \$150,480 TOTAL \$1,738,830  
*Prin Invest* *NASA Tech Officer* *CASF Category*  
Anders, I. JSC Harris, J. W. 13-Physics

**NGI 14-001-169** University of Chicago 2222  
Lunar sample analysis  
*Period* *Obligations*  
01/19/71-01/31/81 FY80: \$139,310 TOTAL: \$1,005,608  
*Prin Invest* *NASA Tech Officer* *CASF Category*  
Clayton, R. N. JSC/Harris, J. W. 12-Chemistry

**NGI 14-001-171** University of Chicago 2223  
Lunar sample analysis  
*Period* *Obligations*  
01/19/71-01/31/81 FY80: \$84,269 TOTAL: \$703,652  
*Prin Invest* *NASA Tech Officer* *CASF Category*  
Smith, J. V. JSC/Harris, J. W. 13-Physics

**NGI 14-001-258** University of Chicago 2224  
Advanced technical developments in support of scientific experiments in space  
*Period* *Obligations*  
06 15 73-03 31 81 FY80 \$245,996 TOTAL: \$1,795,996  
*Prin Invest* *NASA Tech Officer* *CASF Category*  
Meyer, P. HD-SP Henniger, L. W. 99-Multi-Discip  
Muller, D. HD-SP Taylor, T. C.  
Simpson, J. A.

**NGR 14-001-008** University of Chicago 2225  
Meteorological interpretation of satellite radiation data  
*Period* *Obligations*  
09 01 70-10 31 80 FY80 \$75,000 TOTAL \$1,522,000  
*Prin Invest* *NASA Tech Officer* *CASF Category*  
Fujita, T. T. HD-EB Dodge, J. C. 31-Atmos Sci

**NGR 14-001-135** University of Chicago 2226  
Feasibility of the alpha scattering technique for Martian surface analysis  
*Period* *Obligations*  
02 25 69-01 31 81 FY80 \$100,000 TOTAL \$831,844  
*Prin Invest* *NASA Tech Officer* *CASF Category*  
Turkevich, A. I. HD-SI French, B. M. 32-Geological Sci  
HD-SI Quaide, W. I.

**NGR 14-001-147** University of Chicago 2227  
Interferometric high-resolution spectroscopy of optical interstellar lines  
*Period* *Obligations*  
03 18 70-06 30 81 FY80 \$58,279 TOTAL \$321,048  
*Prin Invest* *NASA Tech Officer* *CASF Category*  
Hobbs, I. M. HD-SC Weiler, T. J. 11-Astronomy  
HD-SC Boggess, N. W.

**NGR 14-001-225** University of Chicago 2228  
Physiology of the vestibular system of the squirrel monkey  
*Period* *Obligations*  
05 12 67-11/30/80 FY80 \$45,000 TOTAL \$467,893  
*Prin Invest* *NASA Tech Officer* *CASF Category*  
Goldberg, J. M. ARC Dauntton, N. G. 51-Biological Sci  
Fernandez, C.



**NASA'S UNIVERSITY PROGRAM  
ILLINOIS (Continued)**

**NSG 14-001-227** University of Chicago 2229  
Photometry of galactic and extragalactic far infrared sources using  
the 91.5 cm airborne infrared telescope  
*Period* *Obligations*  
02/27/73-03/31/81 FY80: \$126,100 TOTAL: \$686,665  
*Pin Invest* *NASA Tech Officer* *CASE Category*  
Harper, D. A., Jr ARC/Haughney, I. C. 11-Astronomy

**NSG 14-001-249** University of Chicago 2230  
Physical properties of solar nebula as deduced from chondrites  
*Period* *Obligations*  
05/14/73-03/31/81 FY80: \$141,247 TOTAL: \$778,187  
*Pin Invest* *NASA Tech Officer* *CASE Category*  
Grossman, I HD-SI French, B. M. 32-Geological Sci  
HD-SI Quade W. I.

**NSG 2057** University of Chicago 2231  
Study of sensitive detection system for far infrared astronomy  
*Period* *Obligations*  
12/01/74-10/31/80 FY80: \$59,694 TOTAL: \$237,766  
*Pin Invest* *NASA Tech Officer* *CASE Category*  
Hildebrand, R. H. ARC/Haughney, I. C. 11-Astronomy  
ARC/Gillespie, C. M.

**NSG 5202** University of Chicago 2232  
Study of interstellar clouds containing atomic and molecular  
constituents  
*Period* *Obligations*  
09/01/77-08/31/79 FY80 TOTAL: \$12,467  
*Pin Invest* *NASA Tech Officer* *CASE Category*  
Simpson, J. A. GSFC/Kupperian, J. E., Jr  
11-Astronomy

**NSG 5311** University of Chicago 2233  
Ultraviolet observations of copernicus data  
*Period* *Obligations*  
12/15/78-12/14/79 FY80 TOTAL: \$15,000  
*Pin Invest* *NASA Tech Officer* *CASE Category*  
Simpson, J. A. GSFC/Kupperian, J. E., Jr  
11-Astronomy

**NSG 5402** University of Chicago 2234  
Research of precipitation growth in convective clouds  
*Period* *Obligations*  
08/01/79-01/31/81 FY80 TOTAL: \$26,474  
*Pin Invest* *NASA Tech Officer* *CASE Category*  
Srivastava, R. C. GSFC/Adler, R. F. 31-Atmos Sci

**NSG 5405** University of Chicago 2235  
Observations of interstellar lines in stars toward the North polar  
spur  
*Period* *Obligations*  
09/15/79-09/14/80 FY80: \$12,000 TOTAL: \$12,000  
*Pin Invest* *NASA Tech Officer* *CASE Category*  
Frisch, P. C. GSFC/Bogges, A. 11-Astronomy

**NSG 7212** University of Chicago 2236  
Nuclear astrophysics effects in meteoritic and lunar material  
*Period* *Obligations*  
03/01/76-02/28/81 FY80: \$47,404 TOTAL: \$204,645  
*Pin Invest* *NASA Tech Officer* *CASE Category*  
Schramm, D. N. HD-SI/Quade, W. L. 32-Geological Sci  
HD-SI/French, B. F.

**NSG 7303** University of Chicago 2237  
Applications of electron microscopy in molecular exobiology and  
extraterrestrial research  
*Period* *Obligations*  
12/01/76-12/31/82 FY80: TOTAL: \$105,000  
*Pin Invest* *NASA Tech Officer* *CASE Category*  
Fernandez, H. HD-SB/Soffen, G. A. 51-Biological Sci

**NSG 7356** University of Chicago 2238  
Balloon-borne spectroscopy of stratospheric constituents  
*Period* *Obligations*  
06/01/77-12/31/79 FY80: TOTAL: \$142,996  
*Pin Invest* *NASA Tech Officer* *CASE Category*  
Kaplan, I. D. HD-ST/Seals, R. K., Jr. 31-Atmos Sci  
HD-ST/Tilford, S. G.

**NSG 7464** University of Chicago 2239  
Studies of the energy spectrum of cosmic ray electrons  
*Period* *Obligations*  
07/01/78-11/01/80 FY80 TOTAL: \$160,332  
*Pin Invest* *NASA Tech Officer* *CASE Category*  
Muller, D. HD-SC/Kaluzienski, L. J. 31-Atmos Sci

**NSG 7532** University of Chicago 2240  
Chemical analysis by alpha particle techniques on a cometary  
mission  
*Period* *Obligations*  
01/01/79-04/01/80 FY80: \$25,000 TOTAL: \$123,000  
*Pin Invest* *NASA Tech Officer* *CASE Category*  
Turkevich, A. I. HD-SI French, B. M. 32-Geological Sci  
HD-SI Quade, W. I.

**NSG 7550** University of Chicago 2241  
Ion and electron microprobe analyses of meteoritic minerals  
*Period* *Obligations*  
02/01/79-07/31/81 FY80: TOTAL: \$54,000  
*Pin Invest* *NASA Tech Officer* *CASE Category*  
Smith, J. V. HD-SI/French, B. M. 32-Geological Sci  
HD-SI Quade, W. I.

**NAG 3-48** University of Illinois - Chicago Circle 2242  
Synthesis and optimization of spiral bevel gear tooth surfaces  
*Period* *Obligations*  
03/21/80-08/20/81 FY80: \$51,415 TOTAL: \$51,415  
*Pin Invest* *NASA Tech Officer* *CASE Category*  
Litvin, E. I. IERC/Coy, J. J. 46-Mech Engr

**NASA'S UNIVERSITY PROGRAM  
ILLINOIS (Continued)**

**NAS 8-32993** University of Illinois - Chicago Circle **2243**  
Spacelab experiment definition relating to basic soil behavior and dynamic properties

<i>Period</i>	<i>Obligations</i>	
04/01/78-02/28/79	FY80: TOTAL: \$10,000	
<i>Pnn Invest</i>	NASA Tech Officer	CASE Category
Silver, M. L.	MSFC/Costes, N.	44-Civil Engr
	MSFC/Campbell, W.	

**NAG 8-317** University of Illinois, Urbana **2250**  
Surveys of old supernova remnants and study of the young supernova remnants Cassiopeia A and Tycho of the high energy astronomical observatory-B guest observer proposal

<i>Period</i>	<i>Obligations</i>	
02/25/80-02/24/81	FY80: \$15,000 TOTAL: \$15,000	
<i>Pnn Invest</i>	NASA Tech Officer	CASE Category
Dickel, J. R.	MSFC/Jones, J. B.	11-Astronomy

**NAG 1-76** University of Illinois, Urbana **2244**  
The study of wake pressure recovery as a factor in airfoil design

<i>Period</i>	<i>Obligations</i>	
06/15/80-06/14/81	FY80: \$39,900 TOTAL: \$39,900	
<i>Pnn Invest</i>	NASA Tech Officer	CASE Category
Ormsbee, A. I.	LARC/Somers, D. M.	41-Aero Engr

**NAS 5-24275** University of Illinois, Urbana **2251**  
Application and design refinement of the massively parallel processing computer

<i>Period</i>	<i>Obligations</i>	
09/12/77-08/19/80	FY80: \$62,677 TOTAL: \$177,677	
<i>Pnn Invest</i>	NASA Tech Officer	CASE Category
Slotnick, D. L.	GSFC/Schaefer, D. H.	45-Elec Engr

**NAG 1-90** University of Illinois, Urbana **2245**  
Multi-level semantic analysis and problem solving in the flight domain

<i>Period</i>	<i>Obligations</i>	
07/11/80-07/10/81	FY80: \$74,900 TOTAL: \$74,900	
<i>Pnn Invest</i>	NASA Tech Officer	CASE Category
Chien, R. T.	LARC/Hankins, W. W.	41-Aero Engr
	LARC/Pennington, J. E.	

**NAS 5-25062** University of Illinois, Urbana **2252**  
Study of antenna diffraction problems

<i>Period</i>	<i>Obligations</i>	
06/23/78-02/01/81	FY80: TOTAL: \$129,229	
<i>Pnn Invest</i>	NASA Tech Officer	CASE Category
Mitra, R.	GSFC/Keating, T., Jr.	45-Elec Engr
Lee, S.		

**NAG 3-60** University of Illinois, Urbana **2246**  
The mechanisms of flame holding in the wake of a bluff body

<i>Period</i>	<i>Obligations</i>	
05/21/80-05/20/81	FY80: \$30,000 TOTAL: \$30,000	
<i>Pnn Invest</i>	NASA Tech Officer	CASE Category
Strehlow, R. A.	LERC/Baker, C. E.	41-Aero Engr

**NAS 9-15328** University of Illinois, Urbana **2253**  
Definition of Spacelab I experiment on effects of prolonged weightlessness on the humoral response in humans

<i>Period</i>	<i>Obligations</i>	
07/15/77-07/01/81	FY80: TOTAL: \$47,738	
<i>Pnn Invest</i>	NASA Tech Officer	CASE Category
Voss, E. W.	JSC/Thirolf, R. G.	59-Life Sci, NEC

**NAG 5-84** University of Illinois, Urbana **2247**  
Study the dynamics of old supernova remnants by comparison of multi-wavelength data

<i>Period</i>	<i>Obligations</i>	
06/25/80-12/24/80	FY80: \$2,700 TOTAL: \$2,700	
<i>Pnn Invest</i>	NASA Tech Officer	CASE Category
Dickel, J. R.	GSFC/Gull, T. R.	11-Astronomy

**NGI 14-005-140** University of Illinois, Urbana **2254**  
Research on fluid dynamic and heat transfer problems of modern air breathing propulsive systems

<i>Period</i>	<i>Obligations</i>	
05/23/69-05/31/79	FY80: TOTAL: \$257,661	
<i>Pnn Invest</i>	NASA Tech Officer	CASE Category
Chow, W. L.	LERC/Bober, L. J.	41-Aero Engr

**NAG 5-85** University of Illinois, Urbana **2248**  
Research of mass loss from selected supergiant stars

<i>Period</i>	<i>Obligations</i>	
07/01/80-02/28/81	FY80: \$12,000 TOTAL: \$12,000	
<i>Pnn Invest</i>	NASA Tech Officer	CASE Category
Lamb, S. A.	GSFC/Bogges, A.	11-Astronomy
Sargent, W. L.		

**NGR 14-005-176** University of Illinois, Urbana **2255**  
Investigation of the atmosphere of Jupiter by studying the ammonia feature at a wavelength of 1.26 cm

<i>Period</i>	<i>Obligations</i>	
05/22/72-06/30/81	FY80: TOTAL: \$64,109	
<i>Pnn Invest</i>	NASA Tech Officer	CASE Category
Dickel, J. R.	HD-SL/Brunk, W. E.	11-Astronomy
	HD-SL/Murphy, R. E.	

**NAG 8-310** University of Illinois, Urbana **2249**  
Investigation of X-ray spectra of accreting nonmagnetic degenerate dwarfs

<i>Period</i>	<i>Obligations</i>	
03/01/80-02/28/81	FY80: \$6,000 TOTAL: \$6,000	
<i>Pnn Invest</i>	NASA Tech Officer	CASE Category
Lamb, D. Q.	MSFC/Jones, J. B.	11-Astronomy
Mason, K. O.		
Brandnardi, G.		

**NGR 14-005-181** University of Illinois, Urbana **2256**  
Rocket studies of the lower ionosphere

<i>Period</i>	<i>Obligations</i>	
08/01/71-10/31/80	FY80: \$450,000 TOTAL: \$4,034,817	
<i>Pnn Invest</i>	NASA Tech Officer	CASE Category
Bowhill, S. A.	WFC/Gray, J. W.	19-Phys Sci, NEC
	WFC/Pless, R. H.	

**NASA'S UNIVERSITY PROGRAM  
ILLINOIS (Continued)**

<b>NSG 1471</b>	<b>University of Illinois, Urbana</b>	<b>2257</b>
Mechanisms and methodologies for the design and construction of communicating concurrent processes in real-time environments		
<i>Period</i>	<i>Obligations</i>	
11/15/77-11/14/81	FY80: \$67,000 TOTAL: \$241,422	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Campbell, R. H.	LARC/Foudriat, E. C.	21-Mathematics
Belford, G.	LARC/Will, R. H.	
<b>NSG 1547</b>	<b>University of Illinois, Urbana</b>	<b>2258</b>
An experimental investigation of 235UF6 fission produced plasmas		
<i>Period</i>	<i>Obligations</i>	
07/01/78-06/30/81	FY80: \$40,000 TOTAL: \$120,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Miley, G. H.	LARC/Jalufka, N. W.	13-Physics
<b>NSG 1609</b>	<b>University of Illinois, Urbana</b>	<b>2259</b>
Lasing characteristics of gas mixtures involving UF6 application to nuclear pumping of lasers		
<i>Period</i>	<i>Obligations</i>	
04/15/79-04/14/81	FY80: \$46,832 TOTAL: \$76,832	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Verdeyen, J. T.	LARC/Hohl, F.	13-Physics
Eden, J. G.	LARC/Jalufka, N. W.	
<b>NSG 2119</b>	<b>University of Illinois, Urbana</b>	<b>2260</b>
Pilot interaction with automated airborne decision making systems		
<i>Period</i>	<i>Obligations</i>	
11/01/75-08/20/81	FY80: \$85,206 TOTAL: \$343,570	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Rouse, W. B.	ARC/Palmer, E. A.	99-Multi-Discip
	ARC/Wempe, T. E.	
<b>NSG 3293</b>	<b>University of Illinois, Urbana</b>	<b>2261</b>
The effect of a zero g environment on flammability limits as determined using a standard flammability tube apparatus		
<i>Period</i>	<i>Obligations</i>	
08/21/79-08/20/80	FY80: TOTAL: \$30,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Strehlow, R. A.	LERC/Cochran, T. H.	13-Physics
<b>NSG 5049</b>	<b>University of Illinois, Urbana</b>	<b>2262</b>
Effects of atmospheric refraction and turbulence on the accuracy of laser systems		
<i>Period</i>	<i>Obligations</i>	
02/01/75-10/31/80	FY80: \$18,000 TOTAL: \$189,080	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Gardner, C. S.	GSFC/Abshire, J. B.	45-Elec Engr
<b>NSG 5213</b>	<b>University of Illinois, Urbana</b>	<b>2263</b>
Studies of the transport of nitric oxide using AE satellite data		
<i>Period</i>	<i>Obligations</i>	
10/01/77-12/31/80	FY80: TOTAL: \$47,957	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sechrist, C. F., Jr.	GSFC/Spencer, N. W.	13-Physics
<b>NSG 5278</b>	<b>University of Illinois, Urbana</b>	<b>2264</b>
Search for spectra of interstellar molecules against hot stars		
<i>Period</i>	<i>Obligations</i>	
06/15/78-12/14/80	FY80: TOTAL: \$13,513	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Snyder, L. E.	GSFC/Donn, B. D.	11-Astronomy
	GSFC/Stief, L. J.	
<b>NSG 5294</b>	<b>University of Illinois, Urbana</b>	<b>2265</b>
Copernicus satellite observations		
<i>Period</i>	<i>Obligations</i>	
08/01/78-07/31/80	FY80: TOTAL: \$6,823	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Crutcher, R. M.	GSFC/Kupperian, J. E., Jr.	11-Astronomy
<b>NSG 5319</b>	<b>University of Illinois, Urbana</b>	<b>2266</b>
Theoretical studies of the solar corona, solar maximum mission		
<i>Period</i>	<i>Obligations</i>	
01/15/79-01/14/81	FY80: TOTAL: \$41,568	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Mouschovias, T. C.	GSFC/Donley, J. L.	31-Atmos Sci
<b>NSG 7044</b>	<b>University of Illinois, Urbana</b>	<b>2267</b>
Evolution of the cell and the translation process		
<i>Period</i>	<i>Obligations</i>	
06/01/74-05/31/81	FY80: \$79,500 TOTAL: \$376,860	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Woese, C. R.	HD-SB/Devincenzi, D. L.	12-Chemistry
<b>NSG 7506</b>	<b>University of Illinois, Urbana</b>	<b>2268</b>
Studies of upper-atmosphere motions by UHF		
<i>Period</i>	<i>Obligations</i>	
10/01/78-09/30/80	FY80: \$81,798 TOTAL: \$156,798	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bowhill, S. A.	HD-EB/Toth, R. A.	31-Atmos Sci
	HD-EB/Tilford, S. G.	
<b>NSG 7598</b>	<b>University of Illinois, Urbana</b>	<b>2269</b>
Observing Compact Objects Workshop		
<i>Period</i>	<i>Obligations</i>	
02/01/79-09/30/79	FY80: TOTAL: \$7,143	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Pines, D.	HD-SC/Opp, A. G.	11-Astronomy
Lamb, F.		
<b>NSG 7653</b>	<b>University of Illinois, Urbana</b>	<b>2270</b>
Fundamental studies in theoretical X-ray astronomy		
<i>Period</i>	<i>Obligations</i>	
09/01/79-12/31/80	FY80: \$140,000 TOTAL: \$140,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lamb, D. Q.	HD-SC/Kaluzienski, L. J.	11-Astronomy
	HD-SC/Opp, A. G.	



**NASA'S UNIVERSITY PROGRAM  
INDIANA (Continued)**

**NSG 7520** **Indiana University - Bloomington** **2283**  
Origin and evolution of sulfur in an Archean volcano-sedimentary sequence, north central Minnesota  
*Period* *Obligations*  
01/01/79-12/31/80 **FY80: \$17,544** **TOTAL: \$29,688**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Ripley, E. M. HD-SB/Devincenzi, D. L.  
32-Geological Sci

**NSG 9072** **Indiana University - Bloomington** **2284**  
Investigation of regolith evolution through a petrographic and electronprobe analysis of soil samples  
*Period* *Obligations*  
07/14/78-07/14/81 **FY80: \$9,650** **TOTAL: \$28,550**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Basu, A. JSC/McKay, D. S. 32-Geological Sci

**NSG 9077** **Indiana University - Bloomington** **2285**  
Characterization and evolution of Apollo 15 drill core soils, and the origin of green glass vitrophyres  
*Period* *Obligations*  
07/15/79-02/15/81 **FY80: \$25,000** **TOTAL: \$46,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Basu, A. JSC/Harris, J. W. 32-Geological Sci

**NSG 3183** **Indiana Univ.-Purdue U. at Indianapolis** **2286**  
Numerical solution of the compressible boundary layer equations with viscous-inviscid interaction  
*Period* *Obligations*  
01/16/78-01/15/81 **FY80: \$29,764** **TOTAL: \$68,239**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Bodonyi, R. J. LERC/Sokol, P. M. 41-Aero Engr

**NSG 3294** **Indiana Univ.-Purdue U. at Indianapolis** **2287**  
Finite element analysis of transonic flow through a cascade of airfoils using a self-adaptive mesh  
*Period* *Obligations*  
08/01/79-11/01/80 **FY80** **TOTAL: \$56,411**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Ecer, A. LERC/Chima, R. 41-Aero Engr

**NAG 1-58** **Purdue University** **2288**  
A study of method to predict and measure the transmission of sound through the walls of light aircraft  
*Period* *Obligations*  
04/01/80-03/31/82 **FY80: \$157,775** **TOTAL: \$157,775**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Crocker, M. J. LARC/Mixson, J. S. 41-Aero Engr

**NAG 3-17** **Purdue University** **2289**  
Sensor failure detection and control system accommodation  
*Period* *Obligations*  
02/01/80-01/31/81 **FY80: \$41,930** **TOTAL: \$41,930**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Leininger, G. G. LERC/Lehtinen, B. 41-Aero Engr  
LERC/Merrill, W. C.

**NAG 3-59** **Purdue University** **2290**  
Cobalt in nickel base superalloys  
*Period* *Obligations*  
05/01/80-05/01/81 **FY80: \$34,982** **TOTAL: \$34,982**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Radavich, J. F. LERC/Stephens, J. R. 47-Materials Engr

**NAG 3-62** **Purdue University** **2291**  
Water droplet dynamics in annular cascade  
*Period* *Obligations*  
04/15/80-04/14/81 **FY80: \$51,487** **TOTAL: \$51,487**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Murthy, S. N. LERC/Steinke, R. J. 41-Aero Engr

**NAG 4-1** **Purdue University** **2292**  
The integrated manual and automatic control of complex flight vehicles  
*Period* *Obligations*  
01/01/80-12/31/80 **FY80: \$54,502** **TOTAL: \$54,502**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Schmidt, D. K. DFRC/Berry, D. T. 41-Aero Engr  
DFRC/Powers, B. G.

**NAG 5-3** **Purdue University** **2293**  
Research on aspects of the massively parallel processor  
*Period* *Obligations*  
01/01/80-04/14/81 **FY80: \$33,065** **TOTAL: \$33,065**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Reeves, A. P. GSFC/Strong, J. P. 45-Elec Engr  
GSFC/Schaefer, D. H.

**NAG 5-101** **Purdue University** **2294**  
Study the effect of cloud inhomogeneity on the Earth radiation budget  
*Period* *Obligations*  
09/01/80-08/31/81 **FY80: \$30,000** **TOTAL: \$30,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Avies, R. D. GSFC/Curran, R. J. 31-Atmos Sci  
GSFC/King, M. D.

**NAG 5-106** **Purdue University** **2295**  
Parameterization of cloud effects on the absorption of solar radiation  
*Period* *Obligations*  
09/15/80-09/14/81 **FY80: \$38,146** **TOTAL: \$38,146**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Davies, R. GSFC/Shukla, T. 31-Atmos Sci

**NAG 2-10514** **Purdue University** **2296**  
Influences of mechanical vibration of plant growth and development under hypogravity conditions  
*Period* *Obligations*  
01/17/80-04/30/81 **FY80: \$17,379** **TOTAL: \$17,379**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Mitchell, C. A. ARC/Ferandin, J. 51-Biological Sci  
ARC/Mancini, R.

**NASA'S UNIVERSITY PROGRAM  
INDIANA (Continued)**

**NAS 5-26196** **Purdue University** **2297**  
Develop and evaluate a performance and cost modeling capability for the NASA data management system

<i>Period</i>	<i>Obligations</i>	
06/11/80-02/10/81	FY80: \$89,988	TOTAL: \$89,988
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Williams, T. J.	GSFC/Grenchik, T. J.	21-Mathematics
Sadowski, R. P.		

**NAS 5-26287** **Purdue University** **2298**  
Magsat science investigation: Application of Magsat to lithospheric modeling in South America: Part I: Processing and interpretation of magnetic and gravity anomaly data

<i>Period</i>	<i>Obligations</i>	
09/26/80-01/25/83	FY80: \$38,000	TOTAL: \$38,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hinze, W. J.	GSFC/Oseroff, H.	32-Geological Sci

**NAS 9-15325** **Purdue University** **2299**  
Develop an operational forest resource information system

<i>Period</i>	<i>Obligations</i>	
10/01/77-06/30/81	FY80: \$94,839	TOTAL: \$684,839
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Mroczyński, R.	JSC/Joosten, R. E.	39-Env Sci, NEC

**NAS 9-15466** **Purdue University** **2300**  
Remote sensing of agriculture, Earth resources and man's environment

<i>Period</i>	<i>Obligations</i>	
12/01/77-11/30/80	FY80: \$1,858,250	TOTAL: \$4,760,259
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bauer, M. E.	JSC/Erickson, J. D.	39-Env Sci, NEC

**NAS 9-15508** **Purdue University** **2301**  
Digital processing of LANDSAT MSS and topographic data to improve capabilities for computerized mapping of forest cover types

<i>Period</i>	<i>Obligations</i>	
12/16/77-10/31/80	FY80:	TOTAL: \$200,549
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hoffer, R. M.	JSC/Amsbury, D. L.	39-Env Sci, NEC

**NAS 9-15889** **Purdue University** **2302**  
Evaluation of Side Looking Airborne Radar (SLAR) and simulated thematic mapper multi-spectral (MSS) data for forest cover mapping using computer aided analysis techniques

<i>Period</i>	<i>Obligations</i>	
05/21/79-11/30/80	FY80: \$124,100	TOTAL: \$187,875
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hoffer, R. M.	JSC/Amsbury, D. L.	32-Geological Sci

**NCA 2-605001** **Purdue University** **2303**  
A study of the factors influencing the performance and morale of small research groups in isolation

<i>Period</i>	<i>Obligations</i>	
06/01/80-05/31/82	FY80: \$30,000	TOTAL: \$30,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Castore, C. H.	ARC/Patton, M.	62-Social Aspects
Heslin, R.		

**NCC 5-21** **Purdue University** **2304**  
Lithospheric models of the North American continent derived from seismic refraction and surface wave studies

<i>Period</i>	<i>Obligations</i>	
07/01/79-12/31/80	FY80:	TOTAL: \$41,855
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Braile, L. W.	GSFC/Allenby, R. J.	32-Geological Sci

**NGI 15-005-140** **Purdue University** **2305**  
Origin of chondrites from relationships between fourteen key trace elements

<i>Period</i>	<i>Obligations</i>	
06/21/71-02/28/81	FY80: \$64,497	TOTAL: \$557,934
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lipschutz, M. E.	HD-SL/French, B. M.	32-Geological Sci
	HD-SL/Quaide, W. L.	

**NGI 15-005-186** **Purdue University** **2306**  
Application of remote sensing technology to solution of problems in management of resources

<i>Period</i>	<i>Obligations</i>	
06/19/73-05/31/80	FY80:	TOTAL: \$1,195,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Weismiller, R. A.	HD-ET/Vitale, J. A.	39-Env Sci, NEC

**NGT 15-005-790** **Purdue University** **2307**  
Pre-cooperative engineering education program

<i>Period</i>	<i>Obligations</i>	
08/01/79-07/31/80	FY80:	TOTAL: \$3,474
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Holec, D. E.	HD-LU/Pohly, J. G.	49-Engr, NEC
	LERC/Allen, R. P.	

**NSG 1635** **Purdue University** **2308**  
Multiple level techniques for computational fluid dynamics

<i>Period</i>	<i>Obligations</i>	
08/20/79-10/31/80	FY80:	TOTAL: \$27,905
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
McCarthy, D. R.	LARC/Swanson, R. C.	41-Aero Engr
	LARC/Klunker, B. E.	

**NSG 2192** **Purdue University** **2309**  
Joint cooperative program in computer graphics

<i>Period</i>	<i>Obligations</i>	
11/01/76-08/31/81	FY80:	TOTAL: \$210,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Anderson, D. C.	ARC/Carmichael, R. L.	41-Aero Engr
White, P. R.		
Garrett, R. E.		

**NASA'S UNIVERSITY PROGRAM  
INDIANA (Continued)**

**NSG 2401** **Purdue University** **2310**  
Plant diversity to support humans in a controlled ecology life support system ground-based demonstrator  
*Period* *Obligations*  
09/01/79-05/31/81 **FY80: \$98,314** **TOTAL: \$136,314**  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Hoff, J. E. ARC/Zeitman, B. B. 59-Life Sci, NEC  
Howe, J. M.

**NSG 2404** **Purdue University** **2311**  
Higher plant species selection criteria for a closed ecological life support system: Photosynthetic and nutritional aspects  
*Period* *Obligations*  
09/01/79-10/30/80 **FY80: \$30,000** **TOTAL: \$70,000**  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Mitchell, C. A. ARC/Zill, L. P. 59-Life Sci, NEC

**NSG 3071** **Purdue University** **2312**  
Gas film cooling of turbine vane surfaces  
*Period* *Obligations*  
09/01/75-10/15/80 **FY80:** **TOTAL: \$53,067**  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
LEcuyer, M. R. LERC/Stepka, F. S. 41-Aero Engr

**NSG 3105** **Purdue University** **2313**  
Expanding capabilities of NASA computer programs for fluid flow computations in turbomachinery  
*Period* *Obligations*  
06/01/76-09/30/80 **FY80:** **TOTAL: \$56,131**  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Ragsdell, K. M. LERC/Katsanis, T. 41-Aero Engr  
Thompson, H. D.

**NSG 3135** **Purdue University** **2314**  
Aerodynamics parameters affecting turbopropeller performance  
*Period* *Obligations*  
01/15/77-08/31/81 **FY80: \$94,511** **TOTAL: \$283,368**  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Sullivan, J. P. LERC/Serafini, J. S. 41-Aero Engr

**NSG 3185** **Purdue University** **2315**  
Analytical and experimental study on impact damage of laminated composites  
*Period* *Obligations*  
10/31/77-02/28/81 **FY80: \$55,000** **TOTAL: \$150,186**  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Sun, C. T. LERC/Chamis, C. C. 41-Aero Engr  
LERC/Hirschbein, M. S.

**NSG 3213** **Purdue University** **2316**  
Fuel sprays in high-speed air flows  
*Period* *Obligations*  
09/01/78-09/30/81 **FY80: \$53,650** **TOTAL: \$204,665**  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Lefebvre, A. H. LERC/Lyons, V. J. 41-Aero Engr  
Skifstad, J. G.

**NSG 3237** **Purdue University** **2317**  
Analysis and simulation of wind energy systems  
*Period* *Obligations*  
12/01/78-11/30/79 **FY80:** **TOTAL: \$49,863**  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Krause, P. C. LERC/Gilbert, L. J. 45-Elec Engr

**NSG 3258** **Purdue University** **2318**  
Atomization of broad-specification aircraft fuels  
*Period* *Obligations*  
05/15/79-05/14/81 **FY80: \$57,053** **TOTAL: \$104,560**  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Shifstad, J. G. LERC/Haggard, J. 46-Mech Engr  
Lefebvre, A. H.

**NSG 3285** **Purdue University** **2319**  
Three-dimensional aerodynamic of turbomachines  
*Period* *Obligations*  
07/01/79-06/30/81 **FY80: \$125,000** **TOTAL: \$242,569**  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Fleeter, S. LERC/Boldman, D. R. 41-Aero Engr

**NSG 3311** **Purdue University** **2320**  
Calculation of boundary layer effects in supersonic mixed-compression inlets at angle of attack  
*Period* *Obligations*  
10/01/79-12/31/80 **FY80: \$57,783** **TOTAL: \$57,783**  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Hoffman, J. D. LERC/Bishop, A. R. 41-Aero Engr

**NSG 5414** **Purdue University** **2321**  
A quantitative applications-oriented evaluation of thematic mapper design specifications  
*Period* *Obligations*  
10/01/79-12/31/80 **FY80: \$50,977** **TOTAL: \$50,977**  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Swain, P. H. GSFC/Gordon, F. 99-Multi-Discip  
Landgrebe, D. A.

**NSG 7167** **Purdue University** **2322**  
High-time resolution photometry of flare stars simultaneous with X-ray satellite observations  
*Period* *Obligations*  
10/01/75-03/31/80 **FY80:** **TOTAL: \$30,648**  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Moffett, T. J. HD-SC/Rosendhal, J. D. 11-Astronomy  
HD-SC/Roman, N. G.

**NSG 7278** **Purdue University** **2323**  
Characterization and elucidation of the mechanism of mechanical stress inhibition of plant growth  
*Period* *Obligations*  
10/01/76-09/30/81 **FY80: \$76,000** **TOTAL: \$164,476**  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Mitchell, C. A. HD-SB/Halstead, T. W. 51-Biological Sci

**NASA'S UNIVERSITY PROGRAM  
INDIANA (Continued)**

**NAG 2-35** University of Notre Dame **2324**  
Zero modules and inverse system design  
*Period* *Obligations*  
04/01/80-03/31/81 FY80: \$15,366 TOTAL: \$15,366  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Sain, M. K. ARC/Doolin, B. F. 49-Engr, NEC

**NAS 3-21018** University of Notre Dame **2325**  
Feasibility study of liquid pool burning in reduced gravity  
*Period* *Obligations*  
07/28/77-05/10/79 FY80: TOTAL: \$45,648  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Kanury, M. LERC/Haggard, J. 11-Astronomy

**NSG 1419** University of Notre Dame **2326**  
Structure of separated flow regions occurring near the leading edge of air foils including transition  
*Period* *Obligations*  
06/01/77-10/31/80 FY80: \$35,000 TOTAL: \$110,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Mueller, T. J. LARC/Somers, D. M. 41-Aero Engr

**NSG 3048** University of Notre Dame **2327**  
Alternatives for jet engine control  
*Period* *Obligations*  
03/01/75-09/29/81 FY80: \$60,000 TOTAL: \$233,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Sain, M. K. LERC/Seldner, K. 45-Elec Engr

**NSG 3195** University of Notre Dame **2328**  
Study of aerodynamic mechanism for noise generated by rotor-stator interaction  
*Period* *Obligations*  
05/01/78-04/30/81 FY80: TOTAL: \$67,918  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Atassi, H. LERC/Scott, J. N. 13-Physics  
LERC/Dittmar, J. H.

**IOWA**

**NAS 8-33728** Drake University **2329**  
Assess use and development of a computer code rotating flows  
*Period* *Obligations*  
03/17/80-03/16/81 FY80: \$20,336 TOTAL: \$20,336  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Kopicky, K. J. MSFC/Fowles, W. W. 19-Phys Sci, NEC  
MSFC/Fichtl, G. H.

**NAG 2-30** Iowa State University **2330**  
Low-speed, high-lift aerodynamics  
*Period* *Obligations*  
03/01/80-08/31/81 FY80: \$30,000 TOTAL: \$30,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
James, W. D. ARC/Olson, L. E. 41-Aero Engr  
ARC/Corsiglia, V. R.

**NAG 5-104** Iowa State University **2331**  
Energetic study of the Goddard Laboratory for Atmospheric Sciences general circulation model  
*Period* *Obligations*  
04/01/80-03/31/82 FY80: \$50,096 TOTAL: \$50,096  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Chen, T. C. GSFC/Shukla, J. 31-Atmos Sci

**NAG 8-338** Iowa State University **2332**  
Radio sources near COS-B X-ray sources  
*Period* *Obligations*  
03/17/80-03/16/81 FY80: \$4,286 TOTAL: \$4,286  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Lamb, R. C. MSFC/Jones, T. B. 11-Astronomy  
Market, T. H.

**NAG 8-360** Iowa State University **2333**  
Follow-up study of CG284-1 region. Follow-up study of CG295-0 region. Timing studies of X-ray sources possibly linked to X-ray sources  
*Period* *Obligations*  
06/20/80-06/19/81 FY80: \$17,948 TOTAL: \$17,948  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Lamb, R. C. MSFC/Swearingen, J. C. 11-Astronomy

**NAS 8-33013** Iowa State University **2334**  
Study of the X-ray emission from a strong gamma ray source  
*Period* *Obligations*  
05/02/78-05/01/79 FY80: TOTAL: \$9,794  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Lamb, R. C. MSFC/Dailey, C. C. 11-Astronomy

**NAS 8-33334** Iowa State University **2335**  
Supernova remnants near COS-B gamma ray sources  
*Period* *Obligations*  
02/13/79-04/30/81 FY80: TOTAL: \$13,671  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Lamb, R. C. MSFC/Jones, J. B., Jr. 11-Astronomy

**NCA 2-340002** Iowa State University **2336**  
Theoretical models for the abundances of volatile materials in the atmospheres of the terrestrial planets and models of the interiors of Saturn, Uranus, and Neptune  
*Period* *Obligations*  
02/01/80-01/31/81 FY80: \$17,640 TOTAL: \$17,640  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Grossman, A. S. ARC/Pollack, J. B. 31-Atmos Sci  
Podolak, M. ARC/Reynolds, R. T.

**NCA 2-340802** Iowa State University **2337**  
Simulation of Martian aeolian phenomena  
*Period* *Obligations*  
09/01/78-08/31/81 FY80: TOTAL: \$23,870  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Iversen, J. D. ARC/Pollack, J. B. 49-Engr, NEC



# NASA'S UNIVERSITY PROGRAM

## IOWA (Continued)

<b>NCA 2-340901</b>	<b>Iowa State University</b>	<b>2338</b>	<b>Techniques for generating unsteady airfoil flows</b>
<i>Period</i>	<i>Obligations</i>		
10/01/78-09/30/80	FY80: \$15,406	TOTAL: \$28,051	
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	
Cook, W. J.	ARC/Presley, L. L.	46-Mech Engr	
<b>NSG 1372</b>	<b>Iowa State University</b>	<b>2345</b>	<b>Periodic analysis of large space structures</b>
<i>Period</i>	<i>Obligations</i>		
01/01/77-12/31/80	FY80: \$35,000	TOTAL: \$119,945	
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	
McDaniel, T. J.	LARC/Fralich, R. W.	49-Engr, NEC	LARC/Pinson, L. D.
<b>NCC 1-17</b>	<b>Iowa State University</b>	<b>2339</b>	<b>Analysis of flows with shocks</b>
<i>Period</i>	<i>Obligations</i>		
10/01/79-09/30/81	FY80: \$36,276	TOTAL: \$71,184	
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	
Anderson, D. A.	LARC/Salas, M. D.	41-Aero Engr	
<b>NSG 1538</b>	<b>Iowa State University</b>	<b>2346</b>	<b>Symbolic solution of linear differential equations</b>
<i>Period</i>	<i>Obligations</i>		
06/01/78-12/31/80	FY80:	TOTAL: \$14,804	
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	
Feinberg, R. B.	LARC/Shoosmith, J. N.	21-Mathematics	
<b>NCC 2-19</b>	<b>Iowa State University</b>	<b>2340</b>	<b>Wing/body interference flow investigation</b>
<i>Period</i>	<i>Obligations</i>		
07/01/79-06/30/81	FY80: \$65,520	TOTAL: \$108,829	
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	
Vogel, J. M.	ARC/Corsiglia, V. R.	41-Aero Engr	ARC/Ross, J.
<b>NSG 1582</b>	<b>Iowa State University</b>	<b>2347</b>	<b>Trailing vortex interaction and decay</b>
<i>Period</i>	<i>Obligations</i>		
12/01/78-12/31/81	FY80:	TOTAL: \$31,658	
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	
Iversen, J. D.	LARC/Morris, D. J.	41-Aero Engr	
<b>NCC 2-22</b>	<b>Iowa State University</b>	<b>2341</b>	<b>Wing/nacelle interference flow investigation</b>
<i>Period</i>	<i>Obligations</i>		
09/01/79-05/31/81	FY80:	TOTAL: \$21,105	
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	
Nogel, J.	ARC/Corsiglia, V. R.	41-Aero Engr	
<b>NSG 1605</b>	<b>Iowa State University</b>	<b>2348</b>	<b>Load deflection characteristics of inflated structures</b>
<i>Period</i>	<i>Obligations</i>		
04/01/79-05/31/81	FY80: \$29,145	TOTAL: \$54,151	
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	
Baumgarten, J. R.	LARC/Tanner, J. A.	46-Mech Engr	
<b>NGR 16-002-038</b>	<b>Iowa State University</b>	<b>2342</b>	<b>Calculation of viscous compressible flow</b>
<i>Period</i>	<i>Obligations</i>		
10/07/71-07/31/81	FY80: \$29,998	TOTAL: \$195,161	
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	
Tannehill, J. C.	ARC/Rakich, J. U.	41-Aero Engr	ARC/Marvin, J. G.
<b>NSG 2091</b>	<b>Iowa State University</b>		<b>Study of viscous cross-flow effects on cylinders at high Re numbers</b>
<i>Period</i>	<i>Obligations</i>		
07/01/75-09/01/81	FY80:	TOTAL: \$1,000	
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	
James, W. D.	ARC/Malcolm, G. N.	41-Aero Engr	
<b>NGT 16-002-800</b>	<b>Iowa State University</b>	<b>2343</b>	<b>Graduate student researchers program</b>
<i>Period</i>	<i>Obligations</i>		
12/01/80-11/30/81	FY80: \$9,290	TOTAL: \$9,290	
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	
Okushi, T. H.	LERC/Strazisar, A. J.	46-Mech Engr	
<b>NSG 5339</b>	<b>Iowa State University</b>	<b>2350</b>	<b>Research of extended-range forecasting problems blocking</b>
<i>Period</i>	<i>Obligations</i>		
04/01/79-03/31/81	FY80: \$48,343	TOTAL: \$93,588	
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	
Chen, T.	GSFC/Halem, M.	31-Atmos Sci	
<b>NGT 16-002-801</b>	<b>Iowa State University</b>	<b>2344</b>	<b>Graduate student training program in computational fluid dynamics</b>
<i>Period</i>	<i>Obligations</i>		
07/01/80-12/31/80	FY80: \$75,000	TOTAL: \$75,000	
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	
Anderson, D. A.	HD-RT/Graves, R. A.	41-Aero Engr	
<b>NAG 1-36</b>	<b>University of Iowa</b>	<b>2351</b>	<b>Coupling of the nitrogen-oxygen X and sulfur oxygen X cycles in the troposphere</b>
<i>Period</i>	<i>Obligations</i>		
02/01/80-01/31/81	FY80: \$55,780	TOTAL: \$55,780	
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	
Ragg, M. B.	LARC/Fishman, J.	39-Env Sci, NEC	

**NASA'S UNIVERSITY PROGRAM**  
**IOWA (Continued)**

**NAS 2-6553** University of Iowa **2352**  
Pioneer F/G data analysis-Jovian charged particles experiment  
*Period* *Obligations*  
07/21/71-12/31/80 FY80: \$72,080 TOTAL: \$932,380  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
VanAllen, J. A. ARC/Fimmel, R. O. 11-Astronomy  
ARC/Dyer, J.

**NAS 5-11064** University of Iowa **2353**  
Low energy electrons and protons experiment for IMP-H and J  
*Period* *Obligations*  
05/31/68-09/30/79 FY80: TOTAL: \$840,656  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Frank, L. A. GSFC/Gemmell, J. D. 13-Physics

**NAS 5-11279** University of Iowa **2354**  
Solar wind plasma wave experiment for the Helios missions  
*Period* *Obligations*  
03/30/70-09/30/81 FY80: \$62,946 TOTAL: \$1,582,719  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Gurnett, D. A. GSFC/Corrigan, J. P. 11-Astronomy

**NAS 5-11431** University of Iowa **2355**  
Ac electric and magnetic fields experiment  
*Period* *Obligations*  
05/21/71-03/31/80 FY80 TOTAL: \$650,387  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Gurnett, D. A. GSFC/Davis, M. A. 31-Atmos Sci

**NAS 5-20093** University of Iowa **2356**  
Plasma wave experiment for International Sun-Earth Explorer  
Spacecraft A and B  
*Period* *Obligations*  
05/20/74-09/30/81 FY80 \$312,530 TOTAL: \$1,973,298  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Gurnett, D. A. GSFC/Davis, M. A. 13-Physics

**NAS 5-20094** University of Iowa **2357**  
Magnetospheric and interplanetary plasma for International  
Sun-Earth Explorer mother and daughter spacecraft  
*Period* *Obligations*  
05/20/74-06/30/80 FY80: TOTAL: \$1,439,600  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Frank, L. A. GSFC/Wales, B. 13-Physics

**NAS 5-24293** University of Iowa **2358**  
Global auroral imaging at visible and ultraviolet wavelengths  
for the dynamic Explorer  
*Period* *Obligations*  
07/26/77-08/31/81 FY80: \$335,649 TOTAL: \$964,263  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Frank, L. A. GSFC/Fellerman, K. D. 13-Physics

**NAS 5-24294** University of Iowa **2359**  
Plasma wave experiment for the dynamic Explorer  
*Period* *Obligations*  
07/26/77-08/29/81 FY80: \$215,000 TOTAL: \$844,779  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Shawhan, S. D. GSFC/Fellerman, K. D. 13-Physics  
Gurnett, D. A. GSFC/Lidston, J. M.

**NAS 5-24336** University of Iowa **2360**  
International Sun-Earth Explorer-A experiment data reduction  
and analysis  
*Period* *Obligations*  
10/11/77-10/10/80 FY80: \$11,105 TOTAL: \$65,105  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Gurnett, D. A. GSFC/Heppner, J. P. 13-Physics

**NAS 5-25530** University of Iowa **2361**  
Data reduction and analysis for measurements of low-energy  
electrons and protons in the Earth's magnetosphere and the  
interplanetary medium  
*Period* *Obligations*  
10/01/79-10/31/80 FY80: TOTAL: \$70,980  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Frank, L. A. GSFC/Gemmell, J. D. 13-Physics

**NAS 5-25689** University of Iowa **2362**  
Spin scan global aurora imaging instrument experiment for  
dynamics Explorer  
*Period* *Obligations*  
02/10/80-07/31/83 FY80 \$21,000 TOTAL: \$21,000  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Frank, L. A. GSFC/Hoffman, R. A. 41-Aero Engr

**NAS 5-25690** University of Iowa **2363**  
Data analysis for plasma wave instrument dynamics Explorer  
*Period* *Obligations*  
02/10/80-07/31/83 FY80 \$19,000 TOTAL: \$19,000  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Shawhan, S. GSFC/Hoffman, R. A. 41-Aero Engr

**NAS 5-25990** University of Iowa **2364**  
Hardware for unified radio and plasma wave experiment  
international solar polar mission investigation  
*Period* *Obligations*  
12/31/79-09/30/83 FY80 \$282,000 TOTAL: \$282,000  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Gurnett, D. A. GSFC/Stone, R. G. 11-Astronomy  
GSFC/Davis, M. A.

**NAS 5-26125** University of Iowa **2365**  
Interplanetary monitoring platform-J data reduction and analy-  
sis  
*Period* *Obligations*  
04/01/80-05/31/81 FY80 \$29,111 TOTAL: \$29,111  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Gurnett, D. A. GSFC/Corrigan, J. P. 11-Astronomy

**NASA'S UNIVERSITY PROGRAM  
IOWA (Continued)**

**NAS 5-26257** University of Iowa **2366**  
International Sun-Earth Explorer A and B data reduction and analysis

<i>Period</i>	<i>Obligations</i>	
07/01/80-11/30/81	FY80: \$157,000	TOTAL: \$157,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Frank, L. A.	GSFC/Wales, R. O.	31-Atmos Sci
	GSFC/Corrigan, J. P.	

**NSG 2300** University of Iowa **2372**  
Experimental study of trailing edge and near-wake flows

<i>Period</i>	<i>Obligations</i>	
02/01/78-01/31/81	FY80: \$51,885	TOTAL: \$155,275
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ramaprian, B. R.	ARC/Marvin, J. G.	41-Aero Engr
Patel, V. C.	ARC/Cleary, J. W.	

**NAS 8-32807** University of Iowa **2367**  
Definition of instruments for an ejectable plasma diagnostics package for Spacelab 2 mission

<i>Period</i>	<i>Obligations</i>	
10/03/77-09/30/82	FY80: \$913,100	TOTAL: \$2,740,531
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Shawhan, S. D.	MSFC/Guynes, B. V.	31-Atmos Sci
	MSFC/Ise, R.	

**NSG 2327** University of Iowa **2373**  
Laser manipulation of metallic vapors

<i>Period</i>	<i>Obligations</i>	
08/01/78-10/31/80	FY80:	TOTAL: \$117,768
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Stwalley, W. C.	ARC/Stallcop, J. R.	13-Physics
Yang, S. C.		
Zemke, W. T.		

**NAS 8-33770** University of Iowa **2368**  
A recoverable plasma diagnostics package for Spacelab

<i>Period</i>	<i>Obligations</i>	
07/25/80-08/18/81	FY80: \$588,599	TOTAL: \$588,599
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Shawhan, S.	MSFC/Guynes, B. V.	13-Physics
	MSFC/Ise, R.	

**NSG 3117** University of Iowa **2374**  
Boundary layer flow transition and separation in inlets of V/STOL and other high performance propulsion system

<i>Period</i>	<i>Obligations</i>	
01/01/77-01/31/80	FY80:	TOTAL: \$69,666
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Chou, D. C.	LERC/Stockman, N. O.	41-Aero Engr

**NGL 16-001-002** University of Iowa **2369**  
Theoretical and experimental studies related to particles and fields associated with major bodies of solar system and with interplanetary space

<i>Period</i>	<i>Obligations</i>	
05/23/62-11/30/82	FY80: \$221,000	TOTAL: \$5,540,196
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
VanAllen, J. A.	HD-ST/Hedin, A. E.	13-Physics
	HD-ST/Schmerling, E. R.	

**NSG 3305** University of Iowa **2375**  
Development of finite difference method for internal computational fluid mechanics

<i>Period</i>	<i>Obligations</i>	
09/01/79-08/30/81	FY80: \$46,553	TOTAL: \$65,250
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Chen, C. J.	LERC/Johnson, G. M.	41-Aero Engr

**NGL 16-001-043** University of Iowa **2370**  
Waves in plasmas

<i>Period</i>	<i>Obligations</i>	
03/28/67-11/30/81	FY80: \$125,000	TOTAL: \$1,139,986
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Gurnett, D. A.	HD-ST/Hedin, A. E.	13-Physics
	HD-ST/Schmerling, E. R.	

**NSG 7412** University of Iowa **2376**  
Analysis of cometary gas and dust

<i>Period</i>	<i>Obligations</i>	
01/01/78-05/31/80	FY80:	TOTAL: \$22,255
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Neff, J. S.	HD-SL/Brunk, W. E.	11-Astronomy

**NSG 1499** University of Iowa **2371**  
Effects of misalignment on mechanical behavior of metals in creep

<i>Period</i>	<i>Obligations</i>	
03/01/78-06/30/81	FY80: \$23,876	TOTAL: \$53,508
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wu, H. C.	LARC/Rummler, D. R.	47-Materials Engr

**NSG 7471** University of Iowa **2377**  
Experiments on spin-aligned atoms

<i>Period</i>	<i>Obligations</i>	
07/01/78-06/30/81	FY80: \$70,000	TOTAL: \$188,701
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Stwalley, W. C.	HD-RT/Blue, J. W.	13-Physics

**NSG 7632** University of Iowa **2378**  
Investigation of charged particle acceleration mechanisms in space plasmas

<i>Period</i>	<i>Obligations</i>	
07/01/79-09/30/80	FY80:	TOTAL: \$56,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Joyce, G.	HD-ST/Hedin, A. E.	19-Phys Sci, NEC
	HD-ST/Schmerling, E. R.	

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**IOWA (Continued)**

**NSG 9060**                      **University of Iowa**                      **2379**  
 Neurocirculatory control mechanisms in humans: Role of  
 cardiopulmonary baroreceptors  
*Period*    *Obligations*  
 08/01/77-07/31/80                      **FY80:**                      **TOTAL \$80,899**  
*Prin Invest*                      *NASA Tech Officer*                      *C&SF Category*  
 Abboud, F. M.                      JSC/Hull, W. E.                      56-Medical Sciences

**SAG 2-57**                      **University of Kansas**                      **2385**  
 Crop phenology and LANDSAT-based irrigated lands inventory  
 in the high plains  
*Period*    *Obligations*  
 09/01/80-03/31/81                      **FY80 \$30,050**                      **TOTAL \$30,050**  
*Prin Invest*                      *NASA Tech Officer*                      *C&SF Category*  
 Martinko, E. A.                      ARC/Jones, H. W.                      55-Agriculture Sci  
 Poracsky, J.                      ARC/Lumb, D. R.

**KANSAS**

**NAS 9-14899**                      **Kansas State University**                      **2380**  
 Estimated winter wheat yield from crop growth predicted by  
 LANDSAT  
*Period*    *Obligations*  
 03/15/76-10/31/80                      **FY80**                      **TOTAL \$219,734**  
*Prin Invest*                      *NASA Tech Officer*                      *C&SF Category*  
 Kanemasu, I. I.                      JSC/Baldwin, R. R.                      31-Atmos Sci

**SAG 3-11**                      **University of Kansas**                      **2386**  
 Dynamic distortion analysis technology study  
*Period*    *Obligations*  
 11/15/79-11/13/81                      **FY80 \$62,031**                      **TOTAL \$62,031**  
*Prin Invest*                      *NASA Tech Officer*                      *C&SF Category*  
 Schweikhard, W. G.                      IERC/Neumann, H. I.                      41-Aero Engr

**NSG 7580**                      **Kansas State University**                      **2381**  
 Geology of Libyan desert glass site, SW Egypt  
*Period*    *Obligations*  
 03/01/79-12/31/80                      **FY80**                      **TOTAL \$2,298**  
*Prin Invest*                      *NASA Tech Officer*                      *C&SF Category*  
 Underwood, J. R.                      HD-SI Quade, W. I.                      32-Geological Sci

**SAG 3-32**                      **University of Kansas**                      **2387**  
 Static and dynamic nonlinear analysis with substructure models  
*Period*    *Obligations*  
 03/01/80-02/28/81                      **FY80 \$25,363**                      **TOTAL \$25,363**  
*Prin Invest*                      *NASA Tech Officer*                      *C&SF Category*  
 Dodds, R. H.                      IERC/Hirschheim, M. S.                      46-Mech Engr  
 IERC/Chams, C. C.

**NSG 7613**                      **Kansas State University**                      **2382**  
 Northern plains of Mars  
*Period*    *Obligations*  
 06/01/79-05/31/81                      **FY80 \$17,781**                      **TOTAL \$35,384**  
*Prin Invest*                      *NASA Tech Officer*                      *C&SF Category*  
 Underwood, J. R.                      HD-SI Boyce, J. M.                      32-Geological Sci  
 HD-SI Quade, W. I.

**SAG 3-71**                      **University of Kansas**                      **2388**  
 An assessment of general aviation deicing systems on contemporary  
 airfoils  
*Period*    *Obligations*  
 05/01/80-04/30/81                      **FY80 \$44,934**                      **TOTAL \$44,934**  
*Prin Invest*                      *NASA Tech Officer*                      *C&SF Category*  
 Kohlman, D. I.                      IERC/Evanich, P. I.                      41-Aero Engr  
 Schweikhard, W. G.                      IERC/Reinmann, J. I.

**SAG 1-75**                      **University of Kansas**                      **2383**  
 Development of unsteady suction analogy  
*Period*    *Obligations*  
 06/16/80-06/15/81                      **FY80 \$26,482**                      **TOTAL \$26,482**  
*Prin Invest*                      *NASA Tech Officer*                      *C&SF Category*  
 Ian, C. E.                      IARC/Ernk, N. I.                      41-Aero Engr

**SAG 3-85**                      **University of Kansas**                      **2389**  
 Study and design of approaches for simultaneous multi axis thrust  
 measurements of air breathing jet engines  
*Period*    *Obligations*  
 07/07/80-12/22/80                      **FY80 \$5,333**                      **TOTAL \$5,333**  
*Prin Invest*                      *NASA Tech Officer*                      *C&SF Category*  
 Schweikhard, W. G.                      IERC/Straight, D. M.                      46-Mech Engr  
 IERC/Grey, R. I.

**SAG 1-94**                      **University of Kansas**                      **2384**  
 Research program into nonconventional controllers for general  
 aviation airplanes  
*Period*    *Obligations*  
 08/15/80-02/15/81                      **FY80 \$20,718**                      **TOTAL \$20,718**  
*Prin Invest*                      *NASA Tech Officer*                      *C&SF Category*  
 Roskam, J.                      IARC/Bergerson, H. P.                      41-Aero Engr  
 IARC/Shaugnessy, J. D.

**SAG 4-5**                      **University of Kansas**                      **2390**  
 A program to evaluate a control system based on feedback of  
 aerodynamic pressure differentials  
*Period*    *Obligations*  
 08/25/80-08/24/81                      **FY80 \$40,000**                      **TOTAL \$40,000**  
*Prin Invest*                      *NASA Tech Officer*                      *C&SF Category*  
 Roskam, R. J.                      IERC/Black, J. M.                      41-Aero Engr  
 IERC/Gera, J.

**NASA'S UNIVERSITY PROGRAM  
KANSAS (Continued)**

<b>NAG 5-30</b>	<b>University of Kansas</b>	<b>2391</b>
Measurement of soil using remote sensing active microwave techniques		
<i>Period</i>	<i>Obligations</i>	
03/01/80-02/28/81	FY80: \$125,000	TOTAL: \$125,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ulaby, F. T.	GSFC/Rango, A.	39-Env Sci, NEC
Bradley, G. A.	GSFC/Schmugge, T. J.	
<b>NAGW 71</b>	<b>University of Kansas</b>	<b>2392</b>
The magnetic field of Jupiter		
<i>Period</i>	<i>Obligations</i>	
06/01/80-05/31/81	FY80: \$21,000	TOTAL: \$21,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Beard, D. B.	HD-ST/Hedin, A. E.	19-Phys Sci, NEC
	HD-ST/Schmerling, E. R.	
<b>NAS 1-15770</b>	<b>University of Kansas</b>	<b>2393</b>
Feasibility study for advanced technology integration for general aviation		
<i>Period</i>	<i>Obligations</i>	
04/10/79-07/09/80	FY80:	TOTAL: \$81,985
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Roskam, J.	LARC/Holmes, B. J.	41-Aero Engr
Kohlman, D. L.		
<b>NAS 1-16255</b>	<b>University of Kansas</b>	<b>2394</b>
General aviation autopilot study		
<i>Period</i>	<i>Obligations</i>	
06/26/80-12/10/80	FY80: \$10,036	TOTAL \$10,036
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Roskam, J.	LARC/Downing, D. R.	41-Aero Engr
<b>NAS 1-16363</b>	<b>University of Kansas</b>	<b>2395</b>
Design study of technology requirements for high performance single-propeller-driven business airplanes		
<i>Period</i>	<i>Obligations</i>	
08/26/80-12/10/81	FY80: \$112,165	TOTAL \$112,165
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kohlman, D. L.	LARC/Holmes, B. J.	41-Aero Engr
Roskam, J.		
<b>NAS 5-23777</b>	<b>University of Kansas</b>	<b>2396</b>
Microwave remote sensing of snow		
<i>Period</i>	<i>Obligations</i>	
11/23/76-08/09/81	FY80:	TOTAL: \$150,085
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ulaby, F. T.	GSFC/Rango, A.	45-Elec Engr
	GSFC/Shive, J.	
<b>NAS 5-25807</b>	<b>University of Kansas</b>	<b>2397</b>
Evaluation of the measurement of the microwave back-scatter coefficient with active microwave systems		
<i>Period</i>	<i>Obligations</i>	
07/31/79-09/30/80	FY80: \$31,348	TOTAL: \$46,348
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ulaby, F. T.	GSFC/Schmugge, T. J.	31-Atmos Sci
<b>NAS 9-15421</b>	<b>University of Kansas</b>	<b>2398</b>
Radar measurements in agricultural applications		
<i>Period</i>	<i>Obligations</i>	
10/01/77-01/31/81	FY80: \$89,640	TOTAL: \$327,620
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ulaby, F. T.	JSC/Demel, K. J.	31-Atmos Sci
	JSC/Baldwin, R. R.	
<b>NAS13-131</b>	<b>University of Kansas</b>	<b>2399</b>
Conduct short courses in remote sensing		
<i>Period</i>	<i>Obligations</i>	
10/26/79-10/25/80	FY80: \$25,011	TOTAL: \$25,011
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Martino, E. A.	NSTL/Atwell, B. H.	32-Geological Sci
Williams, T. H.		
<b>NCC 1-6</b>	<b>University of Kansas</b>	<b>2400</b>
A research program to reduce interior noise in general aviation airplanes		
<i>Period</i>	<i>Obligations</i>	
05/01/79-04/30/81	FY80: \$83,280	TOTAL: \$157,935
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Roskam, J.	LARC/Stephens, D. G.	41-Aero Engr
Unz, H.		
<b>NCC 1-18</b>	<b>University of Kansas</b>	<b>2401</b>
Investigation of optimum wing configurations with edge separation		
<i>Period</i>	<i>Obligations</i>	
06/15/79-06/14/81	FY80: \$17,933	TOTAL: \$47,917
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lan, C. E.	LARC/Campbell, J. F.	41-Aero Engr
<b>NCC 2-92</b>	<b>University of Kansas</b>	<b>2402</b>
Investigation of variable camber devices for helicopter rotor systems		
<i>Period</i>	<i>Obligations</i>	
06/01/80-05/30/82	FY80: \$59,000	TOTAL \$59,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Zerwekh, R.	ARC/Stroub, R. H.	41-Aero Engr
<b>NCC 4-2</b>	<b>University of Kansas</b>	<b>2403</b>
Research in the area of aircraft digital control systems		
<i>Period</i>	<i>Obligations</i>	
06/01/80-11/30/80	FY80: \$11,422	TOTAL: \$11,422
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Clark, R.	DFRC/Szalai, K. J.	41-Aero Engr
<b>NGI 17-004-024</b>	<b>University of Kansas</b>	<b>2404</b>
Research on the applications of satellite remote sensing		
<i>Period</i>	<i>Obligations</i>	
04/06/72-03/31/83	FY80: \$125,000	TOTAL: \$1,075,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Barr, B. G.	HD-ET/Vitale, J. A.	39-Env Sci, NEC

**NASA'S UNIVERSITY PROGRAM  
KANSAS (Continued)**

**NSG 1046** University of Kansas **2405**  
Effects of aeroelasticity on control effectiveness  
*Period* *Obligations*  
06/10/74-03/31/80 FY80: TOTAL: \$161,350  
*Prn Invest* NASA Tech Officer CASE Category  
Roskam, J. LARC/Lamar, J. E. 41-Aero Engr  
Lan, C. E. LARC/Polhamus, E. C.  
Mehrotra, S.

**NSG 1281** University of Kansas **2406**  
Statistical distribution of mechanical properties of graphite-epoxies  
*Period* *Obligations*  
07/15/76-05/31/80 FY80: TOTAL: \$74,939  
*Prn Invest* NASA Tech Officer CASE Category  
Reese, C. D. LARC/Howell, W. E. 47-Materials Engr  
LARC/Dexter, H. B.

**NSG 1397** University of Kansas **2407**  
Remote sensing of oceans  
*Period* *Obligations*  
02/15/77-05/15/81 FY80: \$59,709 TOTAL: \$202,148  
*Prn Invest* NASA Tech Officer CASE Category  
Moore, R. K. LARC/Schroeder, L. C.  
33-Oceanography  
Fung, A. K.

**NSG 1554** University of Kansas **2408**  
Radar discrimination of oil spills on the sea  
*Period* *Obligations*  
07/24/78-03/23/80 FY80: TOTAL: \$38,713  
*Prn Invest* NASA Tech Officer CASE Category  
Moore, R. K. LARC/Crosswell, W. F. 45-Elec Engr  
Yu, Y. S. LARC/Fedors, J. C.

**NSG 1574** University of Kansas **2409**  
Correlation of theoretical prediction with tunnel data and flight data on the Advanced Technology Light Twin Engine (ATLIT) airplane  
*Period* *Obligations*  
11/01/78-01/31/81 FY80: TOTAL: \$57,505  
*Prn Invest* NASA Tech Officer CASE Category  
Roskam, J. LARC/Hassell, J. L., Jr. 41-Aero Engr  
LARC/Holmes, B. J.

**NSG 1629** University of Kansas **2410**  
An investigation of vortex induced aerodynamic characteristics of supersonic cruise configurations  
*Period* *Obligations*  
06/16/79-06/15/81 FY80: \$24,754 TOTAL: \$45,724  
*Prn Invest* NASA Tech Officer CASE Category  
Lan, C. E. LARC/Lamar, J. E. 41-Aero Engr  
LARC/Polhamus, E. C.

**NSG 1633** University of Kansas **2411**  
Analysis of performance and handling qualities considerations for wake modification devices on agricultural aircraft  
*Period* *Obligations*  
09/01/79-08/31/81 FY80: \$28,976 TOTAL: \$55,430  
*Prn Invest* NASA Tech Officer CASE Category  
Lenzen, K. LARC/Holmes, B. J. 41-Aero Engr  
Roskam, J.

**NSG 3290** University of Kansas **2412**  
Self consistent numerical simulation of plasma insulator interactions in space  
*Period* *Obligations*  
08/16/79-08/14/81 FY80: \$34,079 TOTAL: \$34,079  
*Prn Invest* NASA Tech Officer CASE Category  
Armstrong, T. P. LERC/Purvis, C. K. 13-Physics  
Enoch, J. LERC/Stevens, N. J.  
Wiseman, G. G.

**NSG 4008** University of Kansas **2413**  
Analysis of structural components for ultra high speed aircraft  
*Period* *Obligations*  
05/01/76-04/30/81 FY80: TOTAL: \$40,416  
*Prn Invest* NASA Tech Officer CASE Category  
Lenzen, K. DFRC/Jenkins, J. M. 41-Aero Engr

**NSG 4017** University of Kansas **2414**  
Analyze and test the flight control system for the DAST vehicle  
*Period* *Obligations*  
06/01/78-12/31/80 FY80: TOTAL: \$53,076  
*Prn Invest* NASA Tech Officer CASE Category  
Kotsabasis, A. DFRC/Edwards, J. W. 41-Aero Engr  
Roskam, J. DFRC/Deets, D. A.

**NSG 4019** University of Kansas **2415**  
Study of new flight test techniques  
*Period* *Obligations*  
01/22/79-02/14/81 FY80: \$83,113 TOTAL: \$141,522  
*Prn Invest* NASA Tech Officer CASE Category  
Roskam, J. DFRC/Kordes, E. E. 41-Aero Engr  
Rummer, D. I. DFRC/Szalai, K. J.  
Lenz, R. L.

**NSG 4023** University of Kansas **2416**  
Drag reduction/delivery truck  
*Period* *Obligations*  
07/01/79-12/31/80 FY80: TOTAL: \$11,934  
*Prn Invest* NASA Tech Officer CASE Category  
Muirhead, V. U. DFRC/Saltzman, E. I. 49-Engr, NEC

**NSG 4026** University of Kansas **2417**  
A system study for the application of distributed processors to flight testing techniques  
*Period* *Obligations*  
07/01/79-06/30/81 FY80: \$50,000 TOTAL: \$95,812  
*Prn Invest* NASA Tech Officer CASE Category  
Kelley, G. L. DFRC/Abbott, L. W. 45-Elec Engr  
DFRC/Szalai, K. J.

**NASA'S UNIVERSITY PROGRAM**

**KANSAS (Continued)**

**NSG 5335 University of Kansas 2418**  
Active microwave investigation of snow hydrology

<i>Period</i>	<i>Obligations</i>	
02/01/79-01/14/81	FY80: \$169,997	TOTAL: \$219,997
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ulaby, F. T.	GSFC/Chang, A. T.	32-Geological Sci

**NCC 1-21 Wichita State University 2419**  
Weight estimation techniques for hypersonic flight vehicles

<i>Period</i>	<i>Obligations</i>	
09/01/79-09/30/80	FY80:	TOTAL: \$20,716
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Cook, F. L.	LARC/Watts, J. D.	41-Aero Engr
	LARC/Jackson, L. R.	

**NCC 1-31 Wichita State University 2420**  
Research in engine nozzle design for a hypersonic flight vehicle

<i>Period</i>	<i>Obligations</i>	
01/01/80-12/31/80	FY80: \$28,702	TOTAL: \$28,702
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Zumwalt, G. W.	LARC/Weidner, J. P.	41-Aero Engr
	LARC/Watts, J. D.	

**NSG 1165 Wichita State University 2421**

Computer and wind tunnel development of flaps and control surfaces for advanced technology general aviation airfoils

<i>Period</i>	<i>Obligations</i>	
06/01/75-01/31/81	FY80: \$37,076	TOTAL: \$283,261
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wentz, W. H., Jr.	LARC/McGhee, R. J.	41-Aero Engr
	LARC/Barnwell, R. W.	

**NSG 1575 Wichita State University 2422**

Supersonic burning in separated flow regions

<i>Period</i>	<i>Obligations</i>	
11/01/78-12/31/80	FY80: \$29,135	TOTAL: \$56,042
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Zumwalt, G. W.	LARC/Rogers, R. C.	41-Aero Engr
	LARC/Jones, R. A.	

**NSG 3186 Wichita State University 2423**

Numerical modeling of magnetohydrodynamic channel flow

<i>Per.</i>	<i>Obligations</i>	
03/01/01/15/81	FY80: \$21,515	TOTAL: \$41,316
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Crawhall, M. S.	LERC/Smith, J. M.	21-Mathematics
	LERC/Juhasz, A. J.	

**NSG 3277 Wichita State University 2424**

Feasibility studies of spoiler and aileron control systems for large wind turbine

<i>Period</i>	<i>Obligations</i>	
06/01/79/02/28/81	FY80: \$90,323	TOTAL: \$115,964
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ventz, W. H., Jr.	LERC/Miller, D. R.	41-Aero Engr
Snyder, M. H.		

**KENTUCKY**

**NSG 801 Kentucky State University 2425**  
Zoological effects of variations in atmospheric oxygen levels

<i>Period</i>	<i>Obligations</i>	
02/27/74-04/28/81	FY80: \$45,708	TOTAL: \$265,029
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Klock, G.	KSC/Hoffler, G. W.	59-Life Sci, NEC

**NAS13-111 Murray State University - Ky 2426**  
Conduct short courses in remote sensing

<i>Period</i>	<i>Obligations</i>	
04/02/79-04/02/81	FY80:	TOTAL: \$24,231
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Weber, N.	NSTL/Atwell, B. H.	31-Atmos Sci

**NAS 9-15452 University of Kentucky 2427**

Development of limb volume measuring system

<i>Period</i>	<i>Obligations</i>	
11/01/77-10/31/80	FY80: \$67,933	TOTAL: \$113,054
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bhagat, P. K.	JSC/Booher, C. R.	56-Medical Sciences

**NAS 9-16034 University of Kentucky 2428**

Lower limb volume measurements in space using an ultrasonic technique

<i>Period</i>	<i>Obligations</i>	
01/17/80-05/31/81	FY80: \$31,940	TOTAL: \$31,940
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bhagot, P. K.	JSC/White, T.	59-Life Sci, NEC

**NAS 9-16045 University of Kentucky 2429**

Prevention of space flight deconditioning by application of whole body oscillating accelerator

<i>Period</i>	<i>Obligations</i>	
01/17/80-10/31/80	FY80: \$37,125	TOTAL: \$37,125
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bhattacharga, A.	JSC/Kirby, R.	59-Life Sci, NEC

**NASW 3039 University of Kentucky 2430**

Operation of a state technical application program

<i>Period</i>	<i>Obligations</i>	
02/01/77-08/31/80	FY80:	TOTAL: \$491,558
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Unavailable	HD-ET/Dolby, W.	99-Multi-Discip

**NASW 3367 University of Kentucky 2431**

Operation of a Technology Applications Program (TAP)

<i>Period</i>	<i>Obligations</i>	
07/01/80-06/30/81	FY80: \$184,934	TOTAL: \$184,934
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hackbarth, M.	HD-ET/Harrison, J. O.	22-Computer Science





**NASA'S UNIVERSITY PROGRAM  
LOUISIANA**

**LOUISIANA**

**NAG 8-2** **Grambling State University** **2444**  
Turbulence in transient solar phenomena  
*Period* *Obligations*  
01 04 80-07 20 81 **FY80 \$33,839** **TOTAL \$33,839**  
*Prin Invest* *NASA Tech Officer* *C&M Category*  
Cross, M. A. MSEC Hanssen, F. A. 13-Physics  
Johnson, J. A. MSEC Kent, M. I.

**NAG 5-13** **Louisiana State University - Baton Rouge** **2445**  
The rotation and internal fluid dynamics of the sun  
*Period* *Obligations*  
02 01 80-01 31 81 **FY80 \$16,000** **TOTAL \$16,000**  
*Prin Invest* *NASA Tech Officer* *C&M Category*  
Eudal, A. S. GSEC Sofia, S. 11-Astronomy

**NAG 5-71** **Louisiana State University - Baton Rouge** **2446**  
Ultraviolet spectroscopy of selected astronomical sources  
*Period* *Obligations*  
07 01 80-06 30 81 **FY80 \$11,500** **TOTAL \$11,500**  
*Prin Invest* *NASA Tech Officer* *C&M Category*  
Drilling, J. S. GSEC Boggess, A. 11-Astronomy

**NAGW 48** **Louisiana State University - Baton Rouge** **2447**  
Electron positive ion interaction  
*Period* *Obligations*  
04 01 80-03 31 81 **FY80 \$47,200** **TOTAL \$47,200**  
*Prin Invest* *NASA Tech Officer* *C&M Category*  
Henry, J. W. HD-SI Murphy, R. E. 31-Atmos Sci  
HD-SI Brank, W. E.

**NAS13-142** **Louisiana State University - Baton Rouge** **2448**  
Conduct short courses in remote sensing  
*Period* *Obligations*  
02 01 80-02 01 81 **FY80 \$25,000** **TOTAL \$25,000**  
*Prin Invest* *NASA Tech Officer* *C&M Category*  
Whitehurst, C. A. NSTI Atwell, B. H. 32-Geological Sci

**NAS13-148** **Louisiana State University - Baton Rouge** **2449**  
Technology transfer to sub-state levels of government  
*Period* *Obligations*  
05 01 80-01 31 81 **FY80 \$50,000** **TOTAL \$50,000**  
*Prin Invest* *NASA Tech Officer* *C&M Category*  
Whitehurst, C. A. NSTI Ivey, J. H. 32-Geological Sci

**NGI 19-001-105** **Louisiana State University - Baton Rouge** **2450**  
Interpretation of remote sensing data in the Bayou La Fourche region of south Louisiana  
*Period* *Obligations*  
04 06 72-08 15 79 **FY80** **TOTAL \$425,000**  
*Prin Invest* *NASA Tech Officer* *C&M Category*  
Whitehurst, C. A. HD-ET Vitale, J. A. 39-Env Sci, NEC

**NGI 19-001-800** **Louisiana State University - Baton Rouge** **2451**  
Graduate student researchers program  
*Period* *Obligations*  
09 01 80-08 31 81 **FY80 \$11,430** **TOTAL \$11,430**  
*Prin Invest* *NASA Tech Officer* *C&M Category*  
Rouse, L. J. JPI/Cahane, M. 33-Oceanography

**NSG 7542** **Louisiana State University - Shreveport** **2452**  
Paleohydrology of Mars  
*Period* *Obligations*  
04 01 79-06 30 81 **FY80: \$50,787** **TOTAL: \$80,895**  
*Prin Invest* *NASA Tech Officer* *C&M Category*  
Nummedal, D. HD-SI Boyce, J. M. 32-Geological Sci  
HD-SI Quade, W. I.

**NSG 7357** **Northeast Louisiana University** **2453**  
Mercury geologic mapping - Kuiper quadrangle  
*Period* *Obligations*  
06 01 77-12 31 79 **FY80** **TOTAL \$16,417**  
*Prin Invest* *NASA Tech Officer* *C&M Category*  
DeHon, R. A. HD-SI Dwornik, S. E. 32-Geological Sci  
HD-SI Boyce, J. M.

**NSG 7420** **Northeast Louisiana University** **2454**  
Thickness of mare basalts - Western Mare Basin  
*Period* *Obligations*  
03 01 78-06 30 79 **FY80** **TOTAL \$11,716**  
*Prin Invest* *NASA Tech Officer* *C&M Category*  
DeHon, R. A. HD-SI Quade, W. I. 32-Geological Sci  
HD-SI French, B. M.

**NSG 7534** **Northeast Louisiana University** **2455**  
Stratigraphy and crater morphology  
*Period* *Obligations*  
02 01 79-01 31 81 **FY80 \$17,361** **TOTAL \$33,422**  
*Prin Invest* *NASA Tech Officer* *C&M Category*  
DeHon, R. A. HD-SI Boyce, J. M. 32-Geological Sci  
HD-SI Quade, W. I.

**NSG 7628** **Northeast Louisiana University** **2456**  
Detection of buried surfaces on Mars  
*Period* *Obligations*  
08 01 79-01 31 82 **FY80** **TOTAL \$7,514**  
*Prin Invest* *NASA Tech Officer* *C&M Category*  
DeHon, R. A. HD-SI Boyce, J. M. 32-Geological Sci  
HD-SI Quade, W. I.

**NAG 8-4** **Southern University - Baton Rouge** **2457**  
Crystal structure and catalytic properties of noble metal-rare earth alloys  
*Period* *Obligations*  
02 19 80-02 18 81 **FY80 \$31,200** **TOTAL \$31,200**  
*Prin Invest* *NASA Tech Officer* *C&M Category*  
Collins, W. E. MSEC McClure, J. C. 13-Physics  
Mohanty, R. C. MSEC Kent, M. I.

**NASA'S UNIVERSITY PROGRAM  
LOUISIANA (Continued)**

**NAS 1-15335 Southern University - Baton Rouge 2458**  
Atomic oxygen stimulated outgassing experiment for the long duration exposure facility

<i>Period</i>	<i>Obligations</i>	
04/07/78-04/01/82	FY80: TOTAL: \$50,426	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Scott, R. L.	LARC/ONeal, R. L.	31-Atmos Sci
	LARC/Carter, D. J.	

**NSG 3209 Tulane University 2464**  
Evaluation of ion textured Al<sub>2</sub>O<sub>3</sub> surfaces for permanent prosthetic attachment

<i>Period</i>	<i>Obligations</i>	
08/01/78-07/31/80	FY80: TOTAL: \$14,995	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Weinstein, A. M.	IFRC/Weigand, A. J.	56-Medical Sciences
	Klawitter, J. J.	

**NASW 3344 Southern University - Baton Rouge 2459**  
Return on automatic data processing investment

<i>Period</i>	<i>Obligations</i>	
03/14/80-03/14/82	FY80: \$55,371 TOTAL: \$55,371	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Roquemore, L.	HD-NS/Smith, J. A.	22-Computer Science
	HD-LU/Pohly, J. G.	

**NSG 1460 University of New Orleans 2465**  
Enhancement of appearance potential spectroscopy data by noise removal and deconvolution

<i>Period</i>	<i>Obligations</i>	
10/01/77-10/31/80	FY80: TOTAL: \$15,847	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ioup, G. E.	LARC/Wood, G. M.	47-Materials Engr

**NCC 2-33 Southern University - Baton Rouge 2460**  
Investigation of the mechanical principles of the ballistic motion of the left ventricle

<i>Period</i>	<i>Obligations</i>	
11/01/79-05/31/81	FY80: \$25,000 TOTAL: \$25,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ray, G.	ARC/Sandler, H.	56-Medical Sciences

**NSG 1648 University of New Orleans 2466**  
Study on one and two dimensional filtering and deconvolution algorithms for a streaming array computer

<i>Period</i>	<i>Obligations</i>	
09/01/79-09/30/81	FY80: \$19,429 TOTAL: \$37,453	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ioup, G. E.	LARC/Lambiotte, J. J.	21-Mathematics
	LARC/Shoosmith, J. N.	

**NGR 19-005-006 Southern University - Baton Rouge 2461**  
Research in the many-particle theory of nuclear systems with application to neutron star matter

<i>Period</i>	<i>Obligations</i>	
10/17/72-01/31/79	FY80: TOTAL: \$107,314	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Yang, C. H.	JPI/Estabrook, F. B.	11-Astronomy
	JPI/Zmudzinas, J. S.	

**NAS 8-33765 University of Southwestern Louisiana 2467**  
Photovoltaic gas cell thermal study

<i>Period</i>	<i>Obligations</i>	
01/28/80-10/28/80	FY80: \$4,979 TOTAL: \$4,979	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bankston, I. D.	MSFC/Humphries, W. R.	46-Mech Engr
	MSFC/Littles, J. W.	

**NCA 2-800001 Tulane University 2462**  
Evolutionary relationships among bacteria Thermophiles and mesophiles

<i>Period</i>	<i>Obligations</i>	
03/01/80-02/28/82	FY80: \$5,454 TOTAL: \$5,454	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Johnson, F. J.	ARC/MacFroy, R. D.	51-Biological Sci

**NAG 1-16 Xavier University - Louisiana 2468**  
Mathematical enhancement of data from scientific measuring instruments

<i>Period</i>	<i>Obligations</i>	
01/01/80-12/31/81	FY80: \$54,678 TOTAL: \$54,678	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ioup, J.	LARC/Wood, G. M.	21-Mathematics

**NSG 2139 Tulane University 2463**  
Localization and ultrastructural histochemical characterization of the central emetic apparatus related to motion sickness and emetic drugs in the squirrel monkey and dog

<i>Period</i>	<i>Obligations</i>	
03/01/76-02/28/81	FY80: \$45,000 TOTAL: \$195,445	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Brizze, K. R.	ARC/Mehler, W. R.	59-Life Sci, NEC

**NSG 8050 Xavier University - Louisiana 2469**  
Solar radiation measurement project

<i>Period</i>	<i>Obligations</i>	
06/02/77-12/31/80	FY80: \$26,193 TOTAL: \$97,650	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ioup, J.	MSFC/Espy, P. N.	39-Env Sci, NEC
	MSFC/Kent, M. I.	

**NASA'S UNIVERSITY PROGRAM  
MARYLAND**

**MARYLAND**

**NCA 5-96** **Bowie State College** **2470**  
 Recruit into Engineering High Ability Minority and Female  
 Students (REHAMFS)  
*Period* *Obligations*  
 03/14/80-11/15/80 **FY80: \$26,000** **TOTAL: \$26,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Bonds, J. W. GSFC/Mundy, J. R. 45-Elec Engr  
 GSFC/Chapman, J. W.

**NCA 5-97** **Bowie State College** **2471**  
 Summer institute in science and technology for junior high school  
 girls  
*Period* *Obligations*  
 04/30/80-06/30/81 **FY80: \$794** **TOTAL: \$794**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Butler, O. B. GSFC/Mundy, J. R. 19-Phys Sci, NEC

**NGR 21-027-001** **Bowie State College** **2472**  
 Research in cosmic ray physics  
*Period* *Obligations*  
 09/01/69-09/30/80 **FY80:** **TOTAL: \$140,426**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Walker, R. P. GSFC/Kniffen, D. A. 11-Astronomy

**NGR 21-027-004** **Bowie State College** **2473**  
 Research in numerical integration  
*Period* *Obligations*  
 05/25/71-07/31/81 **FY80: \$33,881** **TOTAL: \$145,158**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Srivastava, S. GSFC/Maury, J. I. 21-Mathematics  
 GSFC/Lefferts, F.

**NGR 21-027-010** **Bowie State College** **2474**  
 Holographic gratings for spectrographic applications study of  
 aberrations  
*Period* *Obligations*  
 05/14/73-03/31/81 **FY80: \$18,439** **TOTAL: \$114,137**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Bhatta, M. S. GSFC/Caruso, A. J. 13-Physics  
 GSFC/Osantowski, J. F.

**NGI 21-027-012** **Bowie State College** **2475**  
 Training of undergraduate students in sciences and engineering  
*Period* *Obligations*  
 06/01/74-03/31/81 **FY80: \$44,919** **TOTAL: \$227,953**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Kirksey, C. H. HD-LU/Pohly, J. G. 99-Multi-Discip  
 GSFC/Chapman, J. W.

**NSG 5009** **Bowie State College** **2476**  
 Characterization of the physico-chemical properties of polymeric  
 materials for aerospace flights  
*Period* *Obligations*  
 07/01/74-12/31/80 **FY80: \$26,227** **TOTAL: \$136,285**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Rock, M. GSFC/Gross, F. C. 12-Chemistry  
 GSFC/Colony, J. A.

**NSG 5416** **Bowie State College** **2477**  
 Investigation of automatic picture transmission relative to space  
 sciences  
*Period* *Obligations*  
 10/01/79-09/30/80 **FY80:** **TOTAL: \$15,427**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Kirksey, C. H. GSFC/Bailey, E. 99-Multi-Discip  
 GSFC/Crome, R.

**NSG 5051** **Coppin State College** **2478**  
 Research on the failure mechanism and other factors leading to  
 reduce cycle life in aerospace nickel-cadmium cells  
*Period* *Obligations*  
 05/01/75-05/31/81 **FY80: \$48,748** **TOTAL: \$229,001**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 McDermott, P. P. GSFC/Halpert, G. 12-Chemistry  
 GSFC/Gaddy, E. M.

**NAG 5-32** **Johns Hopkins University** **2479**  
 Interpretation and delineation of the Earth's gravity field  
*Period* *Obligations*  
 04/01/80-03/31/81 **FY80: \$40,000** **TOTAL: \$40,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Marsh, B. D. GSFC/Holweck, F. C. 32-Geological Sci  
 GSFC/Marsh, J. G.

**NAG 5-35** **Johns Hopkins University** **2480**  
 Petrologic and geophysical study of the source of long wavelength  
 crustal magnetic anomalies  
*Period* *Obligations*  
 05/01/80-05/31/81 **FY80: \$19,462** **TOTAL: \$19,462**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Marsh, B. D. GSFC/Thomas, H. H. 32-Geological Sci

**NAGW 16** **Johns Hopkins University** **2481**  
 An ultraviolet imaging detector for shuttle astronomy  
*Period* *Obligations*  
 12/01/79-05/30/81 **FY80: \$45,000** **TOTAL: \$45,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Moos, H. W. HD-SC/Roman, N. G. 13-Physics  
 HD-SC/Wedler, F. J.

**NAS 5-11415** **Johns Hopkins University** **2482**  
 Atmosphere Explorer photoelectron and energetic particle  
 experiment  
*Period* *Obligations*  
 08/15/74-09/30/81 **FY80: \$124,500** **TOTAL: \$1,576,377**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Doering, J. P. GSFC/Bullock, G. D. 31-Atmos Sci

**NASA'S UNIVERSITY PROGRAM**  
**MARYLAND (Continued)**

<b>NAS 5-23732</b>	<b>Johns Hopkins University</b>	<b>2483</b>
Development of a command system for a fully implantable human tissue stimulator		
<i>Period</i>	<i>Obligations</i>	
10/26/76-11/15/81	FY80	TOTAL: \$525,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Long, D.	GSFC/Friedman, D. S.	56-Medical Sciences
Fishell, R. F.		
<b>NAS 5-25358</b>	<b>Johns Hopkins University</b>	<b>2484</b>
Grating facility use		
<i>Period</i>	<i>Obligations</i>	
10/01/78-12/31/81	FY80: \$51,300	TOTAL: \$61,300
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Fastie, W. G.	GSFC/Fowler, W. S.	13-Physics
<b>NAS 5-26057</b>	<b>Johns Hopkins University</b>	<b>2485</b>
Generate an investigation development plan and establish the preliminary interfaces between the orbiter and instrument for the far ultraviolet telescope/spectrometer		
<i>Period</i>	<i>Obligations</i>	
02/06/80-03/10/81	FY80: \$166,700	TOTAL: \$166,700
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Davidson, A.	GSFC/Fiband, A. M.	11-Astronomy
<b>NAS 5-26085</b>	<b>Johns Hopkins University</b>	<b>2486</b>
Clinical ophthalmic ultrasound improvements		
<i>Period</i>	<i>Obligations</i>	
03/04/80-11/04/80	FY80: \$26,000	TOTAL: \$26,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Piro, P. A.	GSFC/Friedman, D. S.	56-Medical Sciences
Garrison, J. B.		
<b>NAS 6-2888</b>	<b>Johns Hopkins University</b>	<b>2487</b>
Study of ocean fine structures		
<i>Period</i>	<i>Obligations</i>	
03/22/78-03/21/79	FY80	TOTAL: \$50,043
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Phillips, O. M.	WFC/Huang, N. F.	33-Oceanography
	WFC/Long, S. R.	
<b>NAS 6-2993</b>	<b>Johns Hopkins University</b>	<b>2488</b>
Study of the ocean fine structure		
<i>Period</i>	<i>Obligations</i>	
05/01/79-04/30/80	FY80: \$20,638	TOTAL: \$52,331
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Phillips, O. M.	WFC/Huang, N. F.	33-Oceanography
	WFC/Long, S. R.	
<b>NAS 8-32903</b>	<b>Johns Hopkins University</b>	<b>2489</b>
Scientific investigations in support of the space telescope project		
<i>Period</i>	<i>Obligations</i>	
02/01/78-01/31/84	FY80	TOTAL: \$151,300
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Fastie, W. G.	MSFC/O'Dell, C. R.	11-Astronomy
<b>NAS 8-33106</b>	<b>Johns Hopkins University</b>	<b>2490</b>
Coronal magnetic structure and the latitude and longitude distribution of energetic charged particles		
<i>Period</i>	<i>Obligations</i>	
10/18/78-10/17/79	FY80:	TOTAL: \$34,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Roelof, E. C.	MSFC/DeLoach, A. C.	13-Physics
	MSFC/Snoddy, W. C.	
<b>NAS 9-16030</b>	<b>Johns Hopkins University</b>	<b>2491</b>
Effect of weightlessness on diurnal pattern of resin and aldosterone concentration in plasma		
<i>Period</i>	<i>Obligations</i>	
01/17/80-05/31/81	FY80: \$36,178	TOTAL: \$36,178
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Walker, W. G.	JSC/White, T.	59-Life Sci, NEC
<b>NAS 9-16036</b>	<b>Johns Hopkins University</b>	<b>2492</b>
Life science flight experiment: Factor affecting respiratory tract particle deposition and clearance in the space environment		
<i>Period</i>	<i>Obligations</i>	
01/17/80-10/31/80	FY80: \$23,237	TOTAL: \$23,237
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Swift, D. L.	JSC/French, B.	59-Life Sci, NEC
<b>NCC 5-1</b>	<b>Johns Hopkins University</b>	<b>2493</b>
Interpretation and delineation of the Earth's gravity field		
<i>Period</i>	<i>Obligations</i>	
04/01/79-03/31/80	FY80	TOTAL: \$42,635
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Marsh, B. D.	GSFC/Marsh, J.	32-Geological Sci
<b>NCC 5-13</b>	<b>Johns Hopkins University</b>	<b>2494</b>
The source of long wavelength crustal magnetic anomalies		
<i>Period</i>	<i>Obligations</i>	
05/01/79-05/31/80	FY80	TOTAL: \$10,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Marsh, B. D.	GSFC/Taylor, P. T.	32-Geological Sci
<b>NCC 5-18</b>	<b>Johns Hopkins University</b>	<b>2495</b>
Research of thermal regime of the upper mantle		
<i>Period</i>	<i>Obligations</i>	
06/14/79-08/30/80	FY80	TOTAL: \$10,452
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Marsh, B. D.	GSFC/Langel, R. A.	32-Geological Sci
<b>NGR 21-001-001</b>	<b>Johns Hopkins University</b>	<b>2496</b>
Rocket and laboratory experiments and analysis on ultraviolet spectra of upper atmosphere		
<i>Period</i>	<i>Obligations</i>	
08/01/61-03/14/81	FY80: \$360,263	TOTAL: \$5,331,126
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Fastie, W. G.	GSFC/Guidotti, J.	11-Astronomy

**NASA'S UNIVERSITY PROGRAM  
MARYLAND (Continued)**

<b>NGR 21-001-111</b>	<b>Johns Hopkins University</b>	<b>2497</b>			
Small group performance and effects of contingency management in a programmed environment					
<i>Period</i>	<i>Obligations</i>				
03/31/72-10/31/80	FY80: \$75,000	TOTAL: \$950,794			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Brady, J. V.	ARC/Patton, R. M.	62-Social Aspects			
Emurian, H. H.					
<b>NGT 21-001-800</b>	<b>Johns Hopkins University</b>	<b>2498</b>			
Graduate student researchers program					
<i>Period</i>	<i>Obligations</i>				
09/01/80-08/31/81	FY80: \$9,195	TOTAL: \$9,195			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Davidson, A. F.	GSFC/Boldt, E. A.	41-Aero Engr			
<b>NGT 21-001-980</b>	<b>Johns Hopkins University</b>	<b>2499</b>			
Disturbances on the ocean surface: Graduate student researchers program					
<i>Period</i>	<i>Obligations</i>				
09/01/80-08/31/81	FY80: \$10,405	TOTAL: \$10,405			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Phillips, O.	WFC/Huang, N. E.	13-Physics			
<b>NSG 1442</b>	<b>Johns Hopkins University</b>	<b>2500</b>			
Intermittent/transient faults in computer systems based systems					
<i>Period</i>	<i>Obligations</i>				
09/15/77-03/31/81	FY80: \$65,000	TOTAL: \$158,201			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Masson, G. M.	LARC/Pitts, F. L.	45-Elec Engr			
<b>NSG 2303</b>	<b>Johns Hopkins University</b>	<b>2501</b>			
Experiments on sheared or strained turbulence					
<i>Period</i>	<i>Obligations</i>				
02/01/78-11/30/80	FY80: \$47,161	TOTAL: \$105,043			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Corrsin, S.	ARC/Rubesin, M. W.	41-Aero Engr			
<b>NSG 5255</b>	<b>Johns Hopkins University</b>	<b>2502</b>			
Ultraviolet studies of the outer planets					
<i>Period</i>	<i>Obligations</i>				
03/15/78-03/14/80	FY80:	TOTAL: \$12,000			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Moos, H. W.	GSFC/Bogges, A.	11-Astronomy			
	GSFC/West, D. K.				
<b>NSG 5269</b>	<b>Johns Hopkins University</b>	<b>2503</b>			
Research of thermal regime of the upper mantle					
<i>Period</i>	<i>Obligations</i>				
04/15/78-07/31/79	FY80:	TOTAL: \$15,738			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Marsh, B. D.	GSFC/Langel, R. A.	32-Geological Sci			
Didwall, E. M.	GSFC/Mead, G. D.				
<b>NSG 5310</b>	<b>Johns Hopkins University</b>	<b>2504</b>			
Study of interstellar matter and chromospheres					
<i>Period</i>	<i>Obligations</i>				
12/15/78-12/14/79	FY80:	TOTAL: \$12,000			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Moos, H. W.	GSFC/Kupperian, J. E., Jr.	11-Astronomy			
<b>NSG 5393</b>	<b>Johns Hopkins University</b>	<b>2505</b>			
Studies of the ultraviolet spectra of astronomical sources					
<i>Period</i>	<i>Obligations</i>				
07/01/79-01/31/81	FY80: \$50,400	TOTAL: \$66,400			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Moos, H. W.	GSFC/Bogges, A.	11-Astronomy			
Feldman, P. D.					
<b>NSG 7055</b>	<b>Johns Hopkins University</b>	<b>2506</b>			
Satellite data analysis					
<i>Period</i>	<i>Obligations</i>				
01/01/74-01/31/81	FY80: \$110,000	TOTAL: \$489,000			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Krimigis, S. M.	HD-ST/Wiskerchen, M. J.	13-Physics			
	HD-ST/Schmerling, E. R.				
<b>NSG 7482</b>	<b>Johns Hopkins University</b>	<b>2507</b>			
A study of the feasibility of ultraviolet spectrometry for cometary missions					
<i>Period</i>	<i>Obligations</i>				
11/01/77-04/30/79	FY80:	TOTAL: \$35,000			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Feldman, P. D.	HD-SL/Murphy, R. E.	11-Astronomy			
	HD-SL/Brunk, W. E.				
<b>NSG 7449</b>	<b>Johns Hopkins University</b>	<b>2508</b>			
Analysis of X-ray astronomy data					
<i>Period</i>	<i>Obligations</i>				
05/15/78-05/14/81	FY80:	TOTAL: \$60,420			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Davidson, A. F.	HD-SC/Weiler, E. J.	11-Astronomy			
<b>NSG 5-12</b>	<b>Morgan State University</b>	<b>2509</b>			
Relating thematic mapper bands to agronomics variables for soybeans and corn					
<i>Period</i>	<i>Obligations</i>				
04/01/80-03/31/81	FY80: \$32,418	TOTAL: \$32,418			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Fan, C. J.	GSFC/Tucker, C. J.	39-Env Sci, NEC			
<b>NSG 5-14</b>	<b>Morgan State University</b>	<b>2510</b>			
Evaluation of the quality of rainfall intensity estimates					
<i>Period</i>	<i>Obligations</i>				
03/01/80-02/28/81	FY80: \$21,044	TOTAL: \$21,044			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Knox, N.	GSFC/Hwang, P. H.	31-Atmos Sci			

**NASA'S UNIVERSITY PROGRAM  
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**NAS 5-23558**      **Morgan State University**      **2511**  
The investigation, identification, analysis and interpretation of  
new possibilities in transfer technology  
*Period*      *Obligations*  
06/01/76-03/31/82      **FY80: \$28,976      TOTAL: \$103,340**  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
Taylor, J. H.      GSFC/Friedman, D. S.      49-Engr, NEC

**NGT 21-025-006**      **Morgan State University**      **2512**  
Summer faculty fellowship program  
*Period*      *Obligations*  
04/16/71-12/31/79      **FY80:      TOTAL: \$337,199**  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
Proctor, N. K.      HD-LU/Pohly, J. G.      19-Phys Sci, NEC  
GSFC/Mundy, J. R.

**NGT 21-025-080**      **Morgan State University**      **2513**  
10th Summer Research Participation Program  
*Period*      *Obligations*  
04/01/80-03/31/81      **FY80: \$75,000      TOTAL: \$75,000**  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
Proctor, N. K.      GSFC/Mundy, J. R.      99-Multi-Discip

**NSG 5074**      **Morgan State University**      **2514**  
Research calibration of photographic and spectrographic films  
*Period*      *Obligations*  
10/01/75-03/31/81      **FY80: \$24,261      TOTAL: \$95,046**  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
Hammond, E. C., Jr.      GSFC/Baker, G. R.      11-Astronomy  
GSFC/Stober, A. K.

**NSG 5401**      **Morgan State University**      **2515**  
Research of high temperature solar converter  
*Period*      *Obligations*  
08/01/79-07/31/81      **FY80: \$45,000      TOTAL: \$90,000**  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
Oliver, F. W.      GSFC/Duncan, C. H.      31-Atmos Sci  
Ascher, G.

**NGR 21-002-010**      **University of Maryland - Baltimore**      **2516**  
Theoretical and experimental research on gravitational radiation  
*Period*      *Obligations*  
06/12/63-09/30/79      **FY80:      TOTAL: \$1,005,625**  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
Misner, C. W.      HD-SC/Roman, N. G.      11-Astronomy  
HD-SC/Rosendhal, J. D.

**NAG 1-24**      **University of Maryland - College Park**      **2517**  
An experimental investigation of the effects on the near wall  
turbulent boundary layer structure by drag reducing flat plate  
surface geometry changes  
*Period*      *Obligations*  
01/15/80-01/14/81      **FY80: \$25,000      TOTAL: \$25,000**  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
Wallace, J. M.      LARC/Walsh, M. J.      41 -to Engr  
LARC/Hefner, J. N.

**NAG 1-27**      **University of Maryland - College Park**      **2518**  
Design of variable structure control systems  
*Period*      *Obligations*  
01/15/80-01/14/81      **FY80: \$39,862      TOTAL: \$39,862**  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
Wang, S. H.      LARC/Schy, A. A.      45-Elec Engr

**NAG 1-51**      **University of Maryland - College Park**      **2519**  
Research in problem solving systems  
*Period*      *Obligations*  
06/01/80-08/31/81      **FY80: \$45,839      TOTAL: \$45,839**  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
Minker, J.      LARC/Barker, L. K.      22-Computer Science  
LARC/Hankins, W. W.

**NAG 2-28**      **University of Maryland - College Park**      **2520**  
Volcanic impact on stratospheric aerosol chemistry  
*Period*      *Obligations*  
03/01/80-02/28/81      **FY80: \$25,000      TOTAL: \$25,000**  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
Zoller, W. H.      ARC/Page, W. A.      31-Atmos Sci

**NAG 5-9**      **University of Maryland - College Park**      **2521**  
Research relative to the development of hydrologic models for  
remote sensing technology  
*Period*      *Obligations*  
02/01/80-01/31/81      **FY80: \$89,960      TOTAL: \$89,960**  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
Ragan, R. M.      GSFC/Rango, A.      39-Env Sci, NEC  
GSFC/Salomonson, V. V.

**NAG 5-26**      **University of Maryland - College Park**      **2522**  
Research of sea-air-land interaction in climate modeling  
*Period*      *Obligations*  
03/01/80-02/28/82      **FY80: \$79,103      TOTAL: \$79,103**  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
Baer, F.      GSFC/Halem, M.      31-Atmos Sci

**NAG 5-29**      **University of Maryland - College Park**      **2523**  
Research of penumbral surges and their physical relationships to  
solar flares  
*Period*      *Obligations*  
04/01/80-03/31/81      **FY80: \$7,000      TOTAL: \$7,000**  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
Schmahl, E. J.      GSFC/Donley, J. L.      31-Atmos Sci  
McKenna-lawlor, S.

**NAG 5-54**      **University of Maryland - College Park**      **2524**  
Studies of Seyfert and X-ray galaxies  
*Period*      *Obligations*  
05/01/80-04/30/81      **FY80: \$10,000      TOTAL: \$10,000**  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
Wilson, A. S.      GSFC/Bogges, A.      11-Astronomy  
Ward, M. J.

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**NAG 5-74** University of Maryland - College Park 2525  
Ultraviolet cometary spectrophotometry

<i>Period</i>	<i>Obligations</i>	
07/01/80-06/30/81	FY80: \$5,100	TOTAL: \$5,100
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ahearn, M. F.	GSFC/Bogges, A.	11-Astronomy

**NAG 8-379** University of Maryland - College Park 2532  
Ionospheric density measurement by X-ray source occultation

<i>Period</i>	<i>Obligations</i>	
09/15/80-03/14/81	FY80: \$2,000	TOTAL: \$2,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Matthews, D. L.	MSFC/Stone, J. F.	11-Astronomy

**NAG 5-90** University of Maryland - College Park 2526  
Research relative to laser and star tracking on GSFC telescopes

<i>Period</i>	<i>Obligations</i>	
07/15/80-07/14/81	FY80: \$22,930	TOTAL: \$22,930
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Currie, D. G.	GSFC/Friskey, J. L.	31-Atmos Sci

**NAGW 33** University of Maryland - College Park 2533  
A program to develop remote sensing excellence

<i>Period</i>	<i>Obligations</i>	
03/01/80-02/28/83	FY80: \$200,000	TOTAL: \$200,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ragan, R. M.	HD-ET/Vitale, J. A.	39-Env Sci, NEC

**NAG 5-99** University of Maryland - College Park 2527  
Improving communications between humans and computer-directed automatic systems

<i>Period</i>	<i>Obligations</i>	
09/01/80-08/31/81	FY80: \$54,227	TOTAL: \$54,227
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Rieger, C. J.	GSFC/Desjardins, R. L.	22-Computer Science
	GSFC/Maury, J. L.	

**NAGW 81** University of Maryland - College Park 2534  
A study of discontinuities and ionization processes in solar terrestrial plasmas

<i>Period</i>	<i>Obligations</i>	
06/01/80-05/31/81	FY80: \$285,000	TOTAL: \$285,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Papadopoulos, K.	HD-ST/Birmingham, T. J.	13-Physics
Wu, C. S.	HD-ST/Newton, G. P.	

**NAG 8-307** University of Maryland - College Park 2528  
Optical spectroscopic studies of identification of high galactic latitude High Energy Astronomical Observatory-B X-ray sources

<i>Period</i>	<i>Obligations</i>	
02/18/80-02/17/81	FY80: \$9,500	TOTAL: \$9,500
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wilson, A. S.	MSFC/Jones, J. B.	11-Astronomy

**NAS 5-11063** University of Maryland - College Park 2535  
Experiment to analyze ions and electrons for IMP-H and J

<i>Period</i>	<i>Obligations</i>	
06/11/68-10/31/80	FY80:	TOTAL: \$2,162,997
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Gloeckler, G.	GSFC/Corrigan, J. P.	13-Physics

**NAG 8-329** University of Maryland - College Park 2529  
X-ray study of elliptical and SO galaxies with compact nuclear radio

<i>Period</i>	<i>Obligations</i>	
03/01/80-02/28/81	FY80: \$11,500	TOTAL: \$11,500
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wilson, A. S.	MSFC/Jones, J. B.	11-Astronomy

**NAS 5-20062** University of Maryland - College Park 2536  
Low energy charged particles experiment for International Sun-Earth Explorer mother and heliocentric spacecraft

<i>Period</i>	<i>Obligations</i>	
05/02/74-11/30/81	FY80: \$129,000	TOTAL: \$1,096,861
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Gloeckler, G.	GSFC/Corrigan, J. P.	13-Physics

**NAG 8-349** University of Maryland - College Park 2530  
Studies of crab nebula-like supernova remnants

<i>Period</i>	<i>Obligations</i>	
06/20/80-06/19/81	FY80: \$8,000	TOTAL: \$8,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wilson, A. S.	MSFC/Swearingen, J. C.	11-Astronomy
Kundu, M. R.		

**NAS 5-23237** University of Maryland - College Park 2537  
International Sun-Earth Explorer 3 data spectrometer, and radiometer for Mariner/Jupiter 1977 launch

<i>Period</i>	<i>Obligations</i>	
05/09/73-10/31/81	FY80: \$14,000	TOTAL: \$90,900
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ponnampetuma, C.	GSFC/Conrath, B. J.	13-Physics
	GSFC/Hanel, R. A.	

**NAG 8-369** University of Maryland - College Park 2531  
X-ray investigations of selected field in the old galactic supernova remnant S147

<i>Period</i>	<i>Obligations</i>	
08/15/80-08/14/81	FY80: \$7,500	TOTAL: \$7,500
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Erickson, W. C.	MSFC/Stone, J. F.	11-Astronomy
Angerhofer, P. E.		

**NAS 5-23457** University of Maryland - College Park 2538  
Study of application of a field neutron generator

<i>Period</i>	<i>Obligations</i>	
04/06/76-05/15/81	FY80: \$15,468	TOTAL: \$50,120
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sommer, S. E.	GSFC/Trombka, J. I.	39-Env Sci, NEC

**NASA'S UNIVERSITY PROGRAM  
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**NAS 5-25437** University of Maryland - College Park 2539  
Feasibility study for fine structure solar energy converter

<i>Period</i>	<i>Obligations</i>	
02/14/79-10/14/80	FY80: TOTAL: \$12,441	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Taylor, L. S.	GSFC/Peake, H. J.	45-Elec Engr

**NAS 5-25472** University of Maryland - College Park 2540  
International Sun-Earth Explorer 3 data interpretation services

<i>Period</i>	<i>Obligations</i>	
01/29/79-01/28/81	FY80: \$28,500 TOTAL: \$58,500	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Coplan, M. A.	GSFC/Ogilvie, K. W.	11-Astronomy

**NAS 5-25486** University of Maryland - College Park 2541  
Support to the space telescope wide field planetary camera development team

<i>Period</i>	<i>Obligations</i>	
02/01/79-10/31/80	FY80: \$44,000 TOTAL: \$74,047	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Currie, D. G.	GSFC/Sours, W. T.	31-Atmos Sci

**NAS 5-25735** University of Maryland - College Park 2542  
Interplanetary monitoring of platform-H and J spacecraft ion and electron experiment

<i>Period</i>	<i>Obligations</i>	
11/01/79-12/31/80	FY80: \$85,000 TOTAL: \$85,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Gloeckler, G.	GSFC/Corrigan, J. P.	11-Astronomy

**NAS 5-25764** University of Maryland - College Park 2543  
Perform research in natural human to machine interfaces for NASA mission operations data systems

<i>Period</i>	<i>Obligations</i>	
06/29/79-08/31/81	FY80: \$71,377 TOTAL: \$104,502	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Rieger, C. S.	GSFC/Truskowski, W.	99-Multi-Discip
Somet, H.		

**NAS 5-26098** University of Maryland - College Park 2544  
definition phase for Transition Radiation and Ionization Calorimeter (TRIC) telescope

<i>Period</i>	<i>Obligations</i>	
03/04/80-09/30/81	FY80: \$55,170 TOTAL: \$55,170	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Yodh, G. B.	GSFC/Ormes, J. F.	11-Astronomy

**NAS 5-26294** University of Maryland - College Park 2545  
Funds to support Colloquium on Chemical Evolution of Comets and the Origin of Life on October 29-31, 1980 in College Park, Maryland

<i>Period</i>	<i>Obligations</i>	
07/01/80-05/31/81	FY80: \$18,940 TOTAL: \$18,940	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ponnamperuma, C.	GSFC/Baurer, S.	11-Astronomy

**NAS 8-33329** University of Maryland - College Park 2546  
HEAO-B observations of distant QSO associated clusters of galaxies

<i>Period</i>	<i>Obligations</i>	
02/14/79-02/13/80	FY80: TOTAL: \$8,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Scott, J. S.	MSFC/Jones, J. B., Jr.	11-Astronomy
Becker, R. H.		

**NAS 8-33346** University of Maryland - College Park 2547  
Radio and optical studies of X-ray clusters of galaxies

<i>Period</i>	<i>Obligations</i>	
02/14/79-02/13/80	FY80: TOTAL: \$24,356	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Erickson, W. C.	MSFC/Jones, J. B., Jr.	11-Astronomy
Holman, G. D.		
Matthews, T. A.		

**NAS 8-33358** University of Maryland - College Park 2548  
An investigation of the relation between seyfert and other active nuclei galaxies

<i>Period</i>	<i>Obligations</i>	
05/22/79-05/21/80	FY80: TOTAL: \$15,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wilson, A. S.	MSFC/Jones, J. B. Jr.	11-Astronomy

**NAS 8-33557** University of Maryland - College Park 2549  
Construction of a prototype superconducting gravity gradiometer

<i>Period</i>	<i>Obligations</i>	
08/03/79-07/30/80	FY80: \$33,510 TOTAL: \$53,510	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Geisler, J. E.	MSFC/Urban, E. W.	13-Physics
Richard, J. P.	MSFC/Shriver, E. L.	

**NAS 8-33798** University of Maryland - College Park 2550  
Design studies for the shuttle time and frequency transfer experiment

<i>Period</i>	<i>Obligations</i>	
09/12/80-01/11/81	FY80: \$10,000 TOTAL: \$10,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Alley, C. O.	MSFC/Decher, R.	31-Atmos Sci

**NAS 8-33822** University of Maryland - College Park 2551  
Development of a superconducting gravity gradiometer

<i>Period</i>	<i>Obligations</i>	
07/23/80-01/22/84	FY80: \$88,000 TOTAL: \$88,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Paik, H. J.	MSFC/Urban, E. W.	31-Atmos Sci
Richard, J. P.	MSFC/Shriver, E. L.	

**NCA 2-420001** University of Maryland - College Park 2552  
The study of extreme halophiles as possible evolutionary markers

<i>Period</i>	<i>Obligations</i>	
01/01/80-12/31/81	FY80: \$11,328 TOTAL: \$11,328	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ponnamperuma, C.	ARC/Hochstein, L. I.	12-Chemistry



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**NCA 2-420901 University of Maryland - College Park 2553**  
 Production of specific antibody without specific immunization:  
 Extension to clinically important antigens

Period	Obligations	
01/01/79-12/31/80	FY80: \$10,000	TOTAL: \$20,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Goldsby, R. A.	ARC/Mandel, A. D.	12-Chemistry

**NGI 21-002-033 University of Maryland - College Park 2560**  
 Theoretical and experimental studies in space sciences, including  
 consideration of rocket probe and satellites techniques

Period	Obligations	
06/02/64-10/31/82	FY80: \$105,463	TOTAL: \$3,322,298
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Trasco, J. D.	GSFC/Donn, B. D.	31-Atmos Sci
Kunda, M. R.		

**NCA 5-26 University of Maryland - College Park 2554**  
 Study of digital image processing of astronomical scenes

Period	Obligations	
05/16/78-05/15/79	FY80:	TOTAL: \$6,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Rosenfeld, A.	GSFC/Klinglesmith, D. A.	11-Astronomy

**NGR 21-002-066 University of Maryland - College Park 2561**  
 A study of primary cosmic ray electrons, utilizing balloon-borne  
 experiments

Period	Obligations	
11/19/65-06/31/81	FY80: \$30,000	TOTAL: \$855,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Earl, J. A.	HD-SC/Gilman, D. A.	11-Astronomy
	HD-SC/Holt, S. S.	

**NCA 5-28 University of Maryland - College Park 2555**  
 Goddard introduction to engineering careers

Period	Obligations	
06/01/78-06/30/81	FY80: \$9,560	TOTAL: \$37,065
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wockenfuss, W. A.	GSFC/Chapman, J. W.	49-Engr, NEC

**NGR 21-002-073 University of Maryland - College Park 2562**  
 Experimental and theoretical investigation of plasma radiation

Period	Obligations	
04/26/66-02/28/81	FY80: \$69,000	TOTAL: \$950,173
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Griem, H. R.	HD-SC/Roman, N. G.	11-Astronomy
	HD-SC/Weiler, E. J.	

**NCC 1-25 University of Maryland - College Park 2556**  
 Airborne water vapor lidar experiment

Period	Obligations	
08/01/79-02/28/81	FY80: \$47,000	TOTAL: \$88,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wilkerson, T. D.	LARC/Browell, E. V.	31-Atmos Sci
	LARC/Carter, A. F.	

**NGR 21-002-096 University of Maryland - College Park 2563**  
 Research in atmospheric physics

Period	Obligations	
06/21/66-06/30/81	FY80: \$68,000	TOTAL: \$973,186
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Matthews, D. L.	GSFC/Hartle, R. E.	31-Atmos Sci

**NCC 1-22 University of Maryland - College Park 2557**  
 Selected applications of computational aerodynamics

Period	Obligations	
05/01/80-09/30/81	FY80: \$156,625	TOTAL: \$156,625
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Anderson, J. D.	LARC/Erickson, W. D.	41-Aero Engr
	LARC/Jones, R. A.	

**NGR 21-002-199 University of Maryland - College Park 2564**  
 Research in solar radio astronomy at short wavelengths

Period	Obligations	
04/11/69-10/30/80	FY80: \$66,000	TOTAL: \$482,656
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kundu, M. R.	HD-ST/Chipman, E.	13-Physics

**NCC 5-9 University of Maryland - College Park 2558**  
 Cooperative research in solar and stellar astronomy

Period	Obligations	
04/01/79-05/31/81	FY80: \$68,597	TOTAL: \$141,694
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Trasco, J. D.	GSFC/Hobbs, R. W.	11-Astronomy
Kundu, M. R.		

**NGR 21-002-224 University of Maryland - College Park 2565**  
 Research on the measurement of the charge and isotopic  
 composition on the primary cosmic rays

Period	Obligations	
07/31/69-08/31/81	FY80: \$50,000	TOTAL: \$418,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Gloeckler, G.	HD-SC/Gilman, D. A.	11-Astronomy
	HD-SC/Holt, S. S.	

**NGI 21-002-005 University of Maryland - College Park 2559**  
 Theoretical research on dynamics of astrophysical plasmas  
 including studies of structure of plasma shock waves in solar  
 corona and their possible radio emission

Period	Obligations	
02/01/62-06/30/81	FY80:	TOTAL: \$1,107,493
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wu, C. S.	HD-ST/Hedin, A. E.	19-Phys Sci, NEC
	HD-ST/Schmerling, E. R.	

**NGR 21-002-270 University of Maryland - College Park 2566**  
 Research in mechanical theorem proving

Period	Obligations	
05/18/70-06/30/80	FY80:	TOTAL: \$176,661
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Minker, J.	HD-RE/Gewarter, W. B.	21-Mathematics
	JPL/Friedman, L.	

**NASA'S UNIVERSITY PROGRAM  
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**NGR 21-002-291** University of Maryland - College Park 2567  
Studies of charged particles in natural and laboratory environments

<i>Period</i>	<i>Obligations</i>	
01/28/71-12/31/80	FY80: \$61,151	TOTAL: \$389,072
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Coplan, M. A.	GSFC/Hoffman, R. A.	13-Physics

**NGR 21-002-316** University of Maryland - College Park 2568  
Research program in charged particle detector technology

<i>Period</i>	<i>Obligations</i>	
07/01/71-01/14/81	FY80: \$550,000	TOTAL: \$3,210,717
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Gloeckler, G. Ipavich, F. Mason, G.	GSFC/Teegarden, B.	13-Physics

**NGR 21-002-317** University of Maryland - College Park 2569  
Chemical studies of the origin of life

<i>Period</i>	<i>Obligations</i>	
08/18/71-06/30/81	FY80: \$124,023	TOTAL: \$969,181
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ponnamperuma, C.	HD-SB/Devincenzi, D. L.	12-Chemistry

**NGR 21-002-344** University of Maryland - College Park 2570  
Studies on thermophysical properties in critical region of fluids

<i>Period</i>	<i>Obligations</i>	
02/16/72-04/30/80	FY80:	TOTAL: \$83,998
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sengers, J. V.	LERC/Simoneau, R. J.	13-Physics

**NGR 21-002-399** University of Maryland - College Park 2571  
Urbanization and geologic processes in the Chesapeake Bay watershed

<i>Period</i>	<i>Obligations</i>	
03/01/73-05/31/79	FY80:	TOTAL: \$108,511
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
McCuen, R. H.	GSFC/Rango, A. GSFC/Salomonson, V. V.	32-Geological Sci

**NGT 21-002-254** University of Maryland - College Park 2572  
Summer faculty fellowship program in research for 24 faculty members

<i>Period</i>	<i>Obligations</i>	
12/23/69-03/31/80	FY80:	TOTAL: \$812,235
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Emad, F. P.	HD-LU/Carter, C. H.	49-Engr, NEC

**NGT 21-002-800** University of Maryland - College Park 2573  
Estimation of watershed hydraulic length using remote sensing

<i>Period</i>	<i>Obligations</i>	
09/01/80-08/31/81	FY80: \$7,000	TOTAL: \$7,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
McCuen, R. H.	GSFC/Salomonson, V. V. GSFC/Carter, C. H.	44-Civil Engr

**NGT 21-002-801** University of Maryland - College Park 2574  
Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
09/01/80-08/31/81	FY80: \$5,000	TOTAL: \$5,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Rose, W.	GSFC/Wolff, C.	11-Astronomy

**NGT 21-002-802** University of Maryland - College Park 2575  
Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
09/01/80-08/31/81	FY80: \$7,625	TOTAL: \$7,625
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wentzel, D. G.	GSFC/Cline, T.	11-Astronomy

**NGT 21-002-803** University of Maryland - College Park 2576  
Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
09/01/80-08/31/81	FY80: \$7,625	TOTAL: \$7,625
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
McDonald, F. B.	GSFC/McDonald, F.	13-Physics

**NGT 21-002-804** University of Maryland - College Park 2577  
Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
09/01/80-08/31/81	FY80: \$7,625	TOTAL: \$7,625
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Boldt, E. A.	GSFC/Boldt, E. A.	11-Astronomy

**NSG 1468** University of Maryland - College Park 2578  
Study of surface acoustic wave charge transfer device

<i>Period</i>	<i>Obligations</i>	
11/15/77-08/14/81	FY80: \$44,997	TOTAL: \$102,669
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lin, H. C.	LARC/Benz, H. F. LARC/Husson, C.	45-Elec Engr

**NSG 1570** University of Maryland - College Park 2579  
General aviation aerodynamics and dynamics

<i>Period</i>	<i>Obligations</i>	
11/01/78-10/31/80	FY80: \$91,950	TOTAL: \$116,797
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Barlow, J. B. Anderson, J. D. Winkelmann, A. E.	LARC/Dicarlo, D. J. LARC/Chambers, J. R.	41-Aero Engr

**NSG 2378** University of Maryland - College Park 2580  
Production of monoclonal antibodies to human t-cells

<i>Period</i>	<i>Obligations</i>	
04/01/79-03/31/81	FY80: \$42,000	TOTAL: \$84,554
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Goldsby, R. A.	ARC/Mandel, A. D.	56-Medical Sciences

**NASA'S UNIVERSITY PROGRAM  
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<b>NSG 5017</b>	<b>University of Maryland - College Park</b>	<b>2581</b>
Resource identification studies on urban watersheds using the Anacostia River Basin as an example		
<i>Period</i>	<i>Obligations</i>	
07/15/74-12/31/79	FY80: TOTAL: \$118,944	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ragan, R. M.	GSFC/Salomonsen, V. V.	
	GSFC/Rango, A.	32-Geological Sci
<b>NSG 5234</b>	<b>University of Maryland - College Park</b>	<b>2588</b>
Research of image motion and evaluation and optimization of the automatic guide system on the forty-eight inch telescope		
<i>Period</i>	<i>Obligations</i>	
02/19/78-05/14/80	FY80: TOTAL: \$102,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Currie, D. G.	GSFC/Friskey, J. L.	31-Atmos Sci
<b>NSG 5287</b>	<b>University of Maryland - College Park</b>	<b>2589</b>
Evaluate the automatic guider system for possible space ranging applications		
<i>Period</i>	<i>Obligations</i>	
07/15/78-07/14/79	FY80: TOTAL: \$37,404	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Currie, D. G.	GSFC/Winston, G. C.	31-Atmos Sci
<b>NSG 5042</b>	<b>University of Maryland - College Park</b>	<b>2582</b>
Study of CO2 waveguide laser life problem		
<i>Period</i>	<i>Obligations</i>	
01/12/75-12/31/80	FY80: TOTAL: \$120,685	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hochuli, U. E.	GSFC/Degnan, J. J.	49-Engr, NEC
Davis, C.		
<b>NSG 5123</b>	<b>University of Maryland - College Park</b>	<b>2583</b>
Evaluation of software engineering disciplines		
<i>Period</i>	<i>Obligations</i>	
08/01/76-01/31/81	FY80: \$65,000 TOTAL: \$232,214	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Basili, V. R.	GSFC/McGarry, F. E.	49-Engr, NEC
Zelkowitz, M. V.	GSFC/Tasaki, K. K.	
<b>NSG 5298</b>	<b>University of Maryland - College Park</b>	<b>2590</b>
Solar gamma-ray astronomy research		
<i>Period</i>	<i>Obligations</i>	
08/15/78-09/30/81	FY80: \$5,000 TOTAL: \$52,800	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Holmgren, H. D.	GSFC/Kamaty, R.	11-Astronomy
<b>NSG 5137</b>	<b>University of Maryland - College Park</b>	<b>2584</b>
Incorporation of remotely sensed soil moisture data into hydrologic models		
<i>Period</i>	<i>Obligations</i>	
12/01/76-06/30/80	FY80: TOTAL: \$102,815	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Witczak, M. W.	GSFC/Schmugge, T. J.	32-Geological Sci
<b>NSG 5313</b>	<b>University of Maryland - College Park</b>	<b>2591</b>
Resonance fluorescence in atmospheric gases research		
<i>Period</i>	<i>Obligations</i>	
12/01/78-01/31/81	FY80: \$130,000 TOTAL: \$265,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
McIlrath, T. J.	GSFC/Heaps, W. S.	13-Physics
	GSFC/Hudson, R. D.	
<b>NSG 5172</b>	<b>University of Maryland - College Park</b>	<b>2585</b>
Raman spectroscopy of cosmic ices and planetary atmospheres		
<i>Period</i>	<i>Obligations</i>	
04/01/77-11/30/80	FY80: \$10,974 TOTAL: \$59,952	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Khanna, R. K.	GSFC/Donn, B. D.	12-Chemistry
<b>NSG 5320</b>	<b>University of Maryland - College Park</b>	<b>2592</b>
Ground based solar radio observations solar maximum mission		
<i>Period</i>	<i>Obligations</i>	
01/15/79-01/14/81	FY80: \$66,500 TOTAL: \$106,500	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kundu, M. R.	GSFC/Donley, J. L.	31-Atmos Sci
<b>NSG 5177</b>	<b>University of Maryland - College Park</b>	<b>2586</b>
Measurement of interstellar helium impinging on the Earth		
<i>Period</i>	<i>Obligations</i>	
06/01/77-06/30/79	FY80: TOTAL: \$41,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Moore, J. H.	GSFC/Bissell, E. E.	13-Physics
Opal, C. B.	HD-ST/Cauffman, D. P.	
Meier, R. R.		
<b>NSG 5323</b>	<b>University of Maryland - College Park</b>	<b>2593</b>
Research of impulse electromagnetic bursts		
<i>Period</i>	<i>Obligations</i>	
07/01/79-04/30/81	FY80: \$12,614 TOTAL: \$24,932	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Tidman, D. A.	GSFC/Donley, J. L.	31-Atmos Sci
<b>NSG 5209</b>	<b>University of Maryland - College Park</b>	<b>2587</b>
Multidisciplinary research program in atmospheric science		
<i>Period</i>	<i>Obligations</i>	
09/12/77-12/30/80	FY80: \$356,000 TOTAL: \$1,012,247	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Thompson, O. E.	GSFC/Neil, E. A.	31-Atmos Sci
<b>NSG 5390</b>	<b>University of Maryland - College Park</b>	<b>2594</b>
Studies of suspected high carbon abundance planetary nebulae		
<i>Period</i>	<i>Obligations</i>	
07/01/79-06/30/80	FY80: TOTAL: \$6,815	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Harrington, J. P.	GSFC/Bogges, A.	11-Astronomy
Marionni, P. A.		

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**NSG 5399** University of Maryland - College Park 2595  
Observations of ultraviolet line spectra stars  
*Period* *Obligations*  
07/01/79-09/30/80 FY80: TOTAL: \$12,300  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Bell, R. A. GSFC/Bogges, A. 11-Astronomy

**NSG 5404** University of Maryland - College Park 2596  
Field aligned particle fluxes and parallel electric potential  
*Period* *Obligations*  
10/01/79-12/31/80 FY80: \$24,000 TOTAL: \$24,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Lin, C. S. GSFC/Spencer, N. W. 31-Atmos Sci  
Rosenberg, T. J.

**NSG 5408** University of Maryland - College Park 2597  
Study of bow shock ions, particle accelerations and plasmas instabilities  
*Period* *Obligations*  
10/01/79-09/30/81 FY80: TOTAL: \$25,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Wu, C. S. GSFC/Corrigan, J. P. 11-Astronomy

**NSG 5423** University of Maryland - College Park 2598  
Geologic modeling of the Patuxent watershed, Maryland  
*Period* *Obligations*  
10/15/79-02/28/81 FY80: \$57,906 TOTAL: \$57,906  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Segrist, H. G. GSFC/Lowman, P. D. 32-Geological Sci  
GSFC/Labovitz, M.

**NSG 5424** University of Maryland - College Park 2599  
Infrared studies relevant to a satellite of planet Jupiter  
*Period* *Obligations*  
10/15/79-11/30/80 FY80: \$4,395 TOTAL: \$4,395  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Khanna, R. K. GSFC/Pearl, J. C. 11-Astronomy

**NSG 7046** University of Maryland - College Park 2600  
Studies of the Apollo 15 and 16 orbital X-ray data  
*Period* *Obligations*  
05/01/74-03/31/81 FY80: \$16,000 TOTAL: \$178,197  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Adler, I. HD-SL/Quaide, W. L. 32-Geological Sci  
HD-SL/French, B. E.

**NSG 7196** University of Maryland - College Park 2601  
Research and development of gravitational experiments for spacecraft  
*Period* *Obligations*  
03/01/76-06/30/80 FY80: TOTAL: \$248,513  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Weber, J. HD-RT/Whiting, E. E. 13-Physics  
Davis, W. JPL/Tward, M.  
Paik, H. J.

**NSG 7253** University of Maryland - College Park 2602  
Improving communications between humans and computer-directed automatic systems  
*Period* *Obligations*  
07/01/76-08/31/80 FY80: \$50,000 TOTAL: \$170,25  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Reiger, C. J. HD-RT/Gevarter, W. B.  
22-Computer Science  
LARC/Woolley, C. R.

**NSG 7322** University of Maryland - College Park 2603  
Research on comets  
*Period* *Obligations*  
03/01/77-05/31/81 FY80: \$45,500 TOTAL: \$122,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
AHearn, M. F. HD-SL/Brunk, W. E. 11-Astronomy  
HD-SL/Murphy, R. E.

**NSG 7340** University of Maryland - College Park 2604  
Spectral studies related to dissociation of hydrogen-bromine, hydrogen-chloride and bromine-oxide  
*Period* *Obligations*  
06/16/77-08/14/81 FY80: \$38,000 TOTAL: \$141,763  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Ginter, M. L. HD-EB/Toth, R. A. 13-Physics  
HD-EB/Tilford, S. G.

**NSG 7365** University of Maryland - College Park 2605  
Theoretical calculations of nonballistic fluid dynamic flow for ejecta transport in models of multiring basins of impact origin  
*Period* *Obligations*  
07/01/77-06/30/80 FY80: TOTAL: \$65,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Pai, S. I. HD-SL/Quaide, W. L. 32-Geological Sci  
HD-SL/French, B. M.

**NSG 7427** University of Maryland - College Park 2606  
Numerical simulation experiments in support of NASA solar physics missions: Solar loop and flare studies  
*Period* *Obligations*  
12/01/77-11/30/79 FY80: TOTAL: \$124,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Spicer, D. S. HD-ST/Bohlin, J. D. 13-Physics

**NSG 7469** University of Maryland - College Park 2607  
Colloquium on the Limits of Life  
*Period* *Obligations*  
07/01/78-06/31/79 FY80: TOTAL: \$7,500  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Ponnamperuma, C. HD-SB/Young, R. S. 12-Chemistry

**NSG 7482** University of Maryland - College Park 2608  
Astrophysical science theory lunar minerals  
*Period* *Obligations*  
09/01/78-08/31/80 FY80: TOTAL: \$24,753  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Tossell, J. HD-SL/Quaide, W. L. 32-Geological Sci

**NASA'S UNIVERSITY PROGRAM  
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<b>NSG 7496</b>	<b>University of Maryland - College Park</b>	<b>2609</b>
Experiments with phase transitions at very high pressures		
<i>Period</i>	<i>Obligations</i>	
10/01/78-09/30/79	FY80:	TOTAL: \$85,035
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Spain, I. L.	HD-RS/Lundholm, J. G., Jr.	13-Physics
<b>NSG 7555</b>	<b>University of Maryland - College Park</b>	<b>2610</b>
X-ray clusters of galaxies, gas dynamics and relativistic particle propagation		
<i>Period</i>	<i>Obligations</i>	
03/01/79-09/30/80	FY80:	TOTAL: \$40,608
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Scott, J. S.	HD-SC/Kaluzienski, L. J.	11-Astronomy
<b>NSG 6033</b>	<b>University of Maryland - Eastern Shore</b>	<b>2616</b>
Investigation of aspergillus flavus		
<i>Period</i>	<i>Obligations</i>	
06/01/79-03/31/81	FY80: \$22,273	TOTAL: \$12,273
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Albano, M.	WFC/Trafford, G. H.	51-Biological Sci
<b>NSG 6834</b>	<b>University of Maryland - Eastern Shore</b>	<b>2617</b>
Aquatic vascular plants and algae as potential biological components of closed ecological life support systems		
<i>Period</i>	<i>Obligations</i>	
06/01/79-06/30/81	FY80:	TOTAL: \$11,321
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Gupta, G. C.	WFC/Trafford, G. H.	39-Env Sci, NEC
<b>NAG 6-3</b>	<b>University of Maryland - Eastern Shore</b>	<b>2611</b>
Phase one: Study of microwave radiation for soil sterilization. Phase two: Analysis of LANDSAT data for sediment in the Chesapeake Bay		
<i>Period</i>	<i>Obligations</i>	
06/01/80-05/31/81	FY80: \$28,085	TOTAL: \$28,085
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wutoh, J. G.	WFC/Oberholtzer, J. D.	99-Multi-Discip
<b>NAG 6-4</b>	<b>University of Maryland - Eastern Shore</b>	<b>2612</b>
A survey of trace metal pollution in the lower Eastern Shore area		
<i>Period</i>	<i>Obligations</i>	
07/01/80-06/30/81	FY80: \$10,304	TOTAL: \$10,304
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hung, Y. W.	WFC/Trafford, G. H.	54-Env Biology
<b>NAG 6-6</b>	<b>University of Maryland - Eastern Shore</b>	<b>2613</b>
Comparative analysis of Wallops wind and weather data: Wind as a power source on the Eastern Shore		
<i>Period</i>	<i>Obligations</i>	
08/01/80-07/31/81	FY80: \$25,972	TOTAL: \$25,972
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Chapin, E. W.	WFC/Trafford, G. H.	31-Atmos Sci
	WFC/Williams, M. E.	
<b>NAS 6-2855</b>	<b>University of Maryland - Eastern Shore</b>	<b>2614</b>
Services for operation of Wallops Technical Library		
<i>Period</i>	<i>Obligations</i>	
10/01/77-09/30/80	FY80: \$68,605	TOTAL: \$195,998
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Smith, J. C.	WFC/Floyd, J. C.	99-Multi-Discip
Ignasias, C. D.	WFC/Foster, J. N.	
<b>NSG 6025</b>	<b>University of Maryland - Eastern Shore</b>	<b>2615</b>
Surface drift currents in the ocean		
<i>Period</i>	<i>Obligations</i>	
12/01/78-09/30/81	FY80: \$14,934	TOTAL: \$24,934
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Dudis, J. J.	WFC/Huang, N. E.	33-Oceanography
<b>NSG 7470</b>	<b>University of Maryland - Eastern Shore</b>	<b>2618</b>
Optimization of agricultural productivity in closed ecological life support systems		
<i>Period</i>	<i>Obligations</i>	
07/01/78-09/30/80	FY80: \$20,000	TOTAL: \$60,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Joshi, J. M.	HD-SB/Devincenzi, D. L.	55-Agriculture Sci

**MASSACHUSETTS**

<b>NAG 8-330</b>	<b>Amherst College</b>	<b>2619</b>
Secular variations in pulsar temperatures		
<i>Period</i>	<i>Obligations</i>	
03/01/80-02/28/81	FY80: \$7,105	TOTAL: \$7,105
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Greenstein, G.	MSFC/Jones, J. B.	11-Astronomy
<b>NSG 7385</b>	<b>Boston College</b>	<b>2620</b>
Investigation of auroral process on the ATS field line		
<i>Period</i>	<i>Obligations</i>	
09/01/77-08/31/78	FY80:	TOTAL: \$30,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Eather, R. H.	HD-ST/Taylor, W. W.	39-Env Sci, NEC
	HD-ST/Schmerling, E. R.	
<b>NSG 7468</b>	<b>Boston College</b>	<b>2621</b>
Evaluate and assess the role of theorists in Solar terrestrial research		
<i>Period</i>	<i>Obligations</i>	
06/01/78-12/31/80	FY80:	TOTAL: \$66,442
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Carovillano, R. L.	HD-ST/Tomayko, D. W.	39-Env Sci, NEC

**NASA'S UNIVERSITY PROGRAM  
MASSACHUSETTS (Continued)**

**NAS 5-25445** Boston University 2622  
High resolution studies of ultraviolet lines in O-B stars  
Period Obligations  
12/11/78-10/31/80 FY80: TOTAL: \$7,404  
Prin Invest NASA Tech Officer CASE Category  
Kamp, L. W. GSFC/Bogges, A. 11-Astronomy

**NAS 8-32844** Boston University 2623  
Use of the space shuttle to create plasma holes for ionospheric and radio astronomical studies  
Period Obligations  
10/01/77-09/30/82 FY80: \$27,000 TOTAL: \$67,000  
Prin Invest NASA Tech Officer CASE Category  
Mendillo, M. MSFC/Guynes, B. V. 31-Atmos Sci  
MSFC/Isa, R.

**NGR 22-004-025** Boston University 2624  
Microbial contributions to the precambrian Earth  
Period Obligations  
12/15/70-09/30/80 FY80: \$135,930 TOTAL: \$389,281  
Prin Invest NASA Tech Officer CASE Category  
Margulis, L. HD-SB/Devincenzi, D. L.  
32-Geological Sci

**NGR 22-004-030** Boston University 2625  
Compressible unsteady potential aerodynamic flow around lifting bodies having arbitrary shapes and motions  
Period Obligations  
12/08/71-12/31/80 FY80: \$100,947 TOTAL: \$626,701  
Prin Invest NASA Tech Officer CASE Category  
Morino, L. LARC/Yates, E. C., Jr. 41-Aero Engr  
Tseng, K. LARC/Desmarais, R. N.

**NGT 22-004-800** Boston University 2626  
Unsteady transonic aerodynamics research  
Period Obligations  
09/01/80-08/31/81 FY80: \$10,585 TOTAL: \$10,585  
Prin Invest NASA Tech Officer CASE Category  
Morino, L. LARC/Yates, E. C. 41-Aero Engr

**NGT 22-004-801** Boston University 2627  
Unsteady transonic aerodynamics research  
Period Obligations  
09/01/80-08/31/81 FY80: \$10,585 TOTAL: \$10,585  
Prin Invest NASA Tech Officer CASE Category  
Morino, L. LARC/Yates, E. C. 41-Aero Engr

**NGT 22-004-802** Boston University 2628  
Graduate student researchers program  
Period Obligations  
09/01/80-08/31/81 FY80: \$10,585 TOTAL: \$10,585  
Prin Invest NASA Tech Officer CASE Category  
Morino, L. LARC/Yates, E. C. 41-Aero Engr

**NSG 1644** Boston University 2629  
Noisiness and annoyance of noise-tone complexes  
Period Obligations  
09/01/79-10/15/80 FY80: TOTAL: \$29,271  
Prin Invest NASA Tech Officer CASE Category  
Hellman, R. D. LARC/Powell, C. A. 69-Psych, NEC  
LARC/Key, K. F.

**NSG 5389** Boston University 2630  
Development of computer models for the analysis of ultraviolet and optical stellar spectra  
Period Obligations  
06/15/79-06/14/80 FY80: \$14,000 TOTAL: \$26,992  
Prin Invest NASA Tech Officer CASE Category  
Kamp, L. W. GSFC/Leckrone, D. S. 11-Astronomy

**NSG 5407** Boston University 2631  
Study of the propagation of geomagnetic pulsation signals  
Period Obligations  
09/15/79-12/14/81 FY80: \$20,000 TOTAL: \$20,000  
Prin Invest NASA Tech Officer CASE Category  
Hughes, W. J. GSFC/Corrigan, J. P. 11-Astronomy

**NSG 7588** Boston University 2632  
Soil stabilization by a prokaryotic terrestrial mat in the southwestern United States. Implications for precambrian terrestrial biota  
Period Obligations  
04/15/79-11/30/80 FY80: TOTAL: \$16,000  
Prin Invest NASA Tech Officer CASE Category  
Golubic, S. HD-SB/Devincenzi, D. L. 54-Env Biology

**NAS 8-33343** Brandeis University 2633  
Study of the X-ray properties of ring galaxies  
Period Obligations  
02/22/79-07/31/81 FY80: TOTAL: \$1,000  
Prin Invest NASA Tech Officer CASE Category  
Ghigo, F. D. MSFC/Jones, J. B., Jr. 11-Astronomy

**NAS 9-15147** Brandeis University 2634  
Vestibular selection criteria development  
Period Obligations  
09/01/76-03/01/81 FY80: \$46,000 TOTAL: \$182,743  
Prin Invest NASA Tech Officer CASE Category  
Lackner, J. R. JSC/Homick, J. L. 59-Life Sci, NEC

**NSG 5419** Emmanuel College 2635  
Phase and amplitude scintillation modeling at equatorial and high latitudes  
Period Obligations  
10/01/79-12/31/80 FY80: \$23,000 TOTAL: \$23,000  
Prin Invest NASA Tech Officer CASE Category  
Basu, S. GSFC/Spencer, N. W. 31-Atmos Sci  
Aarons, J.

**NASA'S UNIVERSITY PROGRAM  
MASSACHUSETTS (Continued)**

<b>NAG 1-55</b>	<b>Harvard University</b>	<b>2636</b>			
Experimental studies of the sources of atmospheric gases					
<i>Period</i>		<i>Obligations</i>			
04/03/80-04/02/81	FY80: \$95,105	TOTAL: \$95,105			
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
McElroy, M. B.	LARC/Fishman, J.	31-Atmos Sci			
Wofsy, S. C.					
<b>NAG 5-72</b>	<b>Harvard University</b>	<b>2637</b>			
Observation of globular clusters and X-ray busters					
<i>Period</i>		<i>Obligations</i>			
06/01/80-05/31/81	FY80: \$9,791	TOTAL: \$9,791			
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Grindlay, J. E.	GSFC/Boggers, A.	11-Astronomy			
Gursky, H.					
Davis, R.					
<b>NAG 8-302</b>	<b>Harvard University</b>	<b>2638</b>			
Collaborative studies of solar-type and other coronae from High Energy Astronomical Observatory-B					
<i>Period</i>		<i>Obligations</i>			
01/21/80-01/20/81	FY80: \$2,901	TOTAL: \$2,901			
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Rosner, R.	MSFC/Jones, J. B.	11-Astronomy			
<b>NAG 8-344</b>	<b>Harvard University</b>	<b>2639</b>			
Special observations of WU MA stars					
<i>Period</i>		<i>Obligations</i>			
03/01/80-02/28/81	FY80: \$7,114	TOTAL: \$7,114			
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Dupree, A. K.	MSFC/Jones, J. B.	11-Astronomy			
Noyes, R. W.					
Cruddace, R. G.					
<b>NAGW 2</b>	<b>Harvard University</b>	<b>2640</b>			
Coronal plasma processes: Heating and energetic balance of closed coronal structures					
<i>Period</i>		<i>Obligations</i>			
11/01/79-03/31/81	FY80: \$59,865	TOTAL: \$59,865			
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Vaiana, G. S.	HD-ST/Chipman, E.	13-Physics			
<b>NAGW 79</b>	<b>Harvard University</b>	<b>2641</b>			
Theoretical program in plasma and magneto hydrodynamics processes relevant to the solar corona and its analogues					
<i>Period</i>		<i>Obligations</i>			
06/01/80-05/31/81	FY80: \$133,000	TOTAL: \$133,000			
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Rosner, R.	HD-ST/Birmingham, T. J.	13-Physics			
	HD-ST/Newton, G. P.				
<b>NAS 2-10547</b>	<b>Harvard University</b>	<b>2642</b>			
Fluid and electrolyte homeostasis during spaceflight: Elucidation of mechanisms in a primate					
<i>Period</i>		<i>Obligations</i>			
01/17/80-04/30/81	FY80: \$39,350	TOTAL: \$39,350			
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Moore-cde, M. C.	ARC/Ferandin, J.	51-Biological Sci			
<b>NAS 5-3949</b>	<b>Harvard University</b>	<b>2643</b>			
Study and experiment for a high resolution ultra- violet telescope and spectrometer system					
<i>Period</i>		<i>Obligations</i>			
01/28/65-06/30/81	FY80: \$55,000	TOTAL: \$39,512,986			
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Hughes, B. M.	MSFC/Snoddy, W. C.	11-Astronomy			
	MSFC/Fields, S.				
<b>NAS 5-23494</b>	<b>Harvard University</b>	<b>2644</b>			
X-ray ultraviolet spectroheliometer experiment for synchronous meteorological satellite study effort					
<i>Period</i>		<i>Obligations</i>			
05/19/76-09/30/81	FY80:	TOTAL: \$4,295,000			
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Reeves, E. M.	GSFC/Donley, J. L.	31-Atmos Sci			
<b>NAS 5-24134</b>	<b>Harvard University</b>	<b>2645</b>			
Investigation of the upper atmosphere using data from AE satellites					
<i>Period</i>		<i>Obligations</i>			
09/19/77-09/30/81	FY80: \$30,000	TOTAL: \$173,864			
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
McElroy, M. B.	GSFC/Bullock, G. D.	31-Atmos Sci			
<b>NAS 5-25677</b>	<b>Harvard University</b>	<b>2646</b>			
Very long baseline interferometer upgrading implementation, operation and maintenance of the Harvard Radio Astronomy Station					
<i>Period</i>		<i>Obligations</i>			
05/19/80-05/19/81	FY80: \$131,229	TOTAL: \$131,229			
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Lilley, A. E.	GSFC/Clark, T.	99-Multi-Discip			
<b>NAS 5-25989</b>	<b>Harvard University</b>	<b>2647</b>			
Domestic information display system. Concept study					
<i>Period</i>		<i>Obligations</i>			
01/07/80-06/30/80	FY80: \$14,693	TOTAL: \$14,693			
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Teicholz, E.	GSFC/Quann, J.	21-Mathematics			
<b>NAS 6-3061</b>	<b>Harvard University</b>	<b>2648</b>			
Reel down/reel up technique for stratospheric and tropospheric observations					
<i>Period</i>		<i>Obligations</i>			
10/15/79-06/15/81	FY80: \$130,942	TOTAL: \$130,942			
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Anderson, J. G.	WFC/Ballance, C. W.	31-Atmos Sci			
<b>NAS 8-31374</b>	<b>Harvard University</b>	<b>2649</b>			
Scientific data reduction and analysis activities ATM experiment S-054					
<i>Period</i>		<i>Obligations</i>			
01/01/75-06/30/81	FY80: \$62,371	TOTAL: \$1,149,959			
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Vaiana, G. S.	MSFC/Snoddy, W. C.	13-Physics			
	MSFC/Fields, S.				

**NASA'S UNIVERSITY PROGRAM  
MASSACHUSETTS (Continued)**

**NAS 8-32691** Harvard University 2650  
Crystal nucleation in glass-forming alloy and pure metal melts under containerless and vibrationless conditions  
*Period* *Obligations*  
06/23/78-06/22/81 FY80: \$60,000 TOTAL: \$114,000  
*Prin Invest* NASA Tech Officer CASE Category  
Turnbull, D. MSFC/Fallon, R. A. 13-Physics  
Spaepen, F. MSFC/Lacy, L. L.

**NASW 2952** Harvard University 2651  
An atmospheric and oceanic nitrous oxide measurement program  
*Period* *Obligations*  
06/15/76-12/14/80 FY80: \$79,935 TOTAL: \$342,235  
*Prin Invest* NASA Tech Officer CASE Category  
McElroy, M. B. HD-FB/Toth, R. A. 33-Oceanography  
Wofsy, S. C. HD-EB/Tilford, S. G.

**NASW 3242** Harvard University 2652  
Measurement of compounds in the stratosphere of the Earth and the development of measurement techniques  
*Period* *Obligations*  
10/01/78-03/31/82 FY80 \$1,163,000 TOTAL: \$2,644,000  
*Prin Invest* NASA Tech Officer CASE Category  
Anderson, J. G. HD-ST/Seals, R. K., Jr. 31-Atmos Sci

**NCC 2-39** Harvard University 2653  
Identification and adaptive control of helicopter systems  
*Period* *Obligations*  
11/01/79-10/31/81 FY80: \$86,000 TOTAL \$86,000  
*Prin Invest* NASA Tech Officer CASE Category  
Caines, P. F. ARC/Brown, T. J. 41-Aero Engr  
ARC/Johnson, W.

**NGI 22-007-006** Harvard University 2654  
Theoretical and experimental studies on ultraviolet solar physics  
*Period* *Obligations*  
07/10/63-09/30/80 FY80 \$260,000 TOTAL: \$5,251,398  
*Prin Invest* NASA Tech Officer CASE Category  
Parkinson, W. H. HD-ST/Chipman, F. 13-Physics

**NGI 22-007-069** Harvard University 2655  
Infrared absorption spectrophotometry of organic extractives from precambrian sediments  
*Period* *Obligations*  
05/29/66-05/31/81 FY80: \$40,185 TOTAL \$425,394  
*Prin Invest* NASA Tech Officer CASE Category  
Barghoorn, F. S. HD-SB/Devincenzi, D. L. 32-Geological Sci

**NGI 22-007-228** Harvard University 2656  
Theoretical investigation of multiphase in Jupiter interior and possible relationship to behavior of outer atmospheric layers  
*Period* *Obligations*  
12/15/71-09/30/81 FY80: \$516,000 TOTAL: \$1,570,988  
*Prin Invest* NASA Tech Officer CASE Category  
Goody, R. M. HD-SL/Murphy, R. E. 31-Atmos Sci  
HD-SL/Brunk, W. E.

**NGI 22-007-247** Harvard University 2657  
Lunar sample analysis  
*Period* *Obligations*  
06/30/72-01/31/81 FY80: TOTAL: \$641,268  
*Prin Invest* NASA Tech Officer CASE Category  
Hays, J. F. JSC/Harris, J. W. 12-Chemistry

**NGR 22-007-202** Harvard University 2658  
Investigations in the far ultraviolet solar spectrum  
*Period* *Obligations*  
11/05/70-09/30/81 FY80: TOTAL: \$1,054,920  
*Prin Invest* NASA Tech Officer CASE Category  
Parkinson, W. H. HD-ST/Bohlin, J. D. 11-Astronomy

**NGR 22-007-269** Harvard University 2659  
Theoretical research in planetary physics  
*Period* *Obligations*  
09/01/73-03/31/81 FY80: \$100,271 TOTAL: \$375,846  
*Prin Invest* NASA Tech Officer CASE Category  
Cameron, A. G. HD-SL/Quaide, W. L. 32-Geological Sci  
HD-SL/French, B. M.

**NGR 22-007-270** Harvard University 2660  
The operation of a balloon-borne 40-inch telescope for far infrared astronomy  
*Period* *Obligations*  
11/05/73-12/31/80 FY80: TOTAL: \$553,667  
*Prin Invest* NASA Tech Officer CASE Category  
Fazio, G. G. HD-SC/Bogges, N. W. 11-Astronomy  
HD-SC/Roman, N. G.

**NGR 22-007-272** Harvard University 2661  
Theoretical studies in space astronomy  
*Period* *Obligations*  
09/01/73-08/31/81 FY80 \$51,282 TOTAL: \$322,748  
*Prin Invest* NASA Tech Officer CASE Category  
Cameron, A. G. HD-SC/Kaluzienski, L. J. 11-Astronomy  
HD-SC/Holt, S. S.

**NSG 2031** Harvard University 2662  
Chemistry and dynamics of trace stratospheric gases  
*Period* *Obligations*  
07/01/74-09/30/80 FY80: \$98,812 TOTAL: \$495,153  
*Prin Invest* NASA Tech Officer CASE Category  
McElroy, M. B. HD-ST/Kakar, R. K. 31-Atmos Sci  
Wofsy, S. C. HD-ST/Tilford, S. G.

**NSG 2265** Harvard University 2663  
Geometrical methods for nonlinear dynamics  
*Period* *Obligations*  
09/01/77-08/31/81 FY80: \$32,000 TOTAL: \$114,681  
*Prin Invest* NASA Tech Officer CASE Category  
Byrnes, C. I. ARC/Doolin, B. F. 41-Aero Engr



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<b>NSG 5128</b>	<b>Harvard University</b>	<b>2664</b>	<b>NSG 5312</b>	<b>Harvard University</b>	<b>2671</b>
Lyman alpha coronagraph research sounding rocket program			X-ray observations of a compact binary source		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
07/15/76-12/14/80	FY80: \$260,000	TOTAL: \$1,189,876	12/15/78-12/14/75	FY80:	TOTAL: \$8,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Parkinson, W. H.	HD-ST/Bohlin, J. D.	13-Physics	Dupree, A. K.	GSFC/Kupperian, J. E., Jr.	11-Astronomy
Kohl, J. L.					
<b>NSG 5176</b>	<b>Harvard University</b>	<b>2665</b>	<b>NSG 5370</b>	<b>Harvard University</b>	<b>2672</b>
Research of high resolution vacuum ultraviolet absorption cross-sections of stratospheric molecules			Ultraviolet studies of astronomical sources		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
06/01/77-06/14/81	FY80: \$65,000	TOTAL: \$217,600	06/01/79-11/30/80	FY80: \$37,953	TOTAL: \$65,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Parkinson, W. H.	GSFC/Reed, E. I.	13-Physics	Dupree, A. K.	GSFC/Boggess, A.	11-Astronomy
Freeman, D. E.			Dalgarno, A.		
Yoshino, K.					
<b>NSG 5226</b>	<b>Harvard University</b>	<b>2666</b>	<b>NSG 5380</b>	<b>Harvard University</b>	<b>2673</b>
Studies of selected soft X-ray sources			International Ultraviolet Experiment (IUE) observations of interstellar carbon		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
02/01/78-01/31/79	FY80:	TOTAL: \$9,193	07/01/79-12/31/79	FY80:	TOTAL: \$8,531
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Dupree, A. K.	GSFC/Kupperian, J. E., Jr.	11-Astronomy	Dupree, A. K.	GSFC/Boggess, A.	11-Astronomy
			Black, J. H.		
<b>NSG 5228</b>	<b>Harvard University</b>	<b>2667</b>	<b>NSG 7095</b>	<b>Harvard University</b>	<b>2674</b>
Dynamics and evaluation of Gulf Stream meanders			Reflection spectra of sodium doped ammonia ice		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
02/01/78-02/28/81	FY80: \$83,702	TOTAL: \$122,807	10/25/74-06/30/80	FY80:	TOTAL: \$189,565
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Robinson, A. R.	GSFC/Halem, M	33-Oceanography	Pipkin, F. M.	HD-SL/Murphy, R. E.	31-Atmos Sci
<b>NSG 5229</b>	<b>Harvard University</b>	<b>2668</b>	<b>NSG 7176</b>	<b>Harvard University</b>	<b>2675</b>
Ultraviolet investigations of stellar X-ray sources			Participation in NASA core funding		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
02/01/78-01/31/79	FY80:	TOTAL: \$39,885	11/01/75-03/31/82	FY80: \$254,000	TOTAL: \$1,354,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Dupree, A. K.	GSFC/Boggess, A.	11-Astronomy	Field, G. B.	HD-SP/Heninger, L. W.	
	GSFC/West, D. K.		McElroy, M. B.	HD-SP/Taylor, T. C.	19-Phys Sci, NEC
<b>NSG 5239</b>	<b>Harvard University</b>	<b>2669</b>	<b>NSG 7304</b>	<b>Harvard University</b>	<b>2676</b>
Observations of stellar chromospheres and coronae			Absolute transition probabilities in ultraviolet spectra of interstellar molecules		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
03/01/78-02/28/79	FY80:	TOTAL: \$21,500	12/15/76-02/13/81	FY80: \$51,000	TOTAL: \$169,525
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Dupree, A. K.	GSFC/Boggess, A.	11-Astronomy	Parkinson, W. H.	HD-SC/Boggess, N. W.	31-Atmos Sci
	GSFC/West, D. K.			HD-SC/Weiler, E. J.	
<b>NSG 5293</b>	<b>Harvard University</b>	<b>2670</b>	<b>NSG 7332</b>	<b>Harvard University</b>	<b>2677</b>
Studies of the local interstellar medium			Planetary speckle imaging		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
08/01/78-09/30/79	FY80:	TOTAL: \$15,000	03/01/77-12/31/79	FY80:	TOTAL: \$161,366
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Dupree, A. K.	GSFC/Kupperian, J. E., Jr.	11-Astronomy	Goody, R. M.	HD-SL/Brunk, W. E.	11-Astronomy
				HD-SL/Quaide, W. L.	

**NASA'S UNIVERSITY PROGRAM  
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**NSG 7461** **Harvard University** **2678**  
Computer assisted performance tests of the Lyman-alpha coronagraph  
*Period* *Obligations*  
07/01/78-06/30/79 **FY80:** **TOTAL: \$20,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Parkinson, W. H. HD-ST/Bohlin, J. D. 11-Astronomy

**NSG 7497** **Harvard University** **2679**  
Coronal plasma heating  
*Period* *Obligations*  
10/01/78-09/30/81 **FY80:** **TOTAL: \$34,673**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Vaiana, G. S. HD-ST/Bohlin, J. D. 13-Physics

**NSG 7513** **Harvard University** **2680**  
Creep and fracture properties of the Moon  
*Period* *Obligations*  
01/01/79-06/30/80 **FY80:** **TOTAL: \$27,127**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
O'Connell, R. J. HD-SL/Quaide, W. L. 32-Geological Sci

**NSG 7537** **Harvard University** **2681**  
Coronal plasma processes: Heating and energetic balance of closed coronal structures  
*Period* *Obligations*  
01/01/79-12/31/80 **FY80:** **TOTAL: \$56,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Vaiana, G. S. HD-ST/Bohlin, J. D. 13-Physics

**NSG 7648** **Harvard University** **2682**  
Solar maximum mission: Ground support programs at the Harvard Radio Astronomy Station  
*Period* *Obligations*  
07/01/79-06/30/81 **FY80: \$152,427** **TOTAL: \$152,427**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Maxwell, A. HD-ST/Chipman, E. 13-Physics

**NSG 9054** **Harvard University** **2683**  
Fluid and electrolyte homeostasis during spaceflight. Ground-based preparative studies in a primate  
*Period* *Obligations*  
02/01/77-01/31/81 **FY80: \$48,000** **TOTAL: \$183,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Moore-ede, M. C. JSC/Leach, C. S. 56-Medical Sciences

**NAG 1-2** **Massachusetts Institute of Technology** **2684**  
Hybrid operator models for digitally-implemented control systems  
*Period* *Obligations*  
12/01/79-05/31/81 **FY80: \$40,000** **TOTAL: \$40,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Stein, G. LARC/Armstrong, E. S. 45-Elec Engr  
LARC/Elliott, J. R.

**NAG 1-12** **Massachusetts Institute of Technology** **2685**  
Investigation of some critical phenomena in the N-vortex system with application to large scale turbulent noise spectra  
*Period* *Obligations*  
11/15/79-11/14/80 **FY80: \$20,000** **TOTAL: \$20,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Young, J. E. LARC/Hardin, J. C. 13-Physics

**NAG 1-48** **Massachusetts Institute of Technology** **2686**  
Development of single mode, high temperature continuous wave (CW) plumbum-stannaum-tellurium (PBSNTE) laser diodes  
*Period* *Obligations*  
03/01/80-02/28/81 **FY80: \$75,000** **TOTAL: \$75,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Fonstad, C. G. LARC/Hendricks, H. D. 45-Elec Engr  
LARC/Hoell, J. M.

**NAG 1-60** **Massachusetts Institute of Technology** **2687**  
Research on unsteady, three-dimensional transonic flow  
*Period* *Obligations*  
05/01/80-04/30/81 **FY80: \$45,402** **TOTAL: \$45,402**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Harris, W. L. LARC/Bland, S. R. 41-Aero Engr  
LARC/Whitlow, W.

**NAG 1-92** **Massachusetts Institute of Technology** **2688**  
Analysis of remote measurements of carbon monoxide from Convair 990 during monsoon experiment  
*Period* *Obligations*  
09/01/80-08/31/81 **FY80: \$46,000** **TOTAL: \$46,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Newell, R. E. LARC/Reichle, H. G. 31-Atmos Sci  
LARC/Wallio, H. A.

**NAG 1-96** **Massachusetts Institute of Technology** **2689**  
Photovoltaic effect in ferroelectric ceramics  
*Period* *Obligations*  
09/01/80-08/31/81 **FY80: \$53,000** **TOTAL: \$53,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Epstein, D. J. LARC/Hayes, P. J. 45-Elec Engr  
Linz, A.  
Jenssen, H. P.

**NAG 1-100** **Massachusetts Institute of Technology** **2690**  
Microwave heating of supercooled water droplets  
*Period* *Obligations*  
09/01/80-08/31/81 **FY80: \$73,726** **TOTAL: \$73,726**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Hollister, W. M. LARC/Croswell, W. F. 13-Physics  
LARC/Bailey, M. C.

**NASA'S UNIVERSITY PROGRAM  
MASSACHUSETTS (Continued)**

**NAG 2-12**      **Massachusetts Institute of Technology**      **2691**  
 Research on visual vestibular interaction and its application to flight simulation

<i>Period</i>	<i>Obligations</i>	
12/01/79-11/30/80	FY80: \$65,000	TOTAL: \$65,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Young, L. R.	ARC/Stewart, J. D.	49-Engr, NEC
Oman, C. M.		

**NAG 3-100**      **Massachusetts Institute of Technology**      **2697**  
 Conceptual design of an engineering test facility superconducting magnetohydrodynamic magnet system

<i>Period</i>	<i>Obligations</i>	
08/22/80-11/22/80	FY80: \$70,000	TOTAL: \$70,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Marston, P. G.	LERC/Burkhart, J. A.	49-Engr, NEC
Hatch, A. M.	LERC/Bercaw, R. W.	
Tarrh, J. M.		

**NAG 2-47**      **Massachusetts Institute of Technology**      **2692**  
 Development of analytical techniques for rotor aerodynamic analysis

<i>Period</i>	<i>Obligations</i>	
10/01/80-09/30/81	FY80: \$58,627	TOTAL: \$58,627
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Miller, R. H.	ARC/Dizialz, R. A.	41-Aero Engr
	ARC/Johnson, W.	

**NAG 5-2**      **Massachusetts Institute of Technology**      **2698**  
 Research in image filtering and data compression

<i>Period</i>	<i>Obligations</i>	
01/01/80-12/31/80	FY80: \$99,972	TOTAL: \$99,972
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Oppenheim, A. V.	GSFC/Argentiero, P. D.	
Dudgeon, D. E.	GSFC/Schaefer, D.	39-Env Sci, NEC

**NAG 2-50**      **Massachusetts Institute of Technology**      **2693**  
 A long baseline stellar interferometer for astronomy

<i>Period</i>	<i>Obligations</i>	
08/01/80-07/31/81	FY80: \$50,000	TOTAL: \$50,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Stalcin, D. H.	ARC/Black, D. C.	11-Astronomy
Shao, M.		

**NAG 5-10**      **Massachusetts Institute of Technology**      **2699**  
 Improved microwave retrieval techniques for atmospheric temperatures, winds and humidity

<i>Period</i>	<i>Obligations</i>	
02/01/80-01/31/81	FY80: \$84,000	TOTAL: \$84,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Staelin, D. H.	GSFC/Susskind, J.	31-Atmos Sci

**NAG 3-9**      **Massachusetts Institute of Technology**      **2694**  
 Research applied to transonic compressors in numerical fluid mechanics of inviscid flow and viscous flow

<i>Period</i>	<i>Obligations</i>	
12/01/79-11/30/80	FY80: \$74,630	TOTAL: \$74,630
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Thompson, W. T.	LERC/Chima, R.	41-Aero Engr

**NAG 5-16**      **Massachusetts Institute of Technology**      **2700**  
 Research on theories for microwave remote sensing flow

<i>Period</i>	<i>Obligations</i>	
03/01/80-02/28/81	FY80: \$30,000	TOTAL: \$30,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kong, J. A.	GSFC/Chang, A. T.	32-Geological Sci

**NAG 3-33**      **Massachusetts Institute of Technology**      **2695**  
 Advanced stress analysis of turbine engine structures

<i>Period</i>	<i>Obligations</i>	
04/01/80-03/31/81	FY80: \$59,993	TOTAL: \$59,993
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Pian, T. H.	LERC/Chamis, C. C.	46-Mech Engr
	LERC/Hirschbein, M. S.	

**NAG 5-19**      **Massachusetts Institute of Technology**      **2701**  
 Seismicity and active tectonics of the Andes and the origin of the Altiplano

<i>Period</i>	<i>Obligations</i>	
03/01/80-02/28/81	FY80: \$49,494	TOTAL: \$49,494
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Molnar, P.	GSFC/Sullivan, W. B.	32-Geological Sci
Burchfield, B. C.	GSFC/Frey, H. V.	

**NAG 3-82**      **Massachusetts Institute of Technology**      **2696**  
 Development and use of generalized internal combustion engine cycle simulations

<i>Period</i>	<i>Obligations</i>	
06/23/80-06/22/81	FY80: \$60,062	TOTAL: \$60,062
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Haywood, J. B.	LERC/Cassidy, J. F.	41-Aero Engr
	LERC/Willis, E.	

**NAG 5-41**      **Massachusetts Institute of Technology**      **2702**  
 Geophysical study of the structures and processes of the continental convergence zones

<i>Period</i>	<i>Obligations</i>	
05/01/80-04/30/81	FY80: \$50,000	TOTAL: \$50,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Toksoz, M. N.	GSFC/Sullivan, W. B.	32-Geological Sci
Molnar, P.	GSFC/Frey, H. V.	

**NAG 5-43**      **Massachusetts Institute of Technology**      **2703**  
 Observations of the ultraviolet spectra of astronomical sources

<i>Period</i>	<i>Obligations</i>	
04/15/80-04/14/81	FY80: \$7,705	TOTAL: \$7,705
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
McClintock, J. E.	GSFC/Bobbess, A.	11-Astronomy

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**NAG 5-44** **Massachusetts Institute of Technology** **2704**  
Application of laser ranging and very long baseline interferometer data to a study of plate tectonic driving forces  
*Period* *Obligations*  
05/01/80-04/30/81 **FY80: \$68,000 TOTAL: \$68,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Solomon, S. C. GSFC/Sullivan, W. B. 32-Geological Sci  
Toksoz, M. N. GSFC/Frey, H. V.

**NAG 5-89** **Massachusetts Institute of Technology** **2705**  
The role of vegetation in the water balance of a land surface  
*Period* *Obligations*  
07/01/80-06/30/81 **FY80: \$19,932 TOTAL: \$19,932**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Eagleson, P. S. GSFC/Halem, M. 32-Geological Sci

**NAGW 14** **Massachusetts Institute of Technology** **2706**  
Feasibility and development study of a mercuric iodide solid state spectrometer for advanced X-ray astrophysics facility  
*Period* *Obligations*  
10/01/79-09/30/80 **FY80: \$89,313 TOTAL: \$89,313**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Ricker, G. R. HD-SC/Kaluzienski, L. J. 11-Astronomy  
HD-SC/Opp, A. G.

**NAGW 21** **Massachusetts Institute of Technology** **2707**  
Research program encompassed by space engineering  
*Period* *Obligations*  
11/01/79-09/30/80 **FY80: \$296,757 TOTAL: \$296,757**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Mar, J. W. HD-RT/Greenfield, M.A. 42-Astro Engr

**NAGW 49** **Massachusetts Institute of Technology** **2708**  
Thermal histories of lunar rocks  
*Period* *Obligations*  
03/01/80-02/28/81 **FY80: \$54,931 TOTAL: \$54,931**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Uhlmann, D. R. HD-SL/Quaide, W. L. 32-Geological Sci  
HD-SL/French, B. M.

**NAGW 68** **Massachusetts Institute of Technology** **2709**  
Studies of planetary upper atmospheres through occultations  
*Period* *Obligations*  
07/01/80-06/30/81 **FY80: \$49,960 TOTAL: \$49,960**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
James, E. L. HD-SL/Murphy, R. E. 31-Atmos Sci  
HD-SL/Quaide, W. L.

**NAS 1-15154** **Massachusetts Institute of Technology** **2710**  
A study of noise and performance of propellers for light aircraft  
*Period* *Obligations*  
01/20/78-10/31/80 **FY80: \$52,444 TOTAL: \$372,035**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Ingard, K. V. LARC/Hubbard, H. H. 41-Aero Engr  
Kerrebrock, J. L.

**NAS 1-15268** **Massachusetts Institute of Technology** **2711**  
Air transportation research and analysis  
*Period* *Obligations*  
03/15/78-03/14/81 **FY80: TOTAL: \$141,977**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Taneja, N. K. LARC/Maddalon, D. V. 41-Aero Engr  
Ausrotas, R. A.

**NAS 2-9473** **Massachusetts Institute of Technology** **2712**  
Pioneer Venus data analysis of the radar altimeter experiment  
*Period* *Obligations*  
01/20/77-09/30/80 **FY80: \$176,910 TOTAL: \$470,570**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Pettingill, G. H. ARC/Hall, C. F. 11-Astronomy  
ARC/Porter, D. L.

**NAS 2-9483** **Massachusetts Institute of Technology** **2713**  
Pioneer Venus data analysis of the Orbiting Celestial Mechanics (OCM) experiment  
*Period* *Obligations*  
02/17/78-09/30/80 **FY80: \$151,050 TOTAL: \$327,312**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Shapiro, I. I. ARC/Hall, C. F. 11-Astronomy  
ARC/Porter, D. L.

**NAS 2-10720** **Massachusetts Institute of Technology** **2714**  
Air traffic control simulation study  
*Period* *Obligations*  
05/01/80-08/28/80 **FY80: \$19,159 TOTAL: \$19,159**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Simpson, R. W. ARC/Nagel, D. C. 41-Aero Engr  
Odoni, A. R.

**NAS 3-20473** **Massachusetts Institute of Technology** **2715**  
Testing a NASA 20-inch stage an Air Force mass flow stage  
*Period* *Obligations*  
10/29/76-06/12/80 **FY80: TOTAL: \$482,116**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Kerrebrock, J. L. LERC/Crouse, J. E. 41-Aero Engr  
Epstein, A. H.  
Thompkins, W. T.

**NAS 5-11062** **Massachusetts Institute of Technology** **2716**  
IMP H and J plasma experiment  
*Period* *Obligations*  
05/17/78-03/79 **FY80: \$79 TOTAL: \$2,409,079**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Bridge, H. S. GSFC/Davis, M. A. 13-Physics

**NAS 5-21900** **Massachusetts Institute of Technology** **2717**  
Nimbus-F scanning microwave spectrometer data reduction and analysis  
*Period* *Obligations*  
01/25/74-12/31/79 **FY80: TOTAL: \$623,816**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Staelin, D. H. GSFC/Brandeen, W. R. 31-Atmos Sci

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<b>NAS 5-22915</b>	<b>Massachusetts Institute of Technology</b>	<b>2718</b>
Nimbus-G experiment team support for solar backscattered ultraviolet and total ozone mapping system		
<i>Period</i>	<i>Obligations</i>	
01/28/76-03/27/81	FY80: \$18,700	TOTAL: \$139,310
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Cunnold, D. M.	GSFC/Nelsen, E. D.	41-Aero Engr
<b>NAS 5-22929</b>	<b>Massachusetts Institute of Technology</b>	<b>2719</b>
Nimbus-G scanning multichannel microwave radiometer sensor		
<i>Period</i>	<i>Obligations</i>	
01/28/76-01/30/81	FY80: \$30,000	TOTAL: \$192,843
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Staclin, D. H.	GSFC/Gjoersen, P.	41-Aero Engr
<b>NAS 5-24139</b>	<b>Massachusetts Institute of Technology</b>	<b>2720</b>
Study of radar reflectivity of snow covered ground and relationship between the radar reflectivity and certain snowpack aromatics		
<i>Period</i>	<i>Obligations</i>	
07/26/77-07/25/80	FY80:	TOTAL: \$65,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kong, J. A.	GSFC/Shiue, J. C.	45-Elec Engr
<b>NAS 5-24441</b>	<b>Massachusetts Institute of Technology</b>	<b>2721</b>
Reduction and analysis of data from MIT X-ray observatory on-board SAS-3 spacecraft		
<i>Period</i>	<i>Obligations</i>	
10/01/78-09/30/80	FY80: \$789,000	TOTAL: \$2,181,995
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Clark, G. W.	GSFC/Corrigan, J. P.	11-Astronomy
<b>NAS 5-24493</b>	<b>Massachusetts Institute of Technology</b>	<b>2722</b>
Design studies for far infrared absolute spectrophotometer for the cosmic background Explorer satellite		
<i>Period</i>	<i>Obligations</i>	
03/01/78-03/01/81	FY80: \$102,263	TOTAL: \$292,345
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Weiss, R.	GSFC/Mather, J. C.	11-Astronomy
	GSFC/Donohoe, M. J.	
<b>NAS 5-25091</b>	<b>Massachusetts Institute of Technology</b>	<b>2723</b>
Broadband communications satellite study group		
<i>Period</i>	<i>Obligations</i>	
08/25/78-11/30/79	FY80:	TOTAL: \$70,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Staclin, D. H.	GSFC/Ippolitto, L.	45-Elec Engr
<b>NAS 5-25543</b>	<b>Massachusetts Institute of Technology</b>	<b>2724</b>
Mission definition and software analysis study for a very long base interferometry utilizing the space shuttle		
<i>Period</i>	<i>Obligations</i>	
04/10/79-09/30/80	FY80:	TOTAL: \$83,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Burke, B. F.	GSFC/Clark, T. C.	11-Astronomy
	GSFC/Stone, R. G.	
<b>NAS 5-25717</b>	<b>Massachusetts Institute of Technology</b>	<b>2725</b>
Long wavelength photodiode development		
<i>Period</i>	<i>Obligations</i>	
06/20/79-02/15/81	FY80: \$120,000	TOTAL: \$189,918
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Spears, D. L.	GSFC/Kostiuk, T.	47-Materials Engr
	GSFC/Mumma, M. J.	
<b>NAS 5-25790</b>	<b>Massachusetts Institute of Technology</b>	<b>2726</b>
Interplanetary monitoring platform-J/plasma experiment-data reduction and analysis		
<i>Period</i>	<i>Obligations</i>	
11/01/79-09/30/80	FY80: \$80,000	TOTAL: \$80,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bridge, H. S.	GSFC/Corrigan, J. P.	11-Astronomy
<b>NAS 5-25833</b>	<b>Massachusetts Institute of Technology</b>	<b>2727</b>
Validation intercomparison, and use of laser ranging and radio interferometric data for the determination of geophysical parameters		
<i>Period</i>	<i>Obligations</i>	
01/15/80-04/14/83	FY80: \$194,000	TOTAL: \$194,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Shapiro, I. I.	GSFC/Stephananides, C. C.	19-Phys Sci, NEC
<b>NAS 5-26038</b>	<b>Massachusetts Institute of Technology</b>	<b>2728</b>
Evaluation of the proposed microwave sounding unit		
<i>Period</i>	<i>Obligations</i>	
03/18/80-03/18/81	FY80: \$10,000	TOTAL: \$10,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Staclin, D. H.	GSFC/Shiue, J. C.	39-Env Sci, NEC
<b>NAS 8-27972</b>	<b>Massachusetts Institute of Technology</b>	<b>2729</b>
Design, development, and operations of the AXR-2 integrated modulation collimator and experiment under the HEAO program		
<i>Period</i>	<i>Obligations</i>	
06/23/72-09/30/81	FY80 \$411,000	TOTAL: \$1,799,493
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bradt, H. S.	MSFC/Stone, J. F.	11-Astronomy
<b>NAS 8-27975</b>	<b>Massachusetts Institute of Technology</b>	<b>2730</b>
Design and development of the AGR-5 high energy X-ray experiment under the HEAO program		
<i>Period</i>	<i>Obligations</i>	
06/23/72-09/30/81	FY80: \$553,000	TOTAL: \$2,755,672
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lewin, W. H.	MSFC/Stone, J. F.	11-Astronomy
<b>NAS 8-30752</b>	<b>Massachusetts Institute of Technology</b>	<b>2731</b>
Design, development and operations of the HEAO mission B telescope experiment		
<i>Period</i>	<i>Obligations</i>	
06/01/74-09/30/81	FY80: \$381,000	TOTAL: \$3,139,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Clark, G. W.	MSFC/Stone, J. F.	11-Astronomy

**NASA'S UNIVERSITY PROGRAM  
MASSACHUSETTS (Continued)**

**NAS 8-31350** Massachusetts Institute of Technology 2732  
Uniform dispersions of crystallization processing  
*Period* *Obligations*  
07/01/75-03/31/79 FY80: TOTAL: \$472,527  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Uhlmann, D. R. MSFC/Reeves, F. A. 47-Materials Engr  
MSFC/Williams, J.

**NAS 8-32925** Massachusetts Institute of Technology 2733  
Study for extraterrestrial processing and manufacturing of large  
space systems  
*Period* *Obligations*  
06/20/78-07/31/79 FY80: TOTAL: \$109,224  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Miller, R. H. MSFC/Vontiesenhausen, G. F.  
Smith, D. B. MSFC/Priest, C. C. 47-Materials Engr  
Akin, D. L.

**NAS 8-32994** Massachusetts Institute of Technology 2734  
Research study growth of solid solution semiconductors  
*Period* *Obligations*  
07/17/78-09/10/80 FY80: \$53,063 TOTAL: \$93,063  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Hitt, A. F. MSFC/Reeves, F. A. 13-Physics  
MSFC/Williams, J. R.

**NAS 8-33137** Massachusetts Institute of Technology 2735  
Apollo telescope mount guest investigator program for studying  
coronal sources of the intra stream structure of the solar wind  
*Period* *Obligations*  
10/30/78-10/29/80 FY80: TOTAL: \$17,620  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Sullivan, J. D. MSFC/DeLoach, A. C. 13-Physics  
MSFC/Snoddy, W. C.

**NAS 8-33138** Massachusetts Institute of Technology 2736  
Apollo telescope mount guest investigator program for modeling  
of quasi-static coronal loops and arcades  
*Period* *Obligations*  
09/20/78-03/31/80 FY80: TOTAL: \$56,250  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Frankenthal, S. MSFC/DeLoach, A. C. 13-Physics  
MSFC/Snoddy, W. C.

**NAS 9-15343** Massachusetts Institute of Technology 2737  
Definition of Spacelab I experiment on vestibular experiments  
*Period* *Obligations*  
04/04/77-09/30/82 FY80: \$379,500 TOTAL: \$907,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Young, L. R. JSC/Evans, J. S. 59-Life Sci, NEC

**NAS 9-16008** Massachusetts Institute of Technology 2738  
Evaluation of engineered foods for CELSS (Closed Ecological  
Life Support System)  
*Period* *Obligations*  
02/01/80-03/01/82 FY80: \$50,000 TOTAL: \$50,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Karel, M. JSC/Sauer, R. L. 59-Life Sci, NEC

**NCA 2-425801** Massachusetts Institute of Technology 2739  
Participation of transfer RNA in the origin of protein biosynthes-  
is  
*Period* *Obligations*  
11/01/77-09/30/80 FY80: TOTAL: \$27,500  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Rich, A. ARC/MackLroy, R. D. 51-Biological Sci

**NCC 1-23** Massachusetts Institute of Technology 2740  
Cockpit Display of Traffic Information (CDTI) crew function  
assessment  
*Period* *Obligations*  
07/01/79-10/31/80 FY80: \$32,358 TOTAL: \$70,653  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Whitthurst, C. A. LARC/Harris, R. L., Sr. 41-Aero Engr  
Young, L. R.

**NCC 1-45** Massachusetts Institute of Technology 2741  
Algorithms for computational fluid dynamics  
*Period* *Obligations*  
09/01/80-05/31/81 FY80: \$41,178 TOTAL: \$41,178  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Abarbanel, S. S. LARC/Dwoyer, D. L. 41-Aero Engr  
LARC/Thomas, F. C.

**NCC 3-1** Massachusetts Institute of Technology 2742  
Molecular-orbital studies of metal-insulator interfaces  
*Period* *Obligations*  
07/01/79-06/29/81 FY80: \$35,275 TOTAL: \$68,275  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Johnson, K. H. LERC/Pepper, S. V. 19-Phys Sci, NEC  
Wallace, S.

**NCC 3-15** Massachusetts Institute of Technology 2743  
Methanol as a fuel extender for stationary gas turbine com-  
bustors  
*Period* *Obligations*  
09/01/80-11/30/80 FY80: \$30,013 TOTAL: \$30,013  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Hoult, D. P. LERC/Brabbs, T. A. 12-Chemistry

**NCC 5-4** Massachusetts Institute of Technology 2744  
Geophysical study of the structures and processes of the continental  
convergence zones  
*Period* *Obligations*  
05/01/79-04/30/80 FY80: TOTAL: \$49,800  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Molnar, P. GSFC/Mead, G. D. 32-Geological Sci  
Toksoz, M. N.

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**NCC 5-14 Massachusetts Institute of Technology 2745**  
Application of laser ranging and very long baseline interferometer data to a study of plate tectonics driving forces

<i>Period</i>	<i>Obligations</i>	
05/01/79-04/30/80	FY80: TOTAL: \$69,850	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Solomon, S. C.	GSFC/Mead, G. D.	32-Geological Sci
Toksoz, M. N.		

**NGL 22-009-638 Massachusetts Institute of Technology 2751**  
Research in space science

<i>Period</i>	<i>Obligations</i>	
03/03/72-03/31/82	FY80: \$170,000 TOTAL: \$1,970,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bridge, H. S.	HD-SP/Heninger, L. W.	99-Multi-Discip
	HD-SP/Taylor, T. C.	

**NGL 22-009-015 Massachusetts Institute of Technology 2746**  
Theoretical and experimental investigations of interplanetary medium and in gamma ray astronomy

<i>Period</i>	<i>Obligations</i>	
01/01/63-12/31/80	FY80: TOTAL: \$4,826,339	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bridge, H. S.	HD-ST/Cauffman, D. P.	13-Physics
	HD-ST/Schmerling, E. R.	

**NGL 22-009-640 Massachusetts Institute of Technology 2752**  
Joint university research program future air transportation technological needs

<i>Period</i>	<i>Obligations</i>	
11/16/71-01/31/83	FY80: \$75,001 TOTAL: \$643,333	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Simpson, R. W.	LARC/Downing, D. R.	41-Aero agr
	LARC/MacE, W. D.	

**NGL 22-009-124 Massachusetts Institute of Technology 2747**  
Control optimization stabilization and computation of algorithms for space applications

<i>Period</i>	<i>Obligations</i>	
03/30/66-12/31/82	FY80: \$70,000 TOTAL: \$1,002,289	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Athans, M.	ARC/Doolin, B. F.	49-Engr, NEC
Willisky, A. S.		

**NGR 22-009-005 Massachusetts Institute of Technology 2753**  
Detection and identification of organic matter by mass spectrometry

<i>Period</i>	<i>Obligations</i>	
12/01/61-09/30/80	FY80: \$80,000 TOTAL: \$1,193,262	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Biemann, K.	HD-SB/Devincenzi, D. L.	51-Biological Sci

**NGL 22-009-308 Massachusetts Institute of Technology 2748**  
Maturation and development of mechanisms of orientation and postural control

<i>Period</i>	<i>Obligations</i>	
12/01/67-11/30/80	FY80: TOTAL: \$824,646	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Held, R. M.	ARC/Daunton, N. G.	69-Psych, NEC

**NGR 22-009-277 Massachusetts Institute of Technology 2754**  
The prebiotic synthesis of polynucleotides and polynucleotide-directed polypeptides

<i>Period</i>	<i>Obligations</i>	
12/01/67-07/31/81	FY80: \$67,568 TOTAL: \$627,370	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Rich, A.	HD-SB/Geib, D. S.	12-Chemistry

**NGL 22-009-383 Massachusetts Institute of Technology 2749**  
Research in propulsion and power generation

<i>Period</i>	<i>Obligations</i>	
01/16/69-08/31/82	FY80: \$70,000 TOTAL: \$1,108,167	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kerrebrock, J. L.	LERC/Gorrell, W. T.	41-Aero Engr
Epstein, A. H.		
Thompkins, W. T.		

**NGR 22-009-339 Massachusetts Institute of Technology 2755**  
Investigation of containment/control of fragments from bursting turbine rotors

<i>Period</i>	<i>Obligations</i>	
06/14/68-12/14/80	FY80: \$77,694 TOTAL: \$893,559	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Witmer, E. A.	LERC/Weiss, S.	41-Aero Engr
	LERC/Holms, A. G.	

**NGL 22-009-521 Massachusetts Institute of Technology 2750**  
Composition and structure of planetary atmospheres

<i>Period</i>	<i>Obligations</i>	
08/10/70-06/30/81	FY80: \$166,335 TOTAL: \$817,642	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lewis, J. S.	HD-SL/Murphy, R. E.	31-Atmos Sci
	HD-SL/Brunk, W. E.	

**NGR 22-009-378 Massachusetts Institute of Technology 2756**  
Study of pollutants from jet aircraft

<i>Period</i>	<i>Obligations</i>	
02/14/69-09/30/78	FY80: TOTAL: \$738,174	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Heywood, J. B.	LERC/Mularz, E. J.	43-Chem Engr
Chigier, N. A.	LERC/Diehl, L. A.	

**NGR 22-009-526 Massachusetts Institute of Technology 2757**  
Astronomy in the region between 1 mm to 0.1 mm wavelengths

<i>Period</i>	<i>Obligations</i>	
09/22/70-09/30/80	FY80: \$60,000 TOTAL: \$527,404	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Weiss, R.	HD-SC/Bogges, N. W.	11-Astronomy
	HD-SC/Roman, N. G.	

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**NGR 22-009-551** Massachusetts Institute of Technology 2758  
Lunar sample analysis  
Period Obligations  
02/11/71-09/30/79 FY80: TOTAL: \$453,300  
Prin Invest NASA Tech Officer CASE Category  
Burns, R. G. JSC/Harris, J. W. 12-Chemistry

**NGR 22-009-798** Massachusetts Institute of Technology 2765  
Role of brain areas controlling eye-head coordination in monkeys  
Period Obligations  
09/01/73-11/30/80 FY80: \$30,000 TOTAL: \$198,000  
Prin Invest NASA Tech Officer CASE Category  
Bizzi, E. ARC/Daunton, N. G. 51-Biological Sci

**NGR 22-009-627** Massachusetts Institute of Technology 2759  
Control of serotonin-containing neurons in the brain, by plasma tryptophan  
Period Obligations  
08/04/71-10/30/80 FY80: \$70,000 TOTAL: \$565,360  
Prin Invest NASA Tech Officer CASE Category  
Wurtman, R. J. ARC/Winget, C. M. 56-Medical Sciences  
Furnstrom, J. D.

**NGR 22-009-826** Massachusetts Institute of Technology 2766  
Neural orientation growth and maintenance  
Period Obligations  
09/01/73-11/30/80 FY80: \$25,000 TOTAL: \$183,000  
Prin Invest NASA Tech Officer CASE Category  
Graybiel, A. M. ARC/Daunton, N. G. 51-Biological Sci  
Hein, A. V.

**NGR 22-009-672** Massachusetts Institute of Technology 2760  
Ground-based radar study of the Moon and planets  
Period Obligations  
03/06/72-10/31/80 FY80: TOTAL: \$414,320  
Prin Invest NASA Tech Officer CASE Category  
Pettengill, G. H. HD-SL/Brunk, W. F. 11-Astronomy  
HD-SL/Murphy, R. F.

**NGR 22-009-839** Massachusetts Institute of Technology 2767  
Wideband recording system for very long baseline interferometry  
Period Obligations  
04/01/74-10/31/88 FY80: \$120,000 TOTAL: \$564,170  
Prin Invest NASA Tech Officer CASE Category  
Counselman, C. C. GSFC/Clark, T. A. 32-Geological Sci  
Shapiro, I. I. GSFC/Ryan, J. W.

**NGR 22-009-723** Massachusetts Institute of Technology 2761  
Bosch process and evaluation of Bosch carbon as a sorbent  
Period Obligations  
09/19/72-01/31/81 FY80: TOTAL: \$198,994  
Prin Invest NASA Tech Officer CASE Category  
Reid, R. C. ARC/Quattrone, P. D. 12-Chemistry

**NGI 22-009-900** Massachusetts Institute of Technology 2768  
Visiting assistant professor program  
Period Obligations  
04/01/80-03/31/82 FY80: \$111,500 TOTAL: \$111,500  
Prin Invest NASA Tech Officer CASE Category  
Wunsch, C. I. GSFC/Halem, M. 33-Oceanography

**NGR 22-009-727** Massachusetts Institute of Technology 2762  
Study in numerical modeling of atmospheric phenomena  
Period Obligations  
02/01/73-11/30/80 FY80: \$175,600 TOTAL: \$909,163  
Prin Invest NASA Tech Officer CASE Category  
Charney, J. GSFC/Halem, M. 31-Atmos Sci  
Stone, P. H.

**NSG 1323** Massachusetts Institute of Technology 2769  
Research in algebraic manipulation  
Period Obligations  
07/01/76-06/30/81 FY80: \$27,083 TOTAL: \$181,067  
Prin Invest NASA Tech Officer CASE Category  
Moses, J. LARC/Shoosmith, J. N.  
22-Computer Science

**NGR 22-009-730** Massachusetts Institute of Technology 2763  
X-ray astronomy experiments from sounding rockets  
Period Obligations  
03/22/72-08/31/81 FY80: \$180,000 TOTAL: \$1,440,000  
Prin Invest NASA Tech Officer CASE Category  
Rappaport, S. A. GSFC/Bissell, E. E. 11-Astronomy  
Boughan, F. HD-SC/Opp, A. G.  
Levine, A.

**NSG 1356** Massachusetts Institute of Technology 2770  
Study of feasibility of applying superconducting coil technology to general purpose magnetic balance and suspension system  
Period Obligations  
01/01/77-08/31/80 FY80: \$20,799 TOTAL: \$269,610  
Prin Invest NASA Tech Officer CASE Category  
Haldeman, C. W. LARC/Boydson, R. P. 41-Aero Engr  
LARC/Kilgore, R. A.

**NGR 22-009-790** Massachusetts Institute of Technology 2764  
Remote compositional mapping of the lunar surface  
Period Obligations  
06/22/73-01/31/79 FY80: TOTAL: \$1,084,165  
Prin Invest NASA Tech Officer CASE Category  
McCord, T. B. HD-SL/Williams, R. J. 32-Geological Sci  
HD-SL/Flinn, E. A.

**NSG 1502** Massachusetts Institute of Technology 2771  
Closed-loop roll control for magnetic balance systems  
Period Obligations  
02/01/78-01/31/81 FY80: \$76,028 TOTAL: \$236,451  
Prin Invest NASA Tech Officer CASE Category  
Covert, E. E. LARC/Boydson, R. P. 41-Aero Engr  
Haldeman, C. W. LARC/Kilgore, R. A.



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**NSG 1504 Massachusetts Institute of Technology 2772**  
Teflon fibril toughening of glassy polymers

<i>Period</i>	<i>Obligations</i>	
02/01/78-06/30/81	FY80: \$39,631	TOTAL: \$84,200
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
McGarry, F. J.	LARC/Price, H. L.	47-Materials Engr
Mandel, J. F.	LARC/Sykes, G. F.	

**NSG 1551 Massachusetts Institute of Technology 2773**  
Research on atomic hydrogen at cryogenic temperatures, with application to a hydrogen maser frequency standard

<i>Period</i>	<i>Obligations</i>	
10/01/78-06/30/80	FY80: \$35,000	TOTAL: \$85,000
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Greytak, T. J.	LARC/Singh, J. J.	13-Physics
Kleppner, D.		

**NSG 1583 Massachusetts Institute of Technology 2774**  
Research on helicopter rotor broadband noise

<i>Period</i>	<i>Obligations</i>	
12/01/78-11/30/80	FY80: \$54,301	TOTAL: \$104,108
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Harris, W. L.	LARC/Greene, G. C.	13-Physics
Ingard, K. U.	LARC/Brooks, T. F.	

**NSG 2010 Massachusetts Institute of Technology 2775**  
Study of impact on space shuttle on stratospheric ozone

<i>Period</i>	<i>Obligations</i>	
03/01/74-01/31/81	FY80: \$250,000	TOTAL: \$1,356,260
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Prinn, R. G.	ARC/Whitten, R. C.	31-Atmos Sc.
	ARC/Young, R. F.	

**NSG 2032 Massachusetts Institute of Technology 2776**  
Research on habituation to novel visual-vestibular environments with particular reference to space flight

<i>Period</i>	<i>Obligations</i>	
07/01/74-01/15/81	FY80: \$66,900	TOTAL: \$487,903
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Young, I. R.	ARC/Daunton, N. G.	59-Life Sci, NEC
Oman, C. M.		

**NSG 2118 Massachusetts Institute of Technology 2777**  
Experimentation in supervisory controls flight management

<i>Period</i>	<i>Obligations</i>	
11/01/75-11/30/80	FY80: \$18,305	TOTAL: \$244,515
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sheridan, T. B.	ARC/Wempe, T. F.	99-Multi-Discip

**NSG 2142 Massachusetts Institute of Technology 2778**  
Helicopter rotor noise

<i>Period</i>	<i>Obligations</i>	
07/01/76-11/01/80	FY80:	TOTAL: \$187,973
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Widnall, S. F.	ARC/Johnson, W. R.	41-Aero Engr

**NSG 2263 Massachusetts Institute of Technology 2779**  
Far infrared observations of optical regions

<i>Period</i>	<i>Obligations</i>	
10/01/77-11/30/80	FY80:	TOTAL: \$25,660
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wright, E. L.	ARC/Haughney, L. C.	11-Astronomy

**NSG 2266 Massachusetts Institute of Technology 2780**  
An investigation of advanced helicopter rotors having individual-blade-control

<i>Period</i>	<i>Obligations</i>	
11/01/77-10/31/80	FY80:	TOTAL: \$299,821
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ham, N. D.	ARC/Johnson, W. R.	41-Aero Engr
	ARC/McCloud, J. L.	

**NSG 2342 Massachusetts Institute of Technology 2781**  
Opportunity observations of occultations and eclipses

<i>Period</i>	<i>Obligations</i>	
11/01/78-10/31/80	FY80:	TOTAL: \$66,755
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Elliot, J. L.	ARC/Haughney, L. C.	11-Astronomy

**NSG 2403 Massachusetts Institute of Technology 2782**  
Development of a prototype experiment for treating wastes to nutrients for plant growth

<i>Period</i>	<i>Obligations</i>	
09/01/79-11/30/80	FY80: \$235,000	TOTAL: \$325,000
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Modell, M.	ARC/Quattrone, P. D.	59-Life Sci, NEC

**NSG 3017 Massachusetts Institute of Technology 2783**  
Silicon surface phenomena related to energy conversion

<i>Period</i>	<i>Obligations</i>	
05/01/74-02/21/81	FY80: \$59,500	TOTAL: \$260,600
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Gatos, H. C.	LERC/Weinberg, I.	47-Materials Engr
	LERC/Brandhorst, H. W., Jr.	

**NSG 3044 Massachusetts Institute of Technology 2784**  
Special finite elements for the analysis of flaw growth and fracture in fiber composites

<i>Period</i>	<i>Obligations</i>	
02/01/75-09/30/80	FY80:	TOTAL: \$249,195
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
McGarry, F. J.	LERC/Chamis, C. C.	49-Engr, NEC

**NSG 3046 Massachusetts Institute of Technology 2785**  
Directional solidification of gamma/gamma prime-delta in situ composites

<i>Period</i>	<i>Obligations</i>	
06/30/75-09/30/79	FY80:	TOTAL: \$194,435
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Flemings, M. C.	LERC/Scheuermann, C. M.	47-Materials Engr

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**NSG 3076** Massachusetts Institute of Technology **2786**  
Effects of fuel composition on soot formation in combustors  
*Period* *Obligations*  
09/01/75-09/30/79 FY80: TOTAL: \$219,161  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Hoult, D. P. LERC/Brabbs, T. A. 41-Aero Engr  
Rife, J. M.

**NSG 3245** Massachusetts Institute of Technology **2793**  
Combustion and operating characteristics of spark-ignition engines  
*Period* *Obligations*  
01/15/79-01/14/80 FY80: TOTAL: \$49,984  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Heywood, J. B. LERC/Cassidy, J. F. 46-Mech Engr  
LERC/Kempke, E. E.

**NSG 3079** Massachusetts Institute of Technology **2787**  
Development of techniques for turbomachinery flutter clearance  
*Period* *Obligations*  
07/15/75-03/16/81 FY80: \$36,188 TOTAL: \$276,121  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Kerrebrock, J. L. LERC/Adamczyk, J. J. 41-Aero Engr

**NSG 3286** Massachusetts Institute of Technology **2794**  
Viscous flow and crystallization behavior of hydrocarbon mixtures  
*Period* *Obligations*  
08/02/79-08/30/81 FY80: \$53,727 TOTAL: \$102,703  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Uhlmann, D. R. LERC/Antoine, A. C. 12-Chemistry

**NSG 3175** Massachusetts Institute of Technology **2788**  
Development of electromagnetic mass drivers  
*Period* *Obligations*  
12/01/77-01/31/81 FY80: \$75,000 TOTAL: \$156,510  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Kolm, H. H. LERC/Kramer, E. H. 42-Astro Engr

**NSG 3303** Massachusetts Institute of Technology **2795**  
Development of a methodology for horizontal axis wind turbine dynamic analysis  
*Period* *Obligations*  
08/15/79-08/13/81 FY80: \$69,994 TOTAL: \$135,896  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Dugundji, J. LERC/Janetzke, D. C. 41-Aero Engr  
LERC/Spera, D. A.

**NSG 3187** Massachusetts Institute of Technology **2789**  
Theoretical and experimental study of the shear layer between two swirling streams  
*Period* *Obligations*  
04/01/78-09/01/80 FY80: TOTAL: \$80,347  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Kerrebrock, J. L. LERC/Braun, W. H. 49-Engr, NEC

**NSG 3309** Massachusetts Institute of Technology **2796**  
Application of array processors and specialized computers to numerical fluid mechanics  
*Period* *Obligations*  
10/01/79-09/30/80 FY80: \$25,602 TOTAL: \$25,602  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Thompkins, W. T. LERC/Bishop, A. R. 41-Aero Engr  
LERC/Anderson, B. A.

**NSG 3208** Massachusetts Institute of Technology **2790**  
Strut induced aerodynamic forging functions  
*Period* *Obligations*  
07/05/78-09/30/80 FY80: TOTAL: \$70,000  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Greitzer, F. M. LERC/Adamczyk, J. J. 41-Aero Engr

**NSG 5076** Massachusetts Institute of Technology **2797**  
Numerical study of the atmospheric circulation of Venus  
*Period* *Obligations*  
08/17/75-05/31/80 FY80: TOTAL: \$127,700  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Rivas, F. K. GSFC/Hansen, J. E. 11-Astronomy  
Stone, P. H.

**NSG 3210** Massachusetts Institute of Technology **2791**  
Wave propagation in fiber composites relating to acoustic-ultrasonic NDE techniques  
*Period* *Obligations*  
08/01/78-11/30/80 FY80: \$30,000 TOTAL: \$89,905  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Williams, J. H., Jr LERC/Vary, A. 47-Materials Engr

**NSG 5113** Massachusetts Institute of Technology **2798**  
Research in stratospheric dynamics  
*Period* *Obligations*  
07/01/76-06/30/81 FY80: \$73,000 TOTAL: \$249,903  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Stone, P. H. GSFC/Hansen, J. E. 31-Atmos Sci

**NSG 3234** Massachusetts Institute of Technology **2792**  
Transonic compressors viscous flow  
*Period* *Obligations*  
12/15/78-01/31/80 FY80: TOTAL: \$74,050  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Kerrebrock, J. L. LERC/Chima, R. 41-Aero Engr  
Thompkins, W. T.  
Epstein, A. H.

**NSG 5166** Massachusetts Institute of Technology **2799**  
Theoretical and numerical study of climate and climate change  
*Period* *Obligations*  
03/21/77-12/20/82 FY80: TOTAL: \$243,986  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Charney, J. G. GSFC/Halem, M. 31-Atmos Sci  
Stone, P. H.

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<b>NSG 5253</b>	<b>Massachusetts Institute of Technology</b>	<b>2800</b>
Research of gravity field over the Indian Ocean		
<i>Period</i>	<i>Obligations</i>	
03/15/78-10/31/79	FY80: TOTAL: \$50,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Slater, J. G.	GSFC/Smith, D. E.	32-Geological Sci
Munsch, C.		
<b>NSG 5260</b>	<b>Massachusetts Institute of Technology</b>	<b>2801</b>
Geophysical study of the structure and processes of the continental convergence zones		
<i>Period</i>	<i>Obligations</i>	
04/01/78-04/30/79	FY80: TOTAL: \$40,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Molnar, P.	GSFC/Frey, H. V.	32-Geological Sci
Toksoz, M. N.	GSFC/Mead, G. D.	
<b>NSG 5306</b>	<b>Massachusetts Institute of Technology</b>	<b>2802</b>
Inference of effective soil properties from observed vegetal canopy density		
<i>Period</i>	<i>Obligations</i>	
11/15/78-03/31/80	FY80: TOTAL: \$40,023	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Eagleson, P. S.	GSFC/Halem, M.	32-Geological Sci
<b>NSG 7010</b>	<b>Massachusetts Institute of Technology</b>	<b>2803</b>
Precision selenodesy and lunar libration through very long baseline interferometry: Observation of ALSEPS		
<i>Period</i>	<i>Obligations</i>	
01/01/74-12/31/79	FY80: TOTAL: \$355,500	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Counselman, C. C.	HD-SL/Quaide, W. L.	32-Geological Sci
	HD-SL/French, B. M.	
<b>NSG 7081</b>	<b>Massachusetts Institute of Technology</b>	<b>2804</b>
Models of the composition, structure and evolution of the lunar interior		
<i>Period</i>	<i>Obligations</i>	
06/01/74-02/28/81	FY80: \$145,000 TOTAL: \$1,044,960	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Toksoz, M. N.	HD-SL/Quaide, W. L.	32-Geological Sci
	HD-SL/French, B. M.	
<b>NSG 7186</b>	<b>Massachusetts Institute of Technology</b>	<b>2805</b>
An observatory search for and study of new IR sources reported in the AFRL catalogue		
<i>Period</i>	<i>Obligations</i>	
12/01/75-01/31/81	FY80: \$27,531 TOTAL: \$154,414	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kleinmann, S.	HD-SC/Bogges, N. W.	11-Astronomy
	HD-SC/Weiler, E. J.	
<b>NSG 7297</b>	<b>Massachusetts Institute of Technology</b>	<b>2806</b>
Studies of stress history of terrestrial lithospheres		
<i>Period</i>	<i>Obligations</i>	
01/01/77-12/31/80	FY80: \$48,500 TOTAL: \$120,500	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Solomon, S. C.	HD-SL/Dwornik, S.E.	32-Geological Sci
	HD-SL/Boyce, J. M.	
<b>NSG 7328</b>	<b>Massachusetts Institute of Technology</b>	<b>2807</b>
Research on integrated silicon balometers		
<i>Period</i>	<i>Obligations</i>	
03/01/77-11/30/80	FY80: \$13,460 TOTAL: \$181,960	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Weiss, R.	HD-SC/Bogges, N. W.	11-Astronomy
	HD-SC/Weiler, E. J.	
<b>NSG 7329</b>	<b>Massachusetts Institute of Technology</b>	<b>2808</b>
Application of lunar laser ranging data to a study of plate tectonic driving forces		
<i>Period</i>	<i>Obligations</i>	
04/01/78-02/31/80	FY80: TOTAL: \$125,820	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Solomon, S. C.	HD-ES/Flinn, E. A.	32-Geological Sci
Toksuz, M. N.	HD-SL/Quaide, W. L.	
<b>NSG 7331</b>	<b>Massachusetts Institute of Technology</b>	<b>2809</b>
Crystal growth of device quality gallium arsenide in space		
<i>Period</i>	<i>Obligations</i>	
04/01/79-03/31/83	FY80: TOTAL: \$1,200,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Gatos, H. C.	HD-ET/Vitale, J. A.	47-Materials Engr
<b>NSG 7338</b>	<b>Massachusetts Institute of Technology</b>	<b>2810</b>
Temperature dependencies of electronic transition energies of healed lunar materials		
<i>Period</i>	<i>Obligations</i>	
03/01/77-09/30/78	FY80: TOTAL: \$40,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Burns, R. G.	HD-SL/Quaide, W. L.	32-Geological Sci
<b>NSG 7339</b>	<b>Massachusetts Institute of Technology</b>	<b>2811</b>
X-ray balloon observations from the Northern and Southern Hemispheres		
<i>Period</i>	<i>Obligations</i>	
04/01/77-01/31/81	FY80: \$125,000 TOTAL: \$415,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lewin, W. H.	HD-SC/Gilman, D. A.	11-Astronomy
	HD-SC/Opp, A. G.	
<b>NSG 7396</b>	<b>Massachusetts Institute of Technology</b>	<b>2812</b>
Payloads for space		
<i>Period</i>	<i>Obligations</i>	
09/12/77-10/31/78	FY80: TOTAL: \$174,147	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Mar, J. W.	HD-RT/Schwenk, F.	42-Astro Engr
	HD-RR/Henry, W.	

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**NSG 7428** Massachusetts Institute of Technology 2813  
Analysis of lunar ranging data for Earth dynamics applications  
*Period Obligations*  
04/01/79-01/31/80 FY80: TOTAL: \$60,000  
*Prin Invest NASA Tech Officer CASE Category*  
Counselman, C. C. HD-ER/Flinn, E. A. 32-Geological Sci  
Shapiro, I. I.  
King, R. W.

**NSG 7467** Massachusetts Institute of Technology 2814  
Field studies of possible impact craters in Ontario  
*Period Obligations*  
06/15/78-06/14/79 FY80: TOTAL: \$17,000  
*Prin Invest NASA Tech Officer CASE Category*  
Pinson, W. HD-SL/Quaide, W. L. 32-Geological Sci  
HD-SL/Dwornik, S. A.

**NSG 7526** Massachusetts Institute of Technology 2815  
Portable high-speed photometry systems for observing oc-  
cultations  
*Period Obligations*  
01/01/79-12/31/80 FY80: \$53,342 TOTAL: \$119,432  
*Prin Invest NASA Tech Officer CASE Category*  
Elliot, J. L. HD-SL/Brunk, W. E. 11-Astronomy  
HD-SL/Murphy, R. E.

**NSG 7556** Massachusetts Institute of Technology 2816  
Viking radio science data analysis and synthesis  
*Period Obligations*  
03/01/79-09/30/80 FY80: \$142,450 TOTAL: \$222,450  
*Prin Invest NASA Tech Officer CASE Category*  
Shapiro, I. I. HD-SL/Brunk, W. E. 11-Astronomy  
HD-SL/Murphy, R. E.

**NSG 7604** Massachusetts Institute of Technology 2817  
Electronic spectra of heated lunar materials: Quantifying remote  
sensed spectra of hot planetary surfaces  
*Period Obligations*  
05/01/79-01/31/81 FY80: \$88,477 TOTAL: \$148,987  
*Prin Invest NASA Tech Officer CASE Category*  
Burns, R. G. HD-SL/Quaide, W. L. 32-Geological Sci  
HD-SL/French, B. M.

**NSG 7638** Massachusetts Institute of Technology 2818  
Mars orbiter and comet mission  
*Period Obligations*  
04/15/79-03/31/81 FY80: \$140,000 TOTAL: \$280,000  
*Prin Invest NASA Tech Officer CASE Category*  
McCord, T. B. HD-SL/Murphy, R. E. 31-Atmos Sci  
HD-SL/Brunk, W. E.

**NSG 7643** Massachusetts Institute of Technology 2819  
Experimental and theoretical investigations in high energy  
astrophysics  
*Period Obligations*  
01/01/79-12/31/81 FY80: \$159,666 TOTAL: \$159,666  
*Prin Invest NASA Tech Officer CASE Category*  
Clark, G. HD-SC/Kaluzevski, L. J. 11-Astronomy  
HD-SC/Opp, A. G.

**NSG 7645** Massachusetts Institute of Technology 2820  
Materials processing research base for the materials processing  
*Period Obligations*  
10/01/79-09/30/82 FY80: \$821,520 TOTAL: \$821,520  
*Prin Invest NASA Tech Officer CASE Category*  
Szekely, J. HD-ET/Vitale, J. A. 47-Materials Engr  
Flemings, M. C.  
Witt, A.

**NAG 2-51** Tufts University 2821  
The human factors of avionic computers  
*Period Obligations*  
09/01/80-08/31/81 FY80: \$33,944 TOTAL: \$33,944  
*Prin Invest NASA Tech Officer CASE Category*  
Chechile, R. A. ARC/Palmer, E. A. 69-Psych, NEC  
ARC/Wempe, T. E.

**NCC 2-93** Tufts University 2822  
Simulator fidelity and numerosity effects in CDTI experimen-  
tation  
*Period Obligations*  
09/01/80-12/31/80 FY80: \$56,000 TOTAL: \$56,000  
*Prin Invest NASA Tech Officer CASE Category*  
Kreifeldt, J. G. ARC/Wempe, T. E. 99-Multi-Discip

**NSG 1295** University of Lowell 2823  
Structural response and input identification  
*Period Obligations*  
04/01/76-01/31/81 FY80: \$16,760 TOTAL: \$105,587  
*Prin Invest NASA Tech Officer CASE Category*  
Lamont, P. J. LARC/Card, M. F. 41-Aero Engr  
LARC/Fralich, R. W.

**NAG 1-54** University of Massachusetts - Amherst 2824  
Remote sensing of ocean surface and ice conditions using  
microwaves  
*Period Obligations*  
09/01/80-08/31/81 FY80: \$50,125 TOTAL: \$50,125  
*Prin Invest NASA Tech Officer CASE Category*  
McIntosh, R. LARC/Swift, C. T. 45-Elec Engr

**NAGW 40** University of Massachusetts - Amherst 2825  
Mars: Mineralogy of the surface materials  
*Period Obligations*  
01/01/80-12/31/80 FY80: \$40,000 TOTAL: \$40,000  
*Prin Invest NASA Tech Officer CASE Category*  
Huguenin, R. L. HD-SL/Quaide, W. L. 32-Geological Sci  
HD-SL/Boyce, J. M.

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**NAS 2-9129** University of Massachusetts - Amherst 2826  
Interdisciplinary scientist and radar team member

<i>Period</i>	<i>Obligations</i>	
01/22/76-01/31/81	FY80	TOTAL: \$68,456
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
McGill, G. E.	ARC/Fimmel, R. O.	11-Astronomy
	ARC/Dyer, J.	

**NAS 5-26151** University of Massachusetts - Amherst 2827  
Plan and establish the preliminary interface between the orbiter and the mixer receiver system

<i>Period</i>	<i>Obligations</i>	
05/05/80-05/04/81	FY80: \$180,498	TOTAL: \$180,498
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Yngvesson, K. S.	GSFC/Fiband, A. M.	11-Astronomy

**NCC 3-10** University of Massachusetts - Amherst 2828  
Tribology assessment

<i>Period</i>	<i>Obligations</i>	
05/19/80-05/18/81	FY80: \$21,000	TOTAL \$21,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wilson, W. R.	IFRC/Wedeven, L. D.	46-Mech Engr

**NGI 22-010-023** University of Massachusetts - Amherst 2829  
Theoretical studies of diffuse reflection and transmission of radiation in planetary atmospheres

<i>Period</i>	<i>Obligations</i>	
05/24/67-08/31/81	FY80: \$39,828	TOTAL \$596,757
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Irvine, W. M.	HD-SL/Brunk, W. F.	11-Astronomy
	HD-SL/Murphy, R. F.	

**NGI 22-010-089** University of Massachusetts - Amherst 2830  
Lunar sample analysis

<i>Period</i>	<i>Obligations</i>	
03/16/71-09/30/79	FY80	TOTAL: \$191,875
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Haggerty, S. F.	JSC/Harris, J. W.	13-Physics

**NGR 22-010-076** University of Massachusetts - Amherst 2831  
Reconnaissance study of large geologic ring structures on Mars

<i>Period</i>	<i>Obligations</i>	
05/19/70-01/31/81	FY80 \$43,100	TOTAL \$305,775
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
McGill, G. E.	HD-SL/Boyce, J. M.	32-Geological Sci
	HD-SL/Quaide, W. L.	

**NSG 7397** University of Massachusetts - Amherst 2832  
Surface chemistry and the search for life on Mars

<i>Period</i>	<i>Obligations</i>	
10/01/77-09/30/81	FY80 \$43,112	TOTAL \$107,993
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Huguenin, R. L.	HD-SL/Guastaferrro, A.	12-Chemistry
	HD-SB/Devincenzi, D. L.	

**NSG 7405** University of Massachusetts - Amherst 2833  
Mineralogy and weathering processes on Mars

<i>Period</i>	<i>Obligations</i>	
10/01/77-09/30/80	FY80: \$30,000	TOTAL: \$94,868
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Huguenin, R. L.	HD-SL/Boyce, J. M.	32-Geological Sci

**NSG 7549** University of Massachusetts - Amherst 2834  
The opaque mineral chemistry of allende, basaltic achondrites, and the Antarctic meteorite suite

<i>Period</i>	<i>Obligations</i>	
05/01/79-01/31/81	FY80: \$51,082	TOTAL: \$92,182
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Haggerty, S. E.	HD-SL/French, B. M.	32-Geological Sci
	HD-SL/Quaide, W. L.	

**NSG 7571** University of Massachusetts - Amherst 2835  
Structural evolution and stress history of the Tharsis region of Mars

<i>Period</i>	<i>Obligations</i>	
05/01/79-04/30/80	FY80:	TOTAL: \$23,460
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wise, D.	HD-SL/Dwornik, S.F.	32-Geological Sci
	HD-SL/Boyce, J. M.	

**NSG 9069** University of Massachusetts - Amherst 2836  
Comparative geochemical and petrological study of lunar and terrestrial basaltic volcanism

<i>Period</i>	<i>Obligations</i>	
05/15/78-01/31/81	FY80: \$28,000	TOTAL: \$77,091
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Rhodes, J. M.	JSC/Harris, J. W.	32-Geological Sci

**NSG 5376** Wheaton College 2837  
Ultraviolet spectrophotometry of planetary nebulae

<i>Period</i>	<i>Obligations</i>	
07/01/79-06/30/81	FY80:	TOTAL \$6,100
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Barker, T	GSFC/Bogges, A.	11-Astronomy

**NSG 5218** Williams College 2838  
Effects of hydrogen atom spin exchange collisions on atomic hydrogen maser oscillation frequency

<i>Period</i>	<i>Obligations</i>	
12/01/77-11/30/79	FY80:	TOTAL: \$23,700
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Crampton, S. B.	GSFC/Reinhardt, V. S.	13-Physics

**NAG 1-91** Woods Hole Oceanographic Institution 2839  
Acoustic profiling of ocean currents

<i>Period</i>	<i>Obligations</i>	
07/15/80-11/14/80	FY80: \$50,000	TOTAL \$50,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Joyce, T. M.	LARC/Croswell, W. F.	33-Oceanography
	LARC/Jones, W. L.	

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**NAG 5-8 Woods Hole Oceanographic Institution 2840**  
 Oceanic eddy heat and momentum fluxes at the continental margin  

<i>Period</i>	<i>Obligations</i>	
02/01/80-01/31/81	FY80: \$9,602	TOTAL: \$9,602
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Haidvogel, D. B.	GSFC/Halem, M.	33-Oceanography

**NAG 5-18 Woods Hole Oceanographic Institution 2841**  
 Upper mantle heterogeneity: Comparison of region south of Australia with the Philippine Basin  

<i>Period</i>	<i>Obligations</i>	
03/01/80-02/28/81	FY80: \$41,659	TOTAL: \$41,659
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Brown, C.	GSFC/Patterson, G.C.	32-Geological Sci
	GSFC/Marsh, J. G.	

**NSG 3137 Worcester Polytechnic Institute 2842**  
 Investigation of the 1.15 micron photoconductive response of silicon devices  

<i>Period</i>	<i>Obligations</i>	
02/01/77-10/31/80	FY80:	TOTAL: \$87,361
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lanyon, H. P.	LERC/Godlewski, M. P.	45-Elec Engr

**NSG 7154 Worcester Polytechnic Institute 2843**  
 Mission-oriented studies of planetary biology  

<i>Period</i>	<i>Obligations</i>	
10/01/75-09/30/80	FY80: \$100,000	TOTAL: \$536,390
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Danielli, J. F.	HD-SB/Young, R. S.	51-Biological Sci

**NSG 7392 Worcester Polytechnic Institute 2844**  
 Martian chemistry relevant to biological activity and the Viking labeled release experiments  

<i>Period</i>	<i>Obligations</i>	
12/15/77-09/30/80	FY80: \$51,209	TOTAL: \$119,232
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
F umb, R. C.	HD-SB/Devincenzi, D. L.	12-Chemistry

**MICHIGAN**

**NAG 3-51 Michigan State University 2845**  
 Experimental evaluation criteria for constitutive models of time-dependents cyclic plasticity  

<i>Period</i>	<i>Obligations</i>	
06/02/80-06/01/81	FY80: \$43,932	TOTAL: \$43,932
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Martin, J. F.	LERC/Halford, G. R.	47-Materials Engr
	LERC/Hirschberg, M. H.	

**NAG 3-93 Michigan State University 2846**  
 A miniature nanosecond spark detector for liquid chromatographic analysis of crude oils and fuels  

<i>Period</i>	<i>Obligations</i>	
09/15/80-09/14/81	FY80: \$34,958	TOTAL: \$34,958
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Crouch, S. R.	LERC/Seng, G. T.	12-Chemistry

**NAG 3-107 Michigan State University 2847**  
 Development and application of triple quadrupole mass spectrometry for jet fuel characterization  

<i>Period</i>	<i>Obligations</i>	
10/13/80-10/12/81	FY80: \$55,251	TOTAL: \$55,251
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Enke, C. G.	LERC/Seng, G. T.	12-Chemistry

**NAGW 97 Michigan State University 2848**  
 An attempt to localize and identify the gravity sensing mechanism of plants  

<i>Period</i>	<i>Obligations</i>	
08/01/80-07/31/81	FY80: \$65,266	TOTAL: \$65,266
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bandurski, R. S.	HD-SB/Halstead, T. W.	51-Biological Sci

**NGI 23-004-083 Michigan State University 2849**  
 Use of remote sensing for land use policy formulation  

<i>Period</i>	<i>Obligations</i>	
06/08/72-05/31/83	FY80: \$110,000	TOTAL: \$1,100,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Boylan, M. G.	HD-ET/Vitale, J. A.	31-Env Sci, NEC

**NSG 3299 Michigan State University 2850**  
 Generation of free radicals and ions for spacecraft propulsion  

<i>Period</i>	<i>Obligations</i>	
08/15/79-11/13/81	FY80: \$77,469	TOTAL: \$156,229
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Asmussen, J.	LERC/Nakanishi, S.	19-Phys Sci, NEC
Hawley, M. C.		
Kerber, R. L.		

**NSG 7293 Michigan State University 2851**  
 Radiative fluid dynamic studies of the Sun and compact H-II regions  

<i>Period</i>	<i>Obligations</i>	
10/01/76-11/30/80	FY80: \$17,000	TOTAL: \$59,270
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Stein, R. F.	HD-ST/Chipman, E.	13-Physics

**NAS 8-33727 Michigan Technological University 2852**  
 Materials processing in space experiment. The influence of gravity on the solidification of monotectic alloys  

<i>Period</i>	<i>Obligations</i>	
09/01/80-08/31/83	FY80: \$47,000	TOTAL: \$47,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hellawell, A.	MSFC/Moore, W. W.	19-Phys Sci, NEC

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**NSG 3215** Michigan Technological University **2853**  
Diffusion modeling of cyclic oxidation transport processes in Ni-base alloys

<i>Period</i>	<i>Obligations</i>	
08/01/78-07/30/81	FY80: \$35,520	TOTAL: \$91,381
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Heckel, R. W.	LERC/Barrett, C. A.	47-Materials Engr
	LERC/Lowell, C. E.	

**NAG 8-341** University of Michigan - Ann Arbor **2859**  
Search for X-rays from the Shabazyan I group of galaxies and search for X-rays from the supernova remnants in NCG 4449

<i>Period</i>	<i>Obligations</i>	
03/01/80-07/31/81	FY80: \$13,896	TOTAL: \$13,896
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kirshner, R.	MSFC/Jones, J. B.	11-Astronomy
Winkler, P. F.		

**NAG 1-67** University of Michigan - Ann Arbor **2854**  
Time variable Earth radiation balance models and interpretation of satellite radiation budget measurements

<i>Period</i>	<i>Obligations</i>	
06/01/80-07/31/80	FY80: \$13,026	TOTAL: \$13,026
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bartman, F. L.	LARC/Smith, G. L.	31-Atmos Sci
	LARC/Raper, J. L.	

**NAGW 15** University of Michigan - Ann Arbor **2860**  
Study in planetary aeronomy

<i>Period</i>	<i>Obligations</i>	
12/01/79-11/30/80	FY80: \$27,500	TOTAL: \$27,500
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Cravens, T. E.	HD-SL/Murphy, R. E.	31-Atmos Sci
Nagy, A. F.	HD-SL/Brunk, W. E.	

**NAG 1-86** University of Michigan - Ann Arbor **2855**  
Effectiveness of nonaerodynamics controls during entry of a single state-to-orbit vehicle

<i>Period</i>	<i>Obligations</i>	
07/01/80-06/30/81	FY80: \$32,339	TOTAL: \$32,339
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Vinh, N. X.	LARC/Powell, R. W.	41-Aero Engr
	LARC/Shoosmith, J. N.	

**NAGW 29** University of Michigan - Ann Arbor **2861**  
A ground based comparative study of the effects of weightlessness on the development of amphibian eggs

<i>Period</i>	<i>Obligations</i>	
12/15/79-12/14/80	FY80: \$60,000	TOTAL: \$60,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Nace, G. W.	HD-SB/Halstead, T. W.	51-Biological Sci
Richards, C. M.		

**NAG 1-93** University of Michigan - Ann Arbor **2856**  
Halogen occultation experiment

<i>Period</i>	<i>Obligations</i>	
07/17/80-04/16/81	FY80: \$25,087	TOTAL: \$25,087
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Davidson, S. R.	LARC/Sullivan, E. M.	31-Atmos Sci
	LARC/Russell, J. M.	

**NAGW 32** University of Michigan - Ann Arbor **2862**  
Horizontal mapping of the thermal structures of the mesospheres at 85 and 97 kilometers

<i>Period</i>	<i>Obligations</i>	
02/01/80-01/31/81	FY80: \$38,204	TOTAL: \$38,204
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Meriwether, J. W.	HD-EB/Toth, R. A.	31-Atmos Sci
	HD-EB/Seals, R. K.	

**NAG 5-109** University of Michigan - Ann Arbor **2857**  
Doppler line profile measurement of the Jovian Lyman alpha emission

<i>Period</i>	<i>Obligations</i>	
10/01/80-09/30/81	FY80: \$7,000	TOTAL: \$7,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Atreya, S. K.	GSFC/Corrigan, J. P.	11-Astronomy

**NAGW 34** University of Michigan - Ann Arbor **2863**  
Investigation of the negative geotropic response in geosensitive pulvini of the oat plant (Avena sativa)

<i>Period</i>	<i>Obligations</i>	
02/01/80-01/31/81	FY80: \$42,500	TOTAL: \$42,500
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kaufman, P. B.	HD-SB/Halstead, T. W.	51-Biological Sci

**NAG 8-318** University of Michigan - Ann Arbor **2858**  
An X-ray study of Am Canum Venaticorum (A star)

<i>Period</i>	<i>Obligations</i>	
03/17/80-03/16/81	FY80: \$800	TOTAL: \$800
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Patterson, J.	MSFC/Jones, J. B.	11-Astronomy
Robinson, E. L.		
Nather, R. E.		

**NAS 1-14394** University of Michigan - Ann Arbor **2864**  
Science support for the limb infrared monitor of the stratosphere experiment

<i>Period</i>	<i>Obligations</i>	
04/09/76-10/31/80	FY80:	TOTAL: \$110,509
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Drayson, S. R.	LARC/Russell, J. M., III	31-Atmos Sci
	LARC/James, R. L., Jr.	

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**NAS 1-15333** University of Michigan - Ann Arbor 2865  
High-toughness graphite/epoxy composite material experiment for the Long Duration Exposure Facility (LDEF)  
*Period* *Obligations*  
03/31/78-05/29/80 FY80: TOTAL: \$30,000  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Felbeck, D. K. LARC/Jones, J. L. 47-Materials Engr  
Durant, W. H.

**NAS 1-16107** University of Michigan - Ann Arbor 2866  
Sampling errors for regression statistics from complex sample designs  
*Period* *Obligations*  
05/16/80-02/15/81 FY80: \$7,607 TOTAL: \$7,607  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Kalton, G. LARC/Clevenson, S. 79-Soc Sci, NEC  
Vinter, S.

**NAS 2-9126** University of Michigan - Ann Arbor 2867  
Interdisciplinary scientist, Pioneer Venus program  
*Period* *Obligations*  
02/10/76-09/30/80 FY80: \$29,435 TOTAL: \$270,063  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Donahue, T. M. ARC/Hall, C. F. 11-Astronomy  
ARC/Porter, D. L.

**NAS 2-9130** University of Michigan - Ann Arbor 2868  
Interdisciplinary scientist, Pioneer Venus program  
*Period* *Obligations*  
02/09/76-09/30/80 FY80: \$27,369 TOTAL: \$202,680  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Nagy, A. F. ARC/Hall, C. F. 11-Astronomy  
ARC/Porter, D. L.

**NAS 2-10534** University of Michigan - Ann Arbor 2869  
Febriile responses during spaceflight  
*Period* *Obligations*  
01/17/80-04/30/81 FY80: \$26,712 TOTAL: \$26,712  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Kluger, M. J. ARC/Ferandin, J. 51-Biological Sci  
ARC/Martens, J.

**NAS 2-10535** University of Michigan - Ann Arbor 2870  
Study of effects of space travel on mammalian gravity receptors  
*Period* *Obligations*  
01/17/80-12/31/80 FY80: \$24,456 TOTAL: \$24,456  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Ross, M. ARC/Ferandin, J. 51-Biological Sci  
ARC/Polson, P.

**NAS 5-11376** University of Michigan - Ann Arbor 2871  
AE-C, D, and E Pelz experiment  
*Period* *Obligations*  
01/07/71-11/29/80 FY80: \$40,000 TOTAL: \$1,158,933  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Carignan, G. R. GSFC/Hedin, A. E. 31-Atmos Sci  
GSFC/Spencer, N. W.

**NAS 5-11380** University of Michigan - Ann Arbor 2872  
AE-C, D, and E neutral temperature experiment  
*Period* *Obligations*  
02/03/71-09/30/80 FY80: \$38,096 TOTAL: \$1,127,416  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Carignan, G. R. GSFC/Spencer, N. W. 31-Atmos Sci

**NAS 5-23006** University of Michigan - Ann Arbor 2873  
Atmosphere Explorer visual airglow photometer  
*Period* *Obligations*  
08/24/71-03/31/81 FY80: \$195,486 TOTAL: \$1,847,664  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Hays, P. B. GSFC/Rice, C. 31-Atmos Sci  
Carignan, G. R.

**NAS 5-24295** University of Michigan - Ann Arbor 2874  
Neutral atmosphere composition experiment for the Dynamic Explorer  
*Period* *Obligations*  
07/26/77-08/31/81 FY80: \$234,494 TOTAL: \$695,739  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Carignan, G. R. GSFC/Fellerman, K. D. 13-Physics

**NAS 5-24296** University of Michigan - Ann Arbor 2875  
Fabry-Perot interferometer for the Dynamic Explorer  
*Period* *Obligations*  
07/26/77-08/31/81 FY80: \$572,000 TOTAL: \$1,523,576  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Hays, P. B. GSFC/Fellerman, K. D. 13-Physics

**NAS 5-24331** University of Michigan - Ann Arbor 2876  
Theoretical investigation to identify and develop specific aeronomic studies and problems adaptable to the AE satellite  
*Period* *Obligations*  
12/01/77-09/30/81 FY80: \$90,000 TOTAL: \$271,000  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Walker, J. GSFC/Bullock, G. D. 31-Atmos Sci

**NAS 5-25002** University of Michigan - Ann Arbor 2877  
Wind and temperature spectrometer for the Dynamic Explorer spacecraft  
*Period* *Obligations*  
03/30/78-07/31/81 FY80: \$148,000 TOTAL: \$529,903  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Carignan, G. R. GSFC/Spencer, N. W. 31-Atmos Sci

**NAS 5-25031** University of Michigan - Ann Arbor 2878  
Develop, fabricate, test, and support hardware for the San Marco/wind and temperature experiment  
*Period* *Obligations*  
05/05/78-03/31/82 FY80: \$123,000 TOTAL: \$516,000  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Carignan, G. R. GSFC/Spencer, N. W. 31-Atmos Sci



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**NAS 5-25338** University of Michigan - Ann Arbor 2879  
Theory formulation and analysis support for the Dynamic Explorer spacecraft

<i>Period</i>	<i>Obligations</i>	
08/22/78-02/28/83	FY80: \$15,000	TOTAL: \$48,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Nagy, A. F.	GSFC/Hoffman, R. A.	14-Physics
	GSFC/Smith, P. H.	

**NAS 5-25939** University of Michigan - Ann Arbor 2886  
Analysis of the thermal balance of the Venus ionosphere

<i>Period</i>	<i>Obligations</i>	
10/18/79-10/17/80	FY80: \$24,400	TOTAL: \$24,400
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Nagy, A. F.	GSFC/Brace, L. H.	31-Atmos Sci
Cravens, T. E.	GSFC/Theis, R. F.	

**NAS 5-25145** University of Michigan - Ann Arbor 2880  
Electronic system parts for Galileo probe neutral mass spectrometer

<i>Period</i>	<i>Obligations</i>	
07/31/78-12/31/80	FY80: \$22,965	TOTAL: \$166,365
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Carignan, G. R.	GSFC/Niemann, H. B.	31-Atmos Sci

**NAS 5-26069** University of Michigan - Ann Arbor 2887  
NACS experiment for Dynamic Explorer project

<i>Period</i>	<i>Obligations</i>	
02/10/80-07/31/83	FY80: \$16,000	TOTAL: \$16,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Carignan, G. R.	GSFC/Hoffman, R. A.	41-Aero Engr

**NAS 5-25153** University of Michigan - Ann Arbor 2881  
Fabrication of electronic system for the Galileo probe neutral mass spectrometer

<i>Period</i>	<i>Obligations</i>	
08/10/78-05/10/82	FY80: \$60,000	TOTAL: \$408,200
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Carignan, G. R.	GSFC/Niemann, H. B.	31-Atmos Sci
	GSFC/Way, S. H.	

**NAS 5-26169** University of Michigan - Ann Arbor 2888  
Definition phase of the High Resolution Doppler Image (HRDI) for the Upper Atmosphere Research Satellites program (UARS)

<i>Period</i>	<i>Obligations</i>	
09/24/80-06/30/81	FY80: \$229,225	TOTAL: \$229,225
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hays, P. B.	GSFC/Donley, J. L.	31-Atmos Sci

**NAS 5-25158** University of Michigan - Ann Arbor 2882  
CMOS Radiation Effects Measurement (CREM) experiment and associated Ground Support Equipment (GSE)

<i>Period</i>	<i>Obligations</i>	
08/16/78-03/31/83	FY80: \$116,760	TOTAL: \$343,996
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Carignan, G. R.	GSFC/Haykin, D.	13-Physics
	GSFC/Cliff, R.	

**NAS 5-26189** University of Michigan - Ann Arbor 2889  
Generate an investigation development plan and establish the preliminary interfaces between the orbiter and instrument for the high resolution Doppler imager

<i>Period</i>	<i>Obligations</i>	
06/09/80-02/09/81	FY80: \$182,751	TOTAL: \$182,751
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hayes, P. B.	GSFC/Sing, M. L.	31-Atmos Sci

**NAS 5-25409** University of Michigan - Ann Arbor 2883  
Protoflight Langmuir probe instrument for Dynamic Explorer

<i>Period</i>	<i>Obligations</i>	
11/27/78-03/31/81	FY80: \$21,526	TOTAL: \$71,526
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Carignan, G. R.	GSFC/Krehbiel, J. P.	13-Physics
	GSFC/Busboso, E. R.	

**NAS 6-2794** University of Michigan - Ann Arbor 2890  
Design, fabricate and test five payloads

<i>Period</i>	<i>Obligations</i>	
10/15/76-11/30/80	FY80: \$172,404	TOTAL: \$678,955
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Horvath, J. J.	WFC/Frostrom, R. J., Jr.	31-Atmos Sci
	WFC/Perry, T. W., Jr.	

**NAS 5-25691** University of Michigan - Ann Arbor 2884  
Data analysis for Fabry-Perot-interferometer for Dynamic Explorer project

<i>Period</i>	<i>Obligations</i>	
02/10/80-07/31/83	FY80: \$20,000	TOTAL: \$20,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hays, P. B.	GSFC/Hoffman, R. A.	41-Aero Engr

**NAS 8-31987** University of Michigan - Ann Arbor 2891  
Mass spectrometer for induced environment contamination monitor

<i>Period</i>	<i>Obligations</i>	
04/30/76-12/31/80	FY80:	TOTAL: \$728,651
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Carignan, G. R.	MSFC/Ruff, R. C.	19-Phys Sci, NEC
Maurer, J. C.	MSFC/Naumann, R. J.	
Eusch, T. A.		

**NAS 5-25916** University of Michigan - Ann Arbor 2885  
Atmosphere Explorer, Dynamic Explorer, and San Marco data software development

<i>Period</i>	<i>Obligations</i>	
09/27/79-09/26/82	FY80: \$13,000	TOTAL: \$19,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Carignan, G. R.	GSFC/Spencer, N. W.	13-Physics

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**NAS 8-32332** University of Michigan - Ann Arbor **2892**  
Retarding ion mass spectrometer on the high altitude electrodynamic Explorer

Period	Obligations	
01/17/77-12/31/80	FY80: TOTAL: \$48,614	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Carignan, G. R.	MSFC/Chappell, C. R.	
	MSFC/Fields, S. A.	19-Phys Sci, NEC

**NGR 23-005-015** University of Michigan - Ann Arbor **2899**  
Theoretical investigation of space charge waves in ionosphere and space plasma sheaths

Period	Obligations	
10/28/63-06/30/80	FY80: \$143,000 TOTAL: \$1,665,805	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Nagy, A. F.	HD-ST/Hedin, A. E.	31-Atmos Sci
	HD-ST/Schmerling, E. R.	

**NAS 8-32569** University of Michigan - Ann Arbor **2893**  
Spacelab mission 1 experiment 24: An imaging spectrometric observatory for Spacelab I

Period	Obligations	
04/15/77-05/31/82	FY80: \$330,208 TOTAL: \$3,242,170	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Torr, M. R.	MSFC/Jones, C.	19-Phys Sci, NEC
	MSFC/Isa R.	

**NGR 23-005-094** University of Michigan - Ann Arbor **2900**  
An investigation of plasma kinetics, with emphasis on the interaction between rarefied plasmas and moving bodies

Period	Obligations	
06/26/64-08/31/79	FY80: TOTAL: \$406,101	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Liu, V. C.	HD-SL/Murphy, R. E.	31-Atmos Sci
	HD-SL/Brunk, W. E.	

**NAS 8-32661** University of Michigan - Ann Arbor **2894**  
Spacelab outgassing

Period	Obligations	
09/20/77-01/19/81	FY80: \$25,000 TOTAL: \$145,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Shyn, T. W.	MSFC/Ruff, R. C.	39-Env Sci, NEC
Tausch, D.	MSFC/Shriver, E. L.	
Carignan, G. R.		

**NGR 23-005-320** University of Michigan - Ann Arbor **2901**  
Theoretical and experimental studies of spacecraft space plasma interactions

Period	Obligations	
01/29/69-07/31/80	FY80: TOTAL: \$534,557	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Samir, U.	HD-ST/Hedin, A. E.	13-Physics
	HD-ST/Schmerling, E. R.	

**NAS 9-15244** University of Michigan - Ann Arbor **2895**  
Evaluations of postural mechanisms under dynamic conditions

Period	Obligations	
02/01/77-09/01/81	FY80: TOTAL: \$159,871	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Anderson, D. J.	JSC/Homick, J. L.	56-Medical Sciences

**NGR 23-005-360** University of Michigan - Ann Arbor **2902**  
A program in aeronomy

Period	Obligations	
12/29/69-01/31/81	FY80: \$155,000 TOTAL: \$1,783,501	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sharp, W. E.	GSFC/Bissell, E. E.	13-Physics
	HD-ST/Schmerling, E. R.	

**NAS 9-15375** University of Michigan - Ann Arbor **2896**  
Definition of Spacelab I experiment for adaptation of vestibulo-spinal reflex mechanisms during space flight

Period	Obligations	
06/01/77-06/01/81	FY80: \$59,000 TOTAL: \$140,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Anderson, D. J.	JSC/Reschke, M. F.	59-Life Sci, NEC

**NGR 23-005-464** University of Michigan - Ann Arbor **2903**  
Optical studies of galactic X-ray sources

Period	Obligations	
03/02/71-02/28/81	FY80: \$20,255 TOTAL: \$165,723	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hiltner, W. A.	HD-SC/Weiler, F. J.	11-Astronomy
	HD-SC/Boggess, N. W.	

**NCC 3-11** University of Michigan - Ann Arbor **2897**  
Interdisciplinary collaboration in tribology

Period	Obligations	
06/05/80-06/04/81	FY80: \$32,366 TOTAL: \$32,366	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ludema, K. C.	LERC/Wedeven, L. D.	46-Mech Engr

**NGR 23-005-528** University of Michigan - Ann Arbor **2904**  
Fiber-reinforced solids possessing great fracture toughness and the role of interfacial strength

Period	Obligations	
07/26/72-06/30/81	FY80: \$44,196 TOTAL: \$223,394	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Felbeck, D. K.	LARC/Fichter, W. B.	47-Materials Engr

**NGL 23-005-275** University of Michigan - Ann Arbor **2898**  
Solar research program of McMath-Hulbert Observatory and improvement of photoheliographic telescope

Period	Obligations	
04/08/68-09/30/79	FY80: TOTAL: \$769,580	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Mohler, O. C.	HD-ST/Bohlin, J. D.	11-Astronomy

**NGT 23-005-800** University of Michigan - Ann Arbor **2905**  
Methods of geobotanical prospecting graduate student researchers program

Period	Obligations	
09/01/80-08/31/81	FY80: \$12,000 TOTAL: \$12,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Olson, C. E.	HD-LU/Carter, C. H.	32-Geological Sci

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<b>NSG 1243</b>	<b>University of Michigan - Ann Arbor</b>	<b>2906</b>
Rain scavenging of solid rocket motor exhaust clouds		
<i>Period</i>	<i>Obligations</i>	
10/01/75-05/31/81	FY80: \$40,001	TOTAL: \$257,736
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Dingle, A. N.	LARC/Pellett, G. L.	31-Atmos Sci
<b>NSG 1306</b>	<b>University of Michigan - Ann Arbor</b>	<b>2907</b>
Models and techniques for evaluating the effectiveness of aircraft computing systems		
<i>Period</i>	<i>Obligations</i>	
05/01/76-06/30/81	FY80: \$79,582	TOTAL: \$312,175
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Meyer, J. F.	LARC/Migneault, G. E.	45-Elec Engr
<b>NSG 1482</b>	<b>University of Michigan - Ann Arbor</b>	<b>2908</b>
Application of Earth's albedo measurements to climate studies		
<i>Period</i>	<i>Obligations</i>	
01/01/78-10/31/79	FY80:	TOTAL: \$29,300
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bartman, F. L.	LARC/Smith, G. L. LARC/Suttles, J. T.	31-Atmos Sci
<b>NSG 1494</b>	<b>University of Michigan - Ann Arbor</b>	<b>2909</b>
Analysis and prediction of dynamic aircraft tire data from static measurements		
<i>Period</i>	<i>Obligations</i>	
03/01/78-09/30/80	FY80:	TOTAL: \$39,348
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Clark, S. K.	LARC/McCarty, J. L. LARC/Tanner, J. A.	41-Aero Engr
<b>NSG 1607</b>	<b>University of Michigan - Ann Arbor</b>	<b>2910</b>
Transient temperatures in aircraft tires		
<i>Period</i>	<i>Obligations</i>	
09/01/79-06/14/81	FY80: \$32,697	TOTAL: \$86,030
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Clark, S. K.	LARC/McCarty, J. L. LARC/Tanner, J. A.	41-Aero Engr
<b>NSG 2333</b>	<b>University of Michigan - Ann Arbor</b>	<b>2911</b>
Crash-impact fire of fiber reinforced composites		
<i>Period</i>	<i>Obligations</i>	
08/15/78-10/15/80	FY80: \$28,900	TOTAL: \$68,287
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Springer, G. S.	ARC/Fish, R. H. ARC/Mansfield, J.	49-Engr, NEC
<b>NSG 3165</b>	<b>University of Michigan - Ann Arbor</b>	<b>2912</b>
A study of local parameters affecting emissions from gas turbine engines		
<i>Period</i>	<i>Obligations</i>	
11/01/77-10/31/80	FY80: \$36,675	TOTAL: \$107,280
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kauffman, C. W.	LERC/Froegovic, D. F. LERC/Jones, R. E.	41-Aero Engr
<b>NSG 3192</b>	<b>University of Michigan - Ann Arbor</b>	<b>2913</b>
Morphology of Kevlar fibers		
<i>Period</i>	<i>Obligations</i>	
04/10/78-01/31/81	FY80: \$30,000	TOTAL: \$60,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Yeh, G. S.	LERC/Lauver, R. W.	47-Materials Engr
<b>NSG 5189</b>	<b>University of Michigan - Ann Arbor</b>	<b>2914</b>
Direct measurements of photolysis rates of stratospheric constituents		
<i>Period</i>	<i>Obligations</i>	
08/01/77-08/31/81	FY80: \$88,345	TOTAL: \$239,026
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Stedman, D. H.	GSFC/Reed, E. I.	31-Atmos Sci
<b>NSG 5281</b>	<b>University of Michigan - Ann Arbor</b>	<b>2915</b>
Interactions of precipitating electrons with the ionosphere using characteristic spectral parameters		
<i>Period</i>	<i>Obligations</i>	
07/01/78-12/31/80	FY80:	TOTAL: \$47,733
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Fontheim, E. G.	GSFC/Spencer, N. W.	31-Atmos Sci
Ong, R. S.		
<b>NSG 5282</b>	<b>University of Michigan - Ann Arbor</b>	<b>2916</b>
Chemical and dynamics processing at high latitudes		
<i>Period</i>	<i>Obligations</i>	
07/01/78-09/30/79	FY80:	TOTAL: \$22,322
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Nagy, A. F.	GSFC/Spencer, N. W.	31-Atmos Sci
Banks, P. M.		
<b>NSG 5366</b>	<b>University of Michigan - Ann Arbor</b>	<b>2917</b>
Research of supernova remnants and nucleosynthesis		
<i>Period</i>	<i>Obligations</i>	
05/06/79-05/07/80	FY80:	TOTAL: \$2,571
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kirshner, R.	GSFC/Bogges, A.	11-Astronomy
Chevalier, R. A.		
<b>NSG 7209</b>	<b>University of Michigan - Ann Arbor</b>	<b>2918</b>
A program of stratospheric research		
<i>Period</i>	<i>Obligations</i>	
01/01/76-12/31/80	FY80:	TOTAL: \$594,030
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Cochran, J. L.	HD-EB/Watson, R. T.	31-Atmos Sci
<b>NSG 7308</b>	<b>University of Michigan - Ann Arbor</b>	<b>2919</b>
The physical and chemical properties of the prebiotic atmosphere		
<i>Period</i>	<i>Obligations</i>	
02/01/77-01/31/81	FY80: \$24,999	TOTAL: \$99,105
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kuhn, W. R.	HD-SB/Devincenzi, D. L.	31-Atmos Sci

**NASA'S UNIVERSITY PROGRAM  
MICHIGAN (Continued)**

**NSG 7404** University of Michigan - Ann Arbor 2920  
A program for research in planetary atmospheres  
*Period* *Obligations*  
10/01/77-01/31/81 FY80: \$62,810 TOTAL: \$181,746  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Atreya, S. K. HD-SL/Murphy, R. E. 31-Atmos Sci  
HD-SL/Brink, W. E.

**NSG 1330** Wayne State University 2927  
Analytical modeling of noise source in a moving jet  
*Period* *Obligations*  
08/17/76-09/30/80 FY80: \$6,018 TOTAL: \$35,616  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Chow, P. L. LARC/Maestrello, L. 41-Aero Engr  
LARC/Liu, C. H.

**NSG 7452** University of Michigan - Ann Arbor 2921  
Bio-chirality search with variable helicity positrons  
*Period* *Obligations*  
07/01/78-06/30/81 FY80: \$79,091 TOTAL: \$99,091  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Rich, A. HD-SB/Devincenzi, D. L. 51-Biological Sci

**NAG 3-92** Western Michigan University 2928  
Aircraft engine condition monitoring by vibration and sound frequency spectrum analysis  
*Period* *Obligations*  
08/18/80-02/17/81 FY80: \$60,000 TOTAL: \$60,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Behm, H. D. LERC/Schmidt, H. W. 41-Aero Engr  
Hathaway, R.  
Cummings, J. W.

**NSG 7492** University of Michigan - Ann Arbor 2922  
Global-solar-terrestrial electrostatic coupling  
*Period* *Obligations*  
09/01/78-10/31/80 FY80: \$40,000 TOTAL: \$53,200  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Hays, P. B. HD-ST/Schmerling, E. R. 31-Atmos Sci

**MINNESOTA**

**NSG 7587** University of Michigan - Ann Arbor 2923  
Neutral mass spectrometry development for a cometary mission  
*Period* *Obligations*  
04/01/79-03/31/80 FY80: \$56,000 TOTAL: \$56,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Carignan, G. R. HD-SL/Murphy, R. E. 31-Atmos Sci

**NSG 5285** Augsburg College 2929  
Analysis of long-term density variations of atomic nitrogen  
*Period* *Obligations*  
07/01/78-12/31/80 FY80: \$7,950 TOTAL: \$34,220  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Engebretson, M. J. GSFC/Spencer, N. W. 31-Atmos Sci

**NSG 7608** University of Michigan - Ann Arbor 2924  
An investigation of halos surrounding spiral galaxies  
*Period* *Obligations*  
06/01/79-03/31/80 FY80: \$15,909 TOTAL: \$15,909  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Hegy, D. J. HD-SC/Walker, E. J. 11-Astronomy  
HD-SC/Roman, N. G.

**NAS 5-26221** Concordia College in Moorhead 2930  
Study of the effects of cosmic dust particle impacts on mass spectrometers  
*Period* *Obligations*  
05/19/80-11/01/80 FY80: \$17,511 TOTAL: \$17,511  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Bailey, C. L. GSFC/Donn, B. 13-Physics  
GSFC/Niemann, H. B.

**NSG 9047** University of Michigan - Ann Arbor 2925  
Mammalian gravity receptors: Structure and metabolism  
*Period* *Obligations*  
11/01/76-10/31/80 FY80: \$45,022 TOTAL: \$173,022  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Ross, M. HD-SB/Halstead, T. W. 51-Biological Sci

**NAG 1-99** Univ of Minnesota - Minneapolis-St Paul 2931  
Increasing the damping in composite truss members  
*Period* *Obligations*  
09/01/80-09/30/81 FY80: \$40,000 TOTAL: \$40,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Plunkett, R. LARC/Leadbetter, S. A. 47-Materials Engr

**NAG 2-39** Wayne State University 2926  
Development of absorption technique for OH measurements in ambient air  
*Period* *Obligations*  
05/01/80-04/30/81 FY80: \$70,000 TOTAL: \$70,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Wang, C. C. ARC/Munoz, R. M. 31-Atmos Sci  
Yu, F. T. ARC/Marguez, A. P.

**NAG 2-4** Univ of Minnesota - Minneapolis-St Paul 2932  
A subsurface panel method  
*Period* *Obligations*  
11/01/79-11/30/80 FY80: \$38,975 TOTAL: \$38,975  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Moran, J. P. ARC/Chapman, G. T. 41-Aero Engr

**NASA'S UNIVERSITY PROGRAM  
MINNESOTA (Continued)**

**NAG 2-31 Univ of Minnesota - Minneapolis-St Paul 2933**  
Condensation nuclei measurements in the stratosphere for the NASA ACE Program

<i>Period</i>	<i>Obligations</i>	
02/01/80-12/31/80	FY80: \$77,000	TOTAL: \$77,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Liu, B. Y.	ARC/Page, W. A.	31-Atmos Sci
Wilson, J. C.		

**NAG 2-63 Univ of Minnesota - Minneapolis-St Paul 2934**  
Drop dynamics and breakup

<i>Period</i>	<i>Obligations</i>	
08/01/80-07/31/81	FY80: \$43,075	TOTAL: \$43,075
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Scriven, L. E.	ARC/Brooks, W. F.	13-Physics
Brown, R. A.	ARC/Chapman, G.	
Gifford, W. A.		

**NAS 5-11310 Univ of Minnesota - Minneapolis-St Paul 2935**  
Ac electric fields experiment Helios

<i>Period</i>	<i>Obligations</i>	
06/29/70-09/30/81	FY80: \$53,000	TOTAL: \$1,568,222
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kellogg, P. J.	GSFC/Corrigan, J. P.	11-Astronomy

**NAS 5-11438 Univ of Minnesota - Minneapolis-St Paul 2936**  
Open source neutral mass spectrometers for AE spacecraft, missions C, D, and E

<i>Period</i>	<i>Obligations</i>	
06/15/71-09/30/81	FY80:	TOTAL: \$1,340,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Nier, A. O.	GSFC/Rice, C.	31-Atmos Sci

**NAS 5-23703 Univ of Minnesota - Minneapolis-St Paul 2937**  
ATS-6 environmental measurements experiment data reduction and analysis

<i>Period</i>	<i>Obligations</i>	
11/15/76-08/31/79	FY80:	TOTAL: \$103,335
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Winckler, J. R.	GSFC/Wende, C. D.	31-Atmos Sci

**NAS 5-25389 Univ of Minnesota - Minneapolis-St Paul 2938**  
Dynamic Explorer A and B magnetometer experiment support

<i>Period</i>	<i>Obligations</i>	
11/08/78-11/08/80	FY80:	TOTAL: \$8,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Cahill, L. J., Jr.	GSFC/Sugrura, M.	13-Physics

**NAS 5-25753 Univ of Minnesota - Minneapolis-St Paul 2939**  
Selected hardware for unified radio and plasma wave experiment for international solar polar mission

<i>Period</i>	<i>Obligations</i>	
07/03/79-09/30/83	FY80: \$237,886	TOTAL: \$394,586
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kellogg, P. J.	GSFC/Stone, R.	11-Astronomy

**NAS 5-26056 Univ of Minnesota - Minneapolis-St Paul 2940**  
Generate an investigation development plan and establish the preliminary interfaces between the space transportation system/Spacelab and instrument per high energy interactions of cosmic rays

<i>Period</i>	<i>Obligations</i>	
02/14/80-12/13/80	FY80: \$134,182	TOTAL: \$134,182
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Waddington, C. J.	GSFC/Underwood, C.	11-Astronomy

**NAS 8-27977 Univ of Minnesota - Minneapolis-St Paul 2941**  
Design, development, and operation of Cerenkov portion of the ACR-7 heavy nuclei experiment under the HEAO program

<i>Period</i>	<i>Obligations</i>	
06/16/72-09/30/81	FY80: \$128,289	TOTAL: \$1,488,289
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Waddington, C. J.	MSFC/Stone, J. F.	11-Astronomy

**NGL 24-005-009 Univ of Minnesota - Minneapolis-St Paul 2942**  
Development and application of mass spectrometers to studies of Earth's upper atmosphere planetary atmospheres

<i>Period</i>	<i>Obligations</i>	
08/01/62-08/31/81	FY80: \$161,977	TOTAL: \$1,853,682
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Nier, A. O.	HD-SL/Murphy, R. E.	31-Atmos Sci
	HD-SL/Brunk, W. E.	

**NGL 24-005-225 Univ of Minnesota - Minneapolis-St Paul 2943**  
Lunar sample analysis

<i>Period</i>	<i>Obligations</i>	
01/26/71-01/31/81	FY80: \$130,000	TOTAL: \$966,249
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Pepin, R. O.	JSC/Harris, J. W.	13-Physics

**NGL 24-005-263 Univ of Minnesota - Minneapolis-St Paul 2944**  
Study of Minnesota forests and lakes using data from Earth Resources Technology Satellites

<i>Period</i>	<i>Obligations</i>	
07/06/72-06/30/82	FY80:	TOTAL: \$595,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hobbie, R. K.	HD-ET/Vitale, J. A.	39-Env Sci, NEC

**NGR 24-005-050 Univ of Minnesota - Minneapolis-St Paul 2945**  
Measurement of the gamma ray flux of various celestial point sources from high altitude balloons

<i>Period</i>	<i>Obligations</i>	
04/21/65-11/30/80	FY80: \$96,000	TOTAL: \$1,044,508
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Waddington, C. J.	HD-SC/Gilman, D. A.	11-Astronomy
	HD-SC/Opp, A. G.	

**NSG 1431 Univ of Minnesota - Minneapolis-St Paul 2946**  
Neutral constituent measurements in the stratosphere

<i>Period</i>	<i>Obligations</i>	
07/01/77-09/30/80	FY80: \$93,973	TOTAL: \$303,713
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Mauersberger, K.	LARC/Beswick, A. G.	31-Atmos Sci
Nier, A. O.		

**NASA'S UNIVERSITY PROGRAM  
MINNESOTA (Continued)**

**NSG 2014** Univ of Minnesota - Minneapolis-St Paul 2947  
Exploratory astrophysics and infrared astronomy  
*Period* *Obligations*  
 02/01/74-03/31/81 FY80: \$62,000 TOTAL: \$437,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Ney, E. HD-SC/Bogges, N. W. 11-Astronomy  
 HD-SC/Weiler, E. J.

**NSG 3041** Univ of Minnesota - Minneapolis-St Paul 2948  
Ion beam sputter etch and deposition study  
*Period* *Obligations*  
 01/01/75-08/01/80 FY80: TOTAL: \$204,385  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Wehner G. K. LERC/Kerslake, W. R. 13-Physics

**NSG 5088** Univ of Minnesota - Minneapolis-St Paul 2949  
Magnetospheric physics phenomena using sounding rockets  
*Period* *Obligations*  
 11/01/75-12/31/81 FY80: \$280,000 TOTAL: \$819,593  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Winckler, J. R. GSFC/Guidotti, J. 13-Physics

**NSG 5373** Univ of Minnesota - Minneapolis-St Paul 2950  
Experiments employing a rocket-borne electron accelerator  
*Period* *Obligations*  
 06/15/79-11/30/80 FY80: \$75,000 TOTAL: \$102,800  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Kellogg, P. J. GSFC/Guidotti, J. 13-Physics  
 Bernstein, W.

**NSG 5397** Univ of Minnesota - Minneapolis-St Paul 2951  
Observations of emission lines in the crab nebula  
*Period* *Obligations*  
 08/01/79-07/31/81 FY80: \$9,300 TOTAL: \$11,320  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Davidson, K. GSFC/Bogges, A. 11-Astronomy  
 Gull, T. R.  
 Kafatos, M.

**NSG 6009** Univ of Minnesota - Minneapolis-St Paul 2952  
Study of neutral composition of upper atmosphere with rocket-borne mass spectrometers  
*Period* *Obligations*  
 07/01/75-09/30/80 FY80: \$53,000 TOTAL: \$179,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Nier, A. O. WFC/Early, L. J. 19-Phys Sci, NEC  
 WFC/Pless, R. H.

**NSG 6021** Univ of Minnesota - Minneapolis-St Paul 2953  
Rocket study of auroral processes  
*Period* *Obligations*  
 06/01/78-09/30/80 FY80: \$76,284 TOTAL: \$177,682  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Cahill, I. J., Jr. WFC/Early, L. J. 19-Phys Sci, NEC  
 WFC/Pless, R. H.

**NSG 7005** Univ of Minnesota - Minneapolis-St Paul 2954  
Energetic particles in the magnetosphere and space  
*Period* *Obligations*  
 07/01/73-09/30/80 FY80: TOTAL: \$837,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Winckler, J. R. HD-ST/King, J. H. 39-Env Sci, NEC  
 HD-ST/Schmerling, E. R.

**NSG 7221** Univ of Minnesota - Minneapolis-St Paul 2955  
Neutral constituent measurements in stratosphere  
*Period* *Obligations*  
 03/16/76-02/29/80 FY80: TOTAL: \$88,243  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Mauersberger, K. HD-EB/Toth, R. A. 31-Atmos Sci

**NSG 7237** Univ of Minnesota - Minneapolis-St Paul 2956  
Interpretation of data obtained with the Explorer 45 spacecraft:  
Major objective is understanding of magnetic storms  
*Period* *Obligations*  
 06/01/76-03/31/80 FY80: TOTAL: \$72,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Cahill, L. J., Jr. HD-ST/Cauffman, D. P. 19-Phys Sci, NEC  
 HD-ST/Schmerling, E. R.

**NSG 7296** Univ of Minnesota - Minneapolis-St Paul 2957  
Triaxial drop shapes rotating and charged liquid drops  
*Period* *Obligations*  
 12/15/76-12/15/79 FY80: TOTAL: \$95,310  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Scriven, L. E. HD-RS/Lundholm, J. G., Jr. 13-Physics  
 JPL/Saffren, M. M.

**NSG 7575** Univ of Minnesota - Minneapolis-St Paul 2958  
Cometary mass spectrometry  
*Period* *Obligations*  
 04/01/79-03/31/80 FY80: TOTAL: \$70,864  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Nier, A. O. HD-SL/Murphy, R. E. 31-Atmos Sci  
 HD-SL/Brunk, W. E.

**MISSISSIPPI**

**NGR 25-012-001** Alcorn State University 2959  
Radio tracking of geostationary satellites  
*Period* *Obligations*  
 09/01/73-06/30/81 FY80: \$28,990 TOTAL: \$243,275  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Paul, M. P. GSFC/Grebowsky, J. 31-Atmos Sci

**NASA'S UNIVERSITY PROGRAM  
MISSISSIPPI (Continued)**

<b>NSG 8036</b>	<b>Alcorn State University</b>	<b>2960</b>	<b>NAS 8-33448</b>	<b>Mississippi State University</b>	<b>2967</b>
Bio-gas production from alligator weeds			High density circuits technology		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
06/01/76-11/29/80	FY80: TOTAL: \$88,213		07/13/79-12/12/80	FY80: TOTAL: \$35,810	
<i>Prn Invest</i>	NASA Tech Officer CASE Category		<i>Prn Invest</i>	NASA Tech Officer CASE Category	
Latif, A.	NSTL/Wolverton, B. C. 51-Biological Sci		Wade, T. E.	MSFC/Hollis, B. R. 45-Elec Engr	
				MSFC/Routh, D. E.	
<b>NSG 736</b>	<b>Jackson State University</b>	<b>2961</b>	<b>NAS 8-33450</b>	<b>Mississippi State University</b>	<b>2968</b>
LANDSAT study of urban land use of Jackson, MS			Electron lithography star design guidelines		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
08/13/79-11/12/80	FY80: TOTAL: \$93,684		08/02/79-02/14/82	FY80: \$54,000 TOTAL: \$79,069	
<i>Prn Invest</i>	NASA Tech Officer CASE Category		<i>Prn Invest</i>	NASA Tech Officer CASE Category	
Lang, M.	NSTL/Atwell, B. H. 32-Geological Sci		Causey, W. H.	MSFC/Edge, T. M. 45-Elec Engr	
<b>NSG 8026</b>	<b>Jackson State University</b>	<b>2962</b>	<b>NAS 8-33570</b>	<b>Mississippi State University</b>	<b>2969</b>
Aquatic plants as filtration systems for chlorinated hydrocarbons			Research study: Analysis of space telescope collection systems		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
06/01/75-05/31/81	FY80: \$52,692 TOTAL: \$215,689		07/26/79-11/18/81	FY80: \$20,000 TOTAL: \$30,000	
<i>Prn Invest</i>	NASA Tech Officer CASE Category		<i>Prn Invest</i>	NASA Tech Officer CASE Category	
Shores, F.	NSTL/Wolverton, B. C. 39-Env Sci, NEC		Ingels, F. M.	MSFC/Thomas, J. H. 11-Astronomy	
				MSFC/Coffey, R. D.	
<b>NAG 1-3</b>	<b>Mississippi State University</b>	<b>2963</b>	<b>NAS 8-33887</b>	<b>Mississippi State University</b>	<b>2970</b>
Investigation of flight test methods for the performance of general aviation aircraft			Research study: A study of high density bit transition requirements versus the effects on BCH error coding		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
11/01/79-01/31/81	FY80: \$75,700 TOTAL: \$75,700		07/01/80-08/31/81	FY80: \$39,707 TOTAL: \$39,707	
<i>Prn Invest</i>	NASA Tech Officer CASE Category		<i>Prn Invest</i>	NASA Tech Officer CASE Category	
Bull, G.	LARC/Holmes, B. J. 41-Aero Engr		Ingels, F. M.	MSFC/Coffey, R. D. 45-Elec Engr	
Bridges, P. D.				MSFC/Mann, D. F.	
<b>NAG 3-56</b>	<b>Mississippi State University</b>	<b>2964</b>	<b>NAS13-158</b>	<b>Mississippi State University</b>	<b>2971</b>
Propeller propulsion integration			To provide remote sensing workshops for state government personnel		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
04/01/80-04/09/81	FY80 \$58,250 TOTAL \$58,250		07/29/80-07/28/81	FY80: \$12,000 TOTAL: \$12,000	
<i>Prn Invest</i>	NASA Tech Officer CASE Category		<i>Prn Invest</i>	NASA Tech Officer CASE Category	
Bennett, A. G., Jr.	LFRC/Mitchell, G. A. 41-Aero Engr		Miller, W. F.	NSTL/Atwell, B. H. 32-Geological Sci	
<b>NAS 8-31373</b>	<b>Mississippi State University</b>	<b>2965</b>	<b>NGI 25-001-054</b>	<b>Mississippi State University</b>	<b>2972</b>
Study of digital holographic filter generation			Application of remotely sensed data to state and regional problems		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
03/20/75-12/31/78	FY80: TOTAL \$27,090		11/01/73-10/30/83	FY80 \$100,000 TOTAL: \$900,000	
<i>Prn Invest</i>	NASA Tech Officer CASE Category		<i>Prn Invest</i>	NASA Tech Officer CASE Category	
Ingels, F. M.	MSFC/Wallace, G. R. 45-Elec Engr		Miller, W. F.	HD-ET/Vitale, J. A. 39-Env Sci, NEC	
	MSFC/McDonough, G. F.				
<b>NAS 8-32912</b>	<b>Mississippi State University</b>	<b>2966</b>	<b>NGR 25-001-055</b>	<b>Mississippi State University</b>	<b>2973</b>
Develop a computer program to compute the flow field, aerodynamic forces and heating rate on arbitrary shaped bodies			Numerical solution of the Navier-Stokes equations for arbitrary two-dimensional multi-element airfoils		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
05/25/78-09/30/80	FY80: TOTAL: \$68,787		01/01/74-02/28/81	FY80: \$39,067 TOTAL: \$221,329	
<i>Prn Invest</i>	NASA Tech Officer CASE Category		<i>Prn Invest</i>	NASA Tech Officer CASE Category	
Kassner, J. L., Jr.	MSFC/Sims, J. L. 49-Engr, NEC		Thompson, J. F.	LARC/South, J. C., Jr. 41-Aero Engr	
	MSFC/Donahoo, L. K.				

**NASA'S UNIVERSITY PROGRAM  
MISSISSIPPI (Continued)**

<b>NSG 1083</b>	<b>Mississippi State University</b>	<b>2974</b>	<b>NAG 1-49</b>	<b>University of Southern Mississippi</b>	<b>2981</b>
An exploratory investigation of the cooling drag associated with general aviation propulsive systems			A photoionization mass spectrometer study of carbon vapor		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
09/01/74-04/30/80	FY80: TOTAL: \$295,259		03/01/80-09/30/81	FY80: \$26,000 TOTAL: \$26,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Rogerson, A. C.	LARC/Hall, A. W.	41-Aero Engr	Rayborn, G. H.	LARC/Jones, J. J.	13-Physics
Brown, N. B., Jr.					
<b>NSG 1249</b>	<b>Mississippi State University</b>	<b>2975</b>	<b>NAS13-81</b>	<b>University of Southern Mississippi</b>	<b>2982</b>
Flight test of a wing stall sensor and evaluation of its application to an aircraft stall deterrent system			Evaluate nutritional value of single cell protein using water hyacinth extracts as substrate study		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
09/15/75-02/29/80	FY80: TOTAL: \$199,165		03/20/78-09/19/79	FY80: TOTAL: \$10,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bennett, A. G., Jr.	LARC/Stewart, E. C.	41-Aero Engr	Stocks, P. K.	NSTL/Wolverton, B. C.	39-Env Sci, NEC
Owens, J. K.					
<b>NSG 1402</b>	<b>Mississippi State University</b>	<b>2976</b>	<b>NAS13-95</b>	<b>University of Southern Mississippi</b>	<b>2983</b>
Propeller propulsion integration			Demonstration and evaluation of EMS telemetry capability in remote areas using synchronous satellite communications technology		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
04/01/77-04/30/80	FY80: \$4,932 TOTAL: \$121,594		07/17/78-05/31/81	FY80: \$98,000 TOTAL: \$274,236	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bennett, A. G., Jr.	LARC/Johnson, J. L.	41-Aero Engr	Brundage, W. G.	NSTL/Whitley, S. L.	49-Engr, NEC
<b>NSG 1454</b>	<b>Mississippi State University</b>	<b>2977</b>	<b>MISSOURI</b>		
Investigation of a flight test method for determining airplane drag utilizing a propeller wake survey rake			<b>NAG13-1</b>	<b>Lincoln University - Mo.</b>	<b>2984</b>
<i>Period</i>	<i>Obligations</i>		LANDSAT study relating soil zinc content to diabetes		
09/01/77-03/31/80	FY80: \$5,650 TOTAL: \$24,177		<i>Period</i>	<i>Obligations</i>	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	01/02/80-01/01/81	FY80: \$54,844 TOTAL: \$54,844	
Bennett, A. G., Jr.	LARC/Judd, J. H.	41-Aero Engr	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Miley, S. J.			Molnar, I. G.	NSTL/Atwell, B. H.	59-Life Sci, NEC
<b>NSG 1577</b>	<b>Mississippi State University</b>	<b>2978</b>	<b>NAS 8-33370</b>	<b>Saint Louis University</b>	<b>2985</b>
Transformation of two and three dimensional regions by elliptic systems			Kinetic energy budgets in areas of intense convections		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
11/15/78-11/14/80	FY80: \$22,560 TOTAL: \$43,140		04/01/79-04/30/81	FY80: \$36,961 TOTAL: \$61,626	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Thompson, J. F.	LARC/Smith, R. E., Jr.	21-Mathematics	Fuelburg, H. E.	MSFC/Hill, K.	31-Atmos Sci
Mastin, C. W.	LARC/Shoosmith, J. N.			MSFC/Torkar, J. E.	
<b>NSG 1623</b>	<b>Mississippi State University</b>	<b>2979</b>	<b>NAGW 46</b>	<b>University of Missouri - Columbia</b>	<b>2986</b>
Theoretical investigation of high-lift aerodynamics			Development of remote sensing experience at the University of Missouri-Columbia		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
08/20/79-11/19/80	FY80: TOTAL: \$52,100		04/01/80-03/31/83	FY80: \$170,000 TOTAL: \$170,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bennett, A. G., Jr.	LARC/Thomas, J. L.	41-Aero Engr	Johannsen, C. J.	HD-ET/Vitale, J. A.	39-Env Sci, NEC
<b>NSG 1539</b>	<b>Mississippi University For Women</b>	<b>2980</b>			
Polyimide monomers and intermediates					
<i>Period</i>	<i>Obligations</i>				
06/15/78-10/31/80	FY80: \$23,238 TOTAL: \$48,803				
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Pratt, J. R.	LARC/St.Clair, T. L.	12-Chemistry			
	LARC/Johnston, N. J.				



**NASA'S UNIVERSITY PROGRAM**  
**MISSOURI (Continued)**

**NAS 8-31150**      **University of Missouri - Columbia**      **2987**  
**Research study of microphysical processes in atmospheric clouds**

<i>Period</i>	<i>Obligations</i>	
02/11/75-06/30/81	FY80: TOTAL: \$116,488	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Tung, C.	MSFC/Smith, R. E.	31-Atmos Sci
Hale, B. N.	MSFC/Anderson, B. J.	

**NAS 8-32976**      **University of Missouri - Rolla**      **2994**  
**Monodisperse cloud experiment**

<i>Period</i>	<i>Obligations</i>	
04/03/78-12/31/81	FY80: \$20,000 TOTAL: \$80,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hagen, D. E.	MSFC/Fallon, R. A.	31-Atmos Sci
Kassner, J. L., Jr.	MSFC/Smith, R. E.	
White, D. R.		

**NAS 8-31849**      **University of Missouri - Columbia**      **2988**  
**Cloud physics laboratory science simulator**

<i>Period</i>	<i>Obligations</i>	
04/29/76-11/14/80	FY80: \$40,000 TOTAL: \$319,958	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kassner, J. L., Jr.	MSFC/Smith, R. C.	31-Atmos Sci
	MSFC/Thomas, P. E.	

**NAS13-150**      **University of Missouri - Rolla**      **2995**  
**Conduct short courses in remote sensing, as an aid in mine engineering, reclamation and quality control**

<i>Period</i>	<i>Obligations</i>	
05/15/80-05/14/81	FY80: \$14,930 TOTAL: \$14,930	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Barr, D. J.	NSTL/Atwell, B. H.	32-Geological Sci

**NAS 9-15477**      **University of Missouri - Columbia**      **2989**  
**Development and verification of simulation models for analyzing orbiter digital communications and data links**

<i>Period</i>	<i>Obligations</i>	
01/01/78-01/01/82	FY80: \$30,000 TOTAL: \$55,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Tranter, W. H.	JSC/Eggleston, T. W.	45-Elec Engr

**NCA 2-450001**      **University of Missouri - Rolla**      **2996**  
**The effect of turbulent boundary layer on transonic flows**

<i>Period</i>	<i>Obligations</i>	
12/01/79-11/30/80	FY80: \$20,000 TOTAL: \$20,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lee, S. C.	ARC/Holst, T. L.	41-Aero Engr
	ARC/Vandalsem, W. R.	

**NAS 9-15896**      **University of Missouri - Columbia**      **2990**  
**Earth resources synthetic aperture radar applications development working group**

<i>Period</i>	<i>Obligations</i>	
09/17/79-12/31/80	FY80: \$111,799 TOTAL: \$161,799	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Rouse, J. W.	JSC/Harnage, M. J.	39-Env Sci, NEC

**NSG 1369**      **University of Missouri - Rolla**      **2997**  
**Transport properties in the atmosphere of Jupiter**

<i>Period</i>	<i>Obligations</i>	
01/01/77-03/31/81	FY 80: \$21,424 TOTAL: \$54,404	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Biolsi, L.	LARC/Graves, R. A.	12-Chemistry
	LARC/Jones, J. J.	

**NAS13-140**      **University of Missouri - Columbia**      **2991**  
**Incorporation of LANDSAT technology into farmers information system being developed by NASA and the Missouri farmers association**

<i>Period</i>	<i>Obligations</i>	
02/01/80-12/31/80	FY80: \$40,000 TOTAL: \$40,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Johannsen, C. J.	NSTL/Joyce, A. T.	32-Geological Sci

**NSG 1452**      **University of Missouri - Rolla**      **2998**  
**Study of gas-solid airflow over a flat plate**

<i>Period</i>	<i>Obligations</i>	
10/01/77-11/30/81	FY80: \$64,603 TOTAL: \$197,052	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Patterson, G. K.	LARC/Heifner, J. N.	41-Aero Engr
Oetting, R. B.	LARC/Bushnell, D. M.	
Anderson, R. A.		

**NSG 5338**      **University of Missouri - Columbia**      **2992**  
**Research of optimum radiometer parameters for soil moisture monitoring**

<i>Period</i>	<i>Obligations</i>	
04/01/79-07/31/81	FY80: TOTAL: \$29,484	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Rouse, J. W.	GSFC/Schmugge, T. J.	39-Env Sci, NEC

**NSG 3231**      **University of Missouri - Rolla**      **2999**  
**Transmission of sound in high speed flows**

<i>Period</i>	<i>Obligations</i>	
01/01/79-03/31/81	FY80: \$30,649 TOTAL: \$57,294	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Eversman, W.	LERC/Baumeister, K. J.	41-Aero Eng
	LERC/Rice, E. J.	

**NAG 1-26**      **University of Missouri - Rolla**      **2993**  
**Aerodynamic-structural study of canard wing, dual wing, and conventional wing system for general aviation applications**

<i>Period</i>	<i>Obligations</i>	
01/01/80-03/31/81	FY80: \$69,421 TOTAL: \$69,421	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Selberg, B. P.	LARC/Holmes, B. J.	41-Aero Engr

**NSG 5400**      **University of Missouri - Saint Louis**      **3000**  
**Research of mass loss in the ultraviolet spectrum**

<i>Period</i>	<i>Obligations</i>	
07/09/79-03/31/81	FY80: TOTAL: \$11,700	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lamb, S. A.	GSFC/Bogges, A.	11-Astronomy
Sargent, W. L.		

**NASA'S UNIVERSITY PROGRAM**  
**MISSOURI (Continued)**

<b>NSG 7563</b>	<b>University of Missouri - Saint Louis</b>	<b>3001</b>	<b>NCA 2-841001</b>	<b>Washington University</b>	<b>3008</b>
Condensate phenomena in the polar regions of Mars			Investigations of Titan's atmosphere		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
03/01/79-09/30/80	FY80: \$16,715	TOTAL: \$29,310	07/01/80-06/30/81	FY80: \$7,104	TOTAL: \$7,104
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
James, P. B.	HD-SL/Quaide, W. L.	32-Geological Sci	Smith, W. H.	ARC/Cuzzi, J. N.	31-Atmos Sci
	HD-SL/Boyce, J. M.			ARC/Giver, L. P.	
<b>NAG 1-38</b>	<b>Washington University</b>	<b>3002</b>	<b>NGL 26-008-065</b>	<b>Washington University</b>	<b>3009</b>
Measurement of the diurnal variation of the radicals in the upper atmosphere			Lunar sample analysis		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
03/06/80-03/05/81	FY80: \$50,050	TOTAL: \$50,050	02/01/71-01/31/81	FY80: \$245,613	TOTAL: \$2,787,515
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Smith, W. H.	LARC/Boughner, R. E.	31-Atmos Sci	Walker, R. M.	JSC/Harris, J. W.	13-Physics
	LARC/Callis, L. B.				
<b>NAG 5-108</b>	<b>Washington University</b>	<b>3003</b>	<b>NGR 26-008-001</b>	<b>Washington University</b>	<b>3010</b>
Search for interstellar water absorption			Determination of characteristics of high altitude primary cosmic radiation at low latitudes		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
10/01/80-09/30/81	FY80: \$6,112	TOTAL: \$6,112	09/01/61-10/31/80	FY80: \$170,000	TOTAL: \$1,835,540
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Smith, W. H.	GSFC/Corrigan, J. P.	11-Astronomy	Klarmann, J.	HD-SC/Kaluziński, L. J.	11-Astronomy
			Israel, M. H.	HD-SC/Opp, A. G.	
<b>NAG 9-7</b>	<b>Washington University</b>	<b>3004</b>	<b>NSG 1601</b>	<b>Washington University</b>	<b>3011</b>
Lunar and planetary surface dynamics and early history			Nondestructive evaluation of composite structures using Fourier analysis of ultrasonic signals		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
02/01/80-01/31/81	FY80: \$96,000	TOTAL: \$96,000	03/15/79-03/14/81	FY80: \$49,953	TOTAL: \$99,768
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hohenberg, C. M.	JSC/Harris, J. W.	31-Atmos Sci	Miller, J. G.	LARC/Heyman, J. S.	13-Physics
Walker, R. M.			O'Donnell, M.	LARC/Cantrell, J. H.	
Podosek, F. A.					
<b>NAS 2-10636</b>	<b>Washington University</b>	<b>3005</b>	<b>NSG 1640</b>	<b>Washington University</b>	<b>3012</b>
The effect of spaceflight on the growth, mineralization and remodeling of the rhesus monkey skeleton			Application of adaptive finite element analysis of integrated design and analysis of aircraft structures		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
05/15/80-07/31/82	FY80: \$11,645	TOTAL: \$11,645	10/01/79-12/31/80	FY80:	TOTAL: \$95,012
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Simmons, D. J.	ARC/Holton, E. A.	59-Life Sci, NEC	Szabo, B. A.	LARC/Giles, G. L.	49-Engr, NEC
				LARC/Rogers, J. L.	
<b>NAS 8-27976</b>	<b>Washington University</b>	<b>3006</b>	<b>NSG 7016</b>	<b>Washington University</b>	<b>3013</b>
Design, development and operation of a heavy nuclei experiment under the HEAO program			Lunar data analysis and synthesis program on lunar surface dynamics		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
06/16/72-09/30/81	FY80: \$158,377	TOTAL: \$735,131	12/01/73-12/31/80	FY80:	TOTAL: \$496,156
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Israel, M. H.	MSFC/Stone, J. F.	11-Astronomy	Hohenberg, C. M.	HD-SL/Quaide, W. L.	32-Geological Sci
<b>NASW 3331</b>	<b>Washington University</b>	<b>3007</b>	<b>NSG 7087</b>	<b>Washington University</b>	<b>3014</b>
Stimulating operational private sector use of Earth observation satellite information			Computerized analysis of Martian crater and aeolian feature data		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
11/01/79-10/31/80	FY80: \$100,000	TOTAL: \$100,000	08/01/74-12/31/80	FY80: \$118,579	TOTAL: \$346,735
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Eastwood, L. F.	HD-ET/Weinstein, R. H.	39-Env Sci, NEC	Arvidson, R. E.	HD-SL/Boyce, J. M.	32-Geological Sci
	HD-ET/Tuyahov, A. J.			HD-SL/Quaide, W. L.	

**NASA'S UNIVERSITY PROGRAM  
MISSOURI (Continued)**

**NSG 7334** Washington University 3015  
Planetary observations using a new Fabry-Perot interferometric method  
*Period* *Obligations*  
04/01/77-03/31/81 FY80: \$90,793 TOTAL: \$327,381  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Smith, W. H. HD-SL/Brunk, W. E. 11-Astronomy  
HD-SL/Murphy, R. E.

**NSG 7372** Washington University 3016  
Interferometric spectral observations of the interstellar medium in the near ultraviolet  
*Period* *Obligations*  
07/01/77-06/30/81 FY80: \$36,536 TOTAL: \$122,110  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Smith, W. H. HD-SC/Weiler, E. J. 11-Astronomy  
HD-SC/Bogges, N. W.

**NSG 7545** Washington University 3017  
Multispectral, topographic, and photogeologic studies of aeolian phenomena on Mars  
*Period* *Obligations*  
03/01/79-09/30/80 FY80: \$82,345 TOTAL: \$127,299  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Arvidson, R. E. HD-SL/Boyce, J. M. 32-Geological Sci  
HD-SL/Quaide, W. L.

**NSG 7578** Washington University 3018  
Evolution of Mars  
*Period* *Obligations*  
03/01/79-09/30/80 FY80: \$64,672 TOTAL: \$102,394  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Goettal, K. A. HD-SL/Quaide, W. L. 32-Geological Sci  
HD-SL/Boyce, J. M.

**NSG 9055** Washington University 3019  
Chemical studies of materials and processes in the lunar regolith and of lunar and terrestrial igneous differentiation  
*Period* *Obligations*  
02/01/77-01/31/81 FY80: \$134,305 TOTAL: \$507,800  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Haskin, L. A. JSC/Harris, J. W. 32-Geological Sci

**MONTANA**

**NAG 2-37** Montana State University 3020  
A study of supersonic three-dimensional turbulent boundary layer  
*Period* *Obligations*  
05/01/80-04/30/81 FY80: \$35,952 TOTAL: \$35,952  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Demetriades, A. ARC/Horstman, C. C. 41-Aero Engr  
Reithman, T. C.

**NAS 9-16007** Montana State University 3021  
Study to improve parameters for a winter wheat model  
*Period* *Obligations*  
01/01/80-12/31/80 FY80: \$77,800 TOTAL: \$77,800  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Caprio, J. M. JSC/Ravet, F. W. 39-Env Sci, NEC

**NEBRASKA**

**NAS 9-16162** Kearney State College 3022  
In-cloud predictions for space shuttle launches  
*Period* *Obligations*  
08/25/80-12/31/81 FY80: \$31,000 TOTAL: \$31,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Glasser, M. E. JSC/Patterson, A. E. 31-Atmos Sci

**NAG 3-95** University of Nebraska - Lincoln 3023  
Intercalated carbon fiber conductor for aerospace use  
*Period* *Obligations*  
09/01/80-08/31/81 FY80: \$24,000 TOTAL: \$24,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Woollam, J. A. LERC/Riley, T. J. 45-Elec Engr  
LERC/Myers, I. T.

**NGL 28-004-020** University of Nebraska - Lincoln 3024  
Applications of remote sensing in resource management in Nebraska  
*Period* *Obligations*  
04/20/72-04/30/83 FY80: \$100,000 TOTAL: \$875,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Carlson, M. P. HD-ET/Vitale, J. A. 39-Env Sci, NEC

**NGR 28-004-021** University of Nebraska - Lincoln 3025  
Interaction of radiation with planetary gases  
*Period* *Obligations*  
02/23/73-06/30/80 FY80: TOTAL: \$309,731  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Samson, J. A. HD-SL/Murphy, R. E. 31-Atmos Sci

**NGT 28-004-800** University of Nebraska - Lincoln 3026  
The effect of moisture stress on multispectral radiation from agricultural crops  
*Period* *Obligations*  
09/01/80-08/31/81 FY80: \$11,200 TOTAL: \$11,200  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Blad, B. L. JSC/Thompson, D. 39-Env Sci, NEC

**NSG 5391** University of Nebraska - Lincoln 3027  
Ultraviolet spectrophotometry of cepheids  
*Period* *Obligations*  
07/01/79-06/30/81 FY80: \$11,000 TOTAL: \$22,800  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Schmidt, E. G. GSFC/Bogges, A. 11-Astronomy  
Parsons, S. B.

**NASA'S UNIVERSITY PROGRAM  
NEVADA**

**NEVADA**

**NAG 2-14** Univ. of Nevada - Desert Res. Inst. 3028  
 Proposal to participate in the testing and evaluation of a total viral system

<i>Period</i>	<i>Obligations</i>	
01/01/80-12/31/80	FY80: \$29,824	TOTAL: \$29,824
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Smiley, V. N.	ARC/Johnson, R. D.	59-Life Sci, NEC

**NAS 8-31441** Univ. of Nevada - Desert Res. Inst. 3029  
 Zero-8 cloud drop coalescence experiment

<i>Period</i>	<i>Obligations</i>	
04/21/75-10/31/78	FY80:	TOTAL: \$144,149
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Telford, J. W.	MSFC/Smith, R. F.	19-Phys Sci, NEC
	MSFC/Anderson, B. J.	

**NAS 8-32975** Univ. of Nevada - Desert Res. Inst. 3030  
 Atmospheric Cloud Physics Laboratory cloud forming experiment for the first (ACPL) mission

<i>Period</i>	<i>Obligations</i>	
03/01/78-12/31/81	FY80 \$73,500	TOTAL \$342,400
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kocmond, W. C.	MSFC/Fallon, R. A.	31-Atmos Sci
	MSFC/Smith, R. E.	

**NAS 8-32977** Univ. of Nevada - Desert Res. Inst. 3031  
 Atmospheric Cloud Physics Laboratory ice crystal growth experiment

<i>Period</i>	<i>Obligations</i>	
03/01/78-12/31/81	FY80: \$20,000	TOTAL: \$85,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hallett, J.	MSFC/Fallon, R. A.	31-Atmos Sci
	MSFC/Smith, R. E.	

**NAS 8-33273** Univ. of Nevada - Desert Res. Inst. 3032  
 Complex aerosol nucleation experiment ACPL-2

<i>Period</i>	<i>Obligations</i>	
02/16/79-09/15/80	FY80 \$37,503	TOTAL: \$67,503
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kocmond, W. C.	MSFC/Fallon, R. A.	31-Atmos Sci
	MSFC/Smith, R. E.	

**NAS 8-33295** Univ. of Nevada - Desert Res. Inst. 3033  
 Design, fabricate, test and deliver one static diffusion chamber

<i>Period</i>	<i>Obligations</i>	
07/06/79-01/10/80	FY80:	TOTAL: \$35,535
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hallett, J.	MSFC/Anderson, B. J.	31-Atmos Sci
	MSFC/Keller, V.	

**NAS 8-33820** Univ. of Nevada - Desert Res. Inst. 3034  
 Cloud Condensation Nuclei Measurement Workshop

<i>Period</i>	<i>Obligations</i>	
05/23/80-05/22/81	FY80: \$99,956	TOTAL: \$99,956
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kocmond, W. C.	MSFC/Smith, R. E.	31-Atmos Sci
	MSFC/Anderson, J. B.	

**NSG 2140** University of Nevada - Las Vegas 3035  
 Prediction of unsteady airloads in two dimensional subsonic compressible flow

<i>Period</i>	<i>Obligations</i>	
06/01/76-06/01/81	FY80:	TOTAL: \$102,460
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Fromme, J. A.	ARC/Davis, S. S.	41-Aero Engr
	Goldberg, M. A.	

**NAS 8-32313** University of Nevada - Reno 3036  
 Study to perform preliminary experiments to evaluate particle generation and characterization techniques for zero gravity cloud physics experiments

<i>Period</i>	<i>Obligations</i>	
12/13/76-02/29/80	FY80:	TOTAL: \$150,447
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kocmond, W. C.	MSFC/Schrick, B. J.	31-Atmos Sci
	MSFC/Smith, R. E.	

**NSG 2291** University of Nevada - Reno 3037  
 Computations and turbulent flow modeling in support of helicopter rotor technology

<i>Period</i>	<i>Obligations</i>	
12/01/77-11/30/80	FY80: \$31,284	TOTAL: \$106,738
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Rose, W. C.	ARC/Presley, L. L.	41-Aero Engr
	Klepp, J. A.	ARC/Murphy, J. D.

**NEW HAMPSHIRE**

**NAG 3-13** Dartmouth College 3038  
 Ductility of polycrystalline nickel aluminum

<i>Period</i>	<i>Obligations</i>	
02/01/80-01/31/81	FY80: \$39,440	TOTAL: \$39,440
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Schulson, E. M.	LERC/Klopp, W. D.	47-Materials Engr

**NAG 8-305** Dartmouth College 3039  
 Optical observations of High Energy Astronomical Observatory-B objects

<i>Period</i>	<i>Obligations</i>	
01/20/80-01/19/81	FY80: \$9,819	TOTAL: \$9,819
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Mook, D. E.	MSFC/Jones, J. B.	11-Astronomy
	Bevy, F. I.	
	Buff, J. S.	

**NASA'S UNIVERSITY PROGRAM  
NEW HAMPSHIRE (Continued)**

**NCC 5-22**                      **Dartmouth College**                      **3040**  
An investigation of vegetation and other Earth resources  
parameters using LANDSAT and other remote sensing data  
*Period*    *Obligations*  
02/01/80-01/31/81                      **FY80: \$120,000**                      **TOTAL: \$120,000**  
*Prin Invest*    *NASA Tech Officer*    *CASE Category*  
Stoiber, R. E.                      GSFC/Ungar, S. G.                      32-Geological Sci  
Birnie, R. W.

**NAGW 52**                      **University of New Hampshire**                      **3047**  
Analysis of University of New Hampshire ATS-6 data multiple  
spacecraft studies  
*Period*    *Obligations*  
02/01/80-01/31/81                      **FY80: \$29,950**                      **TOTAL: \$29,950**  
*Prin Invest*    *NASA Tech Officer*    *CASE Category*  
Moore, T. E.                      HD-ST/Hedin, A. E.                      32-Geological Sci  
HD-ST/Schmerling, E. R.

**NSG 2397**                      **Dartmouth College**                      **3041**  
Optical constants of transition metals  
*Period*    *Obligations*  
07/01/79-06/30/81                      **FY80: \$33,345**                      **TOTAL: \$82,010**  
*Prin Invest*    *NASA Tech Officer*    *CASE Category*  
Christy, R. W.                      ARC/Cooper, D. M.                      13-Physics

**NAGW 76**                      **University of New Hampshire**                      **3048**  
Theoretical studies group on the physics of the solar atmosphere  
and the solar wind  
*Period*    *Obligations*  
06/01/80-05/31/81                      **FY80: \$181,000**                      **TOTAL: \$181,000**  
*Prin Invest*    *NASA Tech Officer*    *CASE Category*  
Fisk, L. A.                      GSFC/Birmingham, T. J.                      13-Physics  
HD-ST/Newton, G. P.

**NSG 3253**                      **Dartmouth College**                      **3042**  
Thermomechanical effects in high speed seal rubs  
*Period*    *Obligations*  
02/26/79-03/16/81                      **FY80: \$30,400**                      **TOTAL: \$58,900**  
*Prin Invest*    *NASA Tech Officer*    *CASE Category*  
Kennedy, F. E., Jr.                      LERC/Bill, R. C.                      47-Materials Engr

**NAS 5-23761**                      **University of New Hampshire**                      **3049**  
Hardware phase of the solar gamma ray experiment for the solar  
maximum mission  
*Period*    *Obligations*  
10/01/76-09/30/81                      **FY80: \$200,000**                      **TOTAL: \$3,396,726**  
*Prin Invest*    *NASA Tech Officer*    *CASE Category*  
Chupp, E. L.                      GSFC/Donley, J. L.                      31-Atmos Sci

**NSG 5014**                      **Dartmouth College**                      **3043**  
Geological applications of ERTS data  
*Period*    *Obligations*  
07/01/74-03/31/80                      **FY80:**                      **TOTAL: \$1,019,605**  
*Prin Invest*    *NASA Tech Officer*    *CASE Category*  
Stoiber, R. E.                      GSFC/Ongar, S. G.                      39-Env Sci, NEC  
Birnie, R. W.

**NAS 5-24328**                      **University of New Hampshire**                      **3050**  
Data reduction and analysis of the environmental measurement  
experiment  
*Period*    *Obligations*  
12/01/77-09/30/79                      **FY80:**                      **TOTAL: \$67,500**  
*Prin Invest*    *NASA Tech Officer*    *CASE Category*  
Arnoldy, R. L.                      GSFC/Wende, C. D.                      19-Phys Sci, NEC

**NSG 5145**                      **Dartmouth College**                      **3044**  
Investigation of volcanic gases and dust (aerosols) in the  
stratosphere  
*Period*    *Obligations*  
12/01/76-01/31/80                      **FY80:**                      **TOTAL: \$120,223**  
*Prin Invest*    *NASA Tech Officer*    *CASE Category*  
Self, S.                      GSFC/Hansen, J. E.                      31-Atmos Sci  
Decker, R. W.

**NAS 5-24354**                      **University of New Hampshire**                      **3051**  
Analysis and interpretation of Pioneer 10 and 11 data  
*Period*    *Obligations*  
10/16/77-10/15/80                      **FY80: \$27,489**                      **TOTAL: \$73,737**  
*Prin Invest*    *NASA Tech Officer*    *CASE Category*  
Webber, W. R.                      GSFC/Trainer, J. H.                      13-Physics

**NSG 5348**                      **Dartmouth College**                      **3045**  
Magnetopause studies using satellite data  
*Period*    *Obligations*  
05/01/79-11/31/81                      **FY80:**                      **TOTAL: \$30,416**  
*Prin Invest*    *NASA Tech Officer*    *CASE Category*  
Sonnerup, B. U.                      GSFC/Corngan, J. P.                      32-Geological Sci

**NAS 5-25420**                      **University of New Hampshire**                      **3052**  
Compton telescope experiment for the Gamma Ray Observatory  
definition phase  
*Period*    *Obligations*  
11/21/78-12/31/80                      **FY80: \$257,362**                      **TOTAL: \$323,562**  
*Prin Invest*    *NASA Tech Officer*    *CASE Category*  
Lockwood, J. A.                      GSFC/Davis, M. A.                      11-Astronomy  
Schonfelder, V.

**NSG 7292**                      **Dartmouth College**                      **3046**  
Magnetopause-structure from satellite observations  
*Period*    *Obligations*  
10/01/76-09/30/79                      **FY80:**                      **TOTAL: \$40,000**  
*Prin Invest*    *NASA Tech Officer*    *CASE Category*  
Sonnerup, B.                      HD-ST/King, J. H.                      39-Env Sci, NEC  
HD-ST/Schmerling, E. R.

**NAS 5-25642**                      **University of New Hampshire**                      **3053**  
Cosmic ray experiment data analysis and interpretation  
*Period*    *Obligations*  
04/03/79-09/01/80                      **FY80:**                      **TOTAL: \$8,000**  
*Prin Invest*    *NASA Tech Officer*    *CASE Category*  
Fisk, L. A.                      GSFC/VonRosenvinge, T. T.                      13-Physics

**NASA'S UNIVERSITY PROGRAM  
NEW HAMPSHIRE (Continued)**

**NCA 2-512901** University of New Hampshire **3054**  
Development of mathematical models of specific closed ecosystem functions  
*Period* *Obligations*  
02/01/79-01/31/81 **FY80: \$27,068 TOTAL: \$49,059**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Moore, B. ARC/MacElroy, R. D. 21-Mathematics

**NCC 2-27** University of New Hampshire **3055**  
Controlled Ecology Life Support System Workshops: The biological problems and experimental program  
*Period* *Obligations*  
10/01/79-05/31/81 **FY80: \$107,920 TOTAL: \$107,920**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Moore, B. ARC/MacElroy, R. D. 51-Biological Sci

**NGL 30-002-021** University of New Hampshire **3056**  
Investigation and development of techniques for solar neutron and gamma ray detection  
*Period* *Obligations*  
02/28/06-01/31/81 **FY80: \$130,000 TOTAL: \$1,457,365**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Chupp, E. L. HD-SC/Gilman, D. A. 11-Astronomy  
HD-SC/Opp, A. G.

**NGR 30-002-052** University of New Hampshire **3057**  
Research program in area of cosmic ray and X-ray astronomy  
*Period* *Obligations*  
02/12/70-09/30/80 **FY80: \$117,185 TOTAL: \$1,197,185**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Webber, W. R. HD-SC/Kaluzienski, L. J. 11-Astronomy  
HD-SC/Opp, A. G.

**NSG 5316** University of New Hampshire **3058**  
Collaborative research of solar phenomena-solar maximum mission  
*Period* *Obligations*  
07/01/79-03/31/81 **FY80: \$33,100 TOTAL: \$41,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Fisk, L. A. GSFC/Donley, J. L. 31-Atmos Sci

**NSG 6022** University of New Hampshire **3059**  
Rocket study of auroral processes  
*Period* *Obligations*  
05/01/78-06/30/81 **FY80: \$36,960 TOTAL: \$187,796**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Arnoldy, R. L. WFC/Early, L. J. 19-Phys Sci, NEC  
Kaufmann, R. L. WFC/Pless, R. H.

**NSG 7411** University of New Hampshire **3060**  
Theoretical studies in solar particle physics  
*Period* *Obligations*  
10/01/77-10/31/80 **FY80: \$37,129 TOTAL: \$98,129**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Fisk, L. A. HD-ST/Chipman, E. 13-Physics

**NSG 7481** University of New Hampshire **3061**  
Application of a double Compton telescope to measurements of the 1-15 MeV extra-terrestrial gamma rays  
*Period* *Obligations*  
03/01/78-02/28/81 **FY80: TOTAL: \$59,100**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Lockwood, J. A. HD-SC/Gilman, D. A. 11-Astronomy  
Webber, W. R. HD-SC/Opp, A. G.

**NEW JERSEY**

**NCC 2-40** College of Medicine & Dentistry - NJ **3062**  
To determine the rhythmicity of circulating catecholamines in normal and chronically bedrested subjects  
*Period* *Obligations*  
12/01/79-07/31/81 **FY80: \$19,000 TOTAL: \$19,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Natelson, B. H. ARC/Sharp, J. C. 56-Medical Sciences

**NAS 5-26156** New Jersey Institute of Technology **3063**  
Aerospace engineering symposium for high school students  
*Period* *Obligations*  
03/06/80-06/27/80 **FY80: \$17,500 TOTAL: \$17,500**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Gant, M. GSFC/Mundy, J. R. 41-Aero Engr  
GSFC/Chapman, J. W.

**NAG 3-8** Princeton University **3064**  
Coupling of transport and chemical processes in catalytic combustion  
*Period* *Obligations*  
12/01/79-11/30/80 **FY80: \$49,495 TOTAL: \$49,495**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Bracco, F. V. LERC/Szaniszlo, A. J. 41-Aero Engr  
Bruno, C.  
Walsh, P. M.

**NAG 5-48** Princeton University **3065**  
Absorption measures of galactic halo gas  
*Period* *Obligations*  
05/01/80-04/30/81 **FY80: \$12,568 TOTAL: \$12,568**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Cowie, L. L. GSFC/Bogges, A. 11-Astronomy  
York, D. G.  
Wu, C. C.

**NAG 8-306** Princeton University **3066**  
Radiatively colling clusters  
*Period* *Obligations*  
03/01/80-02/28/81 **FY80: \$3,499 TOTAL: \$3,499**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Cowie, L. L. MSFC/Jones, J. B., Jr. 11-Astronomy  
Fabian, A. C.  
Nulsen, P.

**NASA'S UNIVERSITY PROGRAM  
NEW JERSEY (Continued)**

**NAG 8-363** Princeton University 3067  
Compact V-V groups of galaxies  
*Period* *Obligations*  
07/01/80-06/30/81 FY80: \$1,400 TOTAL: \$1,400  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Bahcall, N. A. MSFC/Swearingen, J. C. 11-Astronomy

**NAGW 10** Princeton University 3068  
Gaseous halos of galaxies  
*Period* *Obligations*  
11/01/79-10/31/81 FY80: \$69,338 TOTAL: \$69,338  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
York, D. G. HD-SC/Weiler, E. J. 11-Astronomy  
HD-SC/Bogges, N. W.

**NAS 1-15758** Princeton University 3069  
Navion modification and flight test support  
*Period* *Obligations*  
03/30/79-12/31/80 FY80: \$52,870 TOTAL: \$145,870  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Stengel, R. F. LARC/Downing, D. R. 41-Aero Engr  
LARC/Bryant, W. H.

**NAS 1-15764** Princeton University 3070  
Investigation of flying qualities criteria for single pilot instrument flight operations  
*Period* *Obligations*  
04/05/79-12/15/80 FY80: TOTAL: \$79,139  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Stengel, R. F. LARC/Garren, J. F. 41-Aero Engr

**NAS 5-1810** Princeton University 3071  
Design, development, fabrication, and testing of Orbiting Astronomical Observatory experiment  
*Period* *Obligations*  
06/08/72-12/01/78 FY80: TOTAL: \$18,200,727  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Spitzer, L., Jr. GSFC/Kupperman, J. E., Jr. 11-Astronomy

**NAS 5-22360** Princeton University 3072  
Spectroscopy using the one meter ultraviolet optical telescope for Spacelab astronomy missions  
*Period* *Obligations*  
04/18/75-06/30/80 FY80: TOTAL: \$19,277  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Jenkins, E. B. GSFC/Wilson, L. 32-Geological Sci

**NAS 5-23576** Princeton University 3073  
Orbital operations, data reduction and analysis, and OAO guest investigator program  
*Period* *Obligations*  
09/01/76-02/15/82 FY80: \$703,372 TOTAL: \$3,351,027  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Spitzer, L., Jr. GSFC/Corrigan, J. P. 11-Astronomy

**NAS 5-24486** Princeton University 3074  
Microwave and theoretical studies for cosmic background Explorer satellite  
*Period* *Obligations*  
03/01/78-05/01/81 FY80: \$34,835 TOTAL: \$122,912  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Wilkinson, D. GSFC/Mather, J. C. 11-Astronomy  
GSFC/Donohoe, M. J.

**NAS 5-25084** Princeton University 3075  
Data and operations team leader for the space telescope project  
*Period* *Obligations*  
05/23/78-12/31/84 FY80: \$89,033 TOTAL: \$222,033  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Groth, E. J. GSFC/Leckrone, D. S. 11-Astronomy

**NAS 5-25896** Princeton University 3076  
Laser geodynamics experiment study of polar motion, plate rigidity and plate motions  
*Period* *Obligations*  
11/02/79-02/01/83 FY80: \$76,300 TOTAL: \$76,300  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Morgan, W. J. GSFC/Stephanides, C. C. 32-Geological Sci  
Smith, D. E.

**NAS 5-26268** Princeton University 3077  
Design, development, fabrication of interstellar medium absorption profile spectrograph experiment  
*Period* *Obligations*  
08/21/80-08/31/83 FY80: \$335,000 TOTAL: \$335,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Jenkins, E. B. GSFC/Guidotti, J. 11-Astronomy  
York, D. G. HD-SC/Weiler, E. J.

**NAS 8-32614** Princeton University 3078  
Develop and test mathematical models of the three dimensional flow field and particle motions  
*Period* *Obligations*  
08/23/77-02/28/81 FY80: \$30,000 TOTAL: \$55,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Saville, D. A. MSFC/Bannister, T. C. 13-Physics  
MSFC/Rhodes, P. H.

**NAS 8-33345** Princeton University 3079  
Investigate accretion flows in the Perseus cluster galaxies  
*Period* *Obligations*  
02/14/79-02/11/81 FY80: TOTAL: \$3,499  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Cowie, L. L. MSFC/Jones, J. B., Jr. 11-Astronomy  
Fabian, A. C.  
Nulsen, P.

**NASA'S UNIVERSITY PROGRAM  
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**NCC 2-94** Princeton University 3080  
Aircraft position measurement using laser beacon systems  
*Period* Obligations  
08/15/80-02/28/81 FY80: \$80,000 TOTAL: \$80,000  
*Prn Invest* NASA Tech Officer CASE Category  
Miles, R. B. ARC/Biggers, J. 41-Aero Engr  
Sweet, L. M. ARC/Morse, H. A.

**NGL 31-001-005** Princeton University 3081  
Formation and stability of magnetogasdynamic front in a pitch discharge  
*Period* Obligations  
09/24/62-09/30/79 FY80: TOTAL: \$2,422,912  
*Prn Invest* NASA Tech Officer CASE Category  
Jahn, R. G. HD-RP/Lazar, J. 42-Astro Engr  
Clark, K. F.

**NGL 31-001-007** Princeton University 3082  
Theoretical and experimental studies of ultraviolet phenomena of astronomical interest and galactic gas dynamics  
*Period* Obligations  
05/06/63-03/31/82 FY80: \$9,196 TOTAL: \$2,077,178  
*Prn Invest* NASA Tech Officer CASE Category  
Spitzer, L., Jr. HD-SC/Weiller, E. J. 11-Astronomy  
HD-SC/Bogges, N. W.

**NGL 31-001-252** Princeton University 3083  
Air traffic control technology  
*Period* Obligations  
11/15/71-01/31/83 FY80: TOTAL: \$643,333  
*Prn Invest* NASA Tech Officer CASE Category  
Stengel, R. F. LARC/Downing, D. R. 41-Aero Engr  
Curtiss, H. C. LARC/MacE, W. D.  
Sweet, L. M.

**NSG 1253** Princeton University 3084  
Sound transmission analysis for determining interior sound levels  
*Period* Obligations  
11/01/75-12/31/80 FY80: \$19,871 TOTAL: \$157,432  
*Prn Invest* NASA Tech Officer CASE Category  
Dowell, E. H. LARC/Mixson, J. S. 41-Aero Engr

**NSG 1587** Princeton University 3085  
Command and stability augmentation techniques for aircraft with control saturation  
*Period* Obligations  
01/01/79-12/31/80 FY80: TOTAL: \$25,230  
*Prn Invest* NASA Tech Officer CASE Category  
Stengel, R. F. LARC/Schy, A. A. 41-Aero Engr  
LARC/Young, J. W.

**NSG 1630** Princeton University 3086  
Preliminary investigation of the external flow analysis for density measurements at high altitude  
*Period* Obligations  
07/01/79-10/31/80 FY80: \$58,028 TOTAL: \$75,055  
*Prn Invest* NASA Tech Officer CASE Category  
Bienkowski, G. K. LARC/Jones, J. J. 41-Aero Engr  
LARC/Jones, J. N.

**NSG 2194** Princeton University 3087  
Transonic flow around wings, bodies and wing-body configurations  
*Period* Obligations  
11/01/76-10/31/80 FY80: \$49,583 TOTAL: \$212,524  
*Prn Invest* NASA Tech Officer CASE Category  
Dowell, E. H. ARC/Davis, S. S. 41-Aero Engr  
Williams, M. H.

**NSG 2299** Princeton University 3088  
A comprehensive program of compressible turbulent boundary layer research  
*Period* Obligations  
02/01/78-01/31/81 FY80: \$75,013 TOTAL: \$225,005  
*Prn Invest* NASA Tech Officer CASE Category  
Settles, G. S. ARC/Horstman, C. C. 41-Aero Engr  
Bogdonoff, S. M. ARC/Marvin, J. G.

**NSG 2366** Princeton University 3089  
Turbulence measurements in high speed flows by resonant fluorescence  
*Period* Obligations  
01/01/79-12/31/80 FY80: \$47,234 TOTAL: \$89,234  
*Prn Invest* NASA Tech Officer CASE Category  
Miles, R. B. ARC/McKenzie, R. L. 13-Physics

**NSG 3176** Princeton University 3090  
Mass driver development  
*Period* Obligations  
12/01/77-01/31/81 FY80: \$175,000 TOTAL: \$314,200  
*Prn Invest* NASA Tech Officer CASE Category  
ONeill, G. K. LERC/Kramer, E. H. 42-Astro Engr

**NSG 3178** Princeton University 3091  
Internal combustion engine flame propagation and emissions: Small-scale turbulence modeling and large scale eddy resolution  
*Period* Obligations  
12/15/77-12/14/79 FY80: TOTAL: \$199,343  
*Prn Invest* NASA Tech Officer CASE Category  
Sirignano, W. A. LERC/Cassidy, J. F. 46-Mech Engr  
Gany, A. LERC/Kempke, E. E.

**NSG 3292** Princeton University 3092  
Unsteady transonic aerodynamics of cascades  
*Period* Obligations  
10/01/79-09/29/81 FY80: \$34,070 TOTAL: \$64,600  
*Prn Invest* NASA Tech Officer CASE Category  
Dowell, E. H. LERC/Braun, W. H. 41-Aero Engr



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**NSG 5248** Princeton University 3093  
 Observational research on the IUE satellite  
*Period Obligations*  
 03/01/78-02/29/80 FY80: TOTAL: \$20,312  
*Prin Invest NASA Tech Officer CASE Category*  
 Jenkins, E. B. GSFC/Boggess, A. 11-Astronomy  
 Spitzer, L., Jr. GSFC/West, D. K.

**NSG 5277** Princeton University 3094  
 Oblique magnetic focusing  
*Period Obligations*  
 07/01/78-01/31/81 FY80: \$124,774 TOTAL: \$197,086  
*Prin Invest NASA Tech Officer CASE Category*  
 York, D. G. GSFC/Donnelly, R. E. 13-Physics  
 Jenkins, E. B. GSFC/Johnson, A. G.

**NSG 5382** Princeton University 3095  
 Velocity distribution of interstellar clouds in distant spiral arms  
 and in magellanic clouds  
*Period Obligations*  
 07/01/79-06/31/81 FY80: \$14,415 TOTAL: \$20,215  
*Prin Invest NASA Tech Officer CASE Category*  
 York, D. G. GSFC/Boggess, A. 11-Astronomy  
 Songaila, A.  
 Boksenberg, A.

**NSG 5415** Princeton University 3096  
 Study of the fluctuations in the cosmic X-ray background  
*Period Obligations*  
 09/14/79-06/30/81 FY80: \$11,498 TOTAL: \$11,498  
*Prin Invest NASA Tech Officer CASE Category*  
 Turners, E. L. GSFC/Corrigan, J. P. 11-Astronomy

**NSG 7053** Princeton University 3097  
 Theoretical and laboratory planetary physics  
*Period Obligations*  
 04/01/74-01/31/81 FY80: TOTAL: \$82,982  
*Prin Invest NASA Tech Officer CASE Category*  
 Danielson, R. E. HD-SL/Brunk, W. F. 11-Astronomy

**NSG 7080** Princeton University 3098  
 Study of elastic wave propagation in the Moon  
*Period Obligations*  
 07/01/74-02/28/80 FY80: TOTAL: \$180,288  
*Prin Invest NASA Tech Officer CASE Category*  
 Phinney, R. A. HD-SL/Quaide, W. L. 32-Geological Sci  
 HD-SL/French, B. M.

**NSG 7256** Princeton University 3099  
 Research in extragalactic astrophysics  
*Period Obligations*  
 07/01/76-12/31/80 FY80: \$13,046 TOTAL: \$41,434  
*Prin Invest NASA Tech Officer CASE Category*  
 Bahcall, N. A. HD-SC/Weiler, E. J. 11-Astronomy  
 HD-SC/Boggess, N. W.

**NSG 7288** Princeton University 3100  
 The effect of gravity and weightlessness on the development and  
 regeneration of the giant Coenocyte Caulerpa  
*Period Obligations*  
 10/01/76-09/30/80 FY80: \$55,000 TOTAL: \$185,000  
*Prin Invest NASA Tech Officer CASE Category*  
 Jacobs, W. P. HD-SB/Halstead, T. W. 51-Biological Sci  
 HD-SB/Geib, D. S.

**NSG 7302** Princeton University 3101  
 New radiometers for balloon 3 K isotropy experiment  
*Period Obligations*  
 11/15/76-12/31/80 FY80: \$28,487 TOTAL: \$107,808  
*Prin Invest NASA Tech Officer CASE Category*  
 Wilkinson, D. HD-SC/Boggess, N. W. 11-Astronomy  
 HD-SC/Weiler, E. J.

**NSG 7568** Princeton University 3102  
 The geomorphic role of water ice on Mars  
*Period Obligations*  
 03/15/79-12/31/80 FY80: \$20,052 TOTAL: \$50,362  
*Prin Invest NASA Tech Officer CASE Category*  
 Judson, S. HD-SL/Boyce, J. M. 32-Geological Sci

**NSG 7600** Princeton University 3103  
 Support of International Astronomical Union Colloquium No. 54  
 Scientific Research with Space Telescopes  
*Period Obligations*  
 04/01/79-09/30/80 FY80: TOTAL: \$11,480  
*Prin Invest NASA Tech Officer CASE Category*  
 Spitzer, L., Jr. HD-SC/Roman, N. G. 11-Astronomy  
 HD-SC/Weiler, E. J.

**NSG 7602** Princeton University 3104  
 The origin of magnetite on Mars  
*Period Obligations*  
 07/01/79-06/30/81 FY80: \$59,958 TOTAL: \$99,895  
*Prin Invest NASA Tech Officer CASE Category*  
 Hargraves, R. B. HD-SL/Quaide, W. L. 32-Geological Sci  
 HD-SL/Boyce, J. M.

**NSG 7618** Princeton University 3105  
 Photon counting image sensor development for astronomical  
 applications  
*Period Obligations*  
 07/01/79-06/30/81 FY80: \$103,586 TOTAL: \$197,586  
*Prin Invest NASA Tech Officer CASE Category*  
 Jenkins, E. B. HD-SC/Weiler, E. J. 11-Astronomy  
 HD-SC/Boggess, N. W.

**NAG 5-70** Rutgers University - New Brunswick 3106  
 Observation of ultraviolet emission from globular clusters  
*Period Obligations*  
 06/01/80-05/31/81 FY80: \$12,500 TOTAL: \$12,500  
*Prin Invest NASA Tech Officer CASE Category*  
 Matilsky, T. GSFC/Boggess, A. 11-Astronomy

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**NAG 8-309 Rutgers University - New Brunswick 3107**  
Investigation of X-ray emission from broad-line radio galaxies using HEAO-2 and a search for X-ray emission from nearby quasi stellar objects using High Energy Astronomical Observatory-2

<i>Period</i>	<i>Obligations</i>	
02/25/80-02/24/81	FY80: \$15,000	TOTAL: \$15,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Matilsky, T.	MSFC/Jones, J. B.	11-Astronomy

**NAG 8-328 Rutgers University - New Brunswick 3108**  
Search for decrease in radio pulsar X-ray luminosity during radio nulls

<i>Period</i>	<i>Obligations</i>	
03/01/80-02/28/81	FY80: \$8,300	TOTAL: \$8,300
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Cheng, A. F.	MSFC/Jones, J. B.	11-Astronomy

**NSG 3280 Rutgers University - New Brunswick 3109**  
The physics of turbulent flow

<i>Period</i>	<i>Obligations</i>	
06/01/79-05/31/81	FY80: \$2,600	TOTAL: \$17,600
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Johnson, J. A.	LERC/Claus, R. W.	41-Aero Engr

**NSG 5195 Rutgers University - New Brunswick 3110**  
Investigation of the detailed light curves using SAS-3

<i>Period</i>	<i>Obligations</i>	
08/01/77-01/31/79	FY80:	TOTAL: \$10,690
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Matilsky, T.	GSFC/Kupperman, J. F., Jr.	11-Astronomy

**NSG 7327 Rutgers University - New Brunswick 3111**  
Research and studies of metal silicate relationships in howardite breccias

<i>Period</i>	<i>Obligations</i>	
02/01/77-01/31/81	FY80: \$32,047	TOTAL: \$113,131
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hewins, R. H.	HD-SL/French, B. M.	32-Geological Sci
	HD-SL, Juade, W. L.	

**NSG 7601 Rutgers University - New Brunswick 3112**  
Convection in spherical shells

<i>Period</i>	<i>Obligations</i>	
03/15/79-09/30/81	FY80: \$20,000	TOTAL: \$37,572
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Zebib, A.	HD-SL/Boyce, J. M.	32-Geological Sci

**NSG 9065 Rutgers University - New Brunswick 3113**  
Flow behavior of extraterrestrial materials

<i>Period</i>	<i>Obligations</i>	
02/01/78-01/31/81	FY80: \$21,920	TOTAL: \$48,335
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Klein, L. C.	JSC/Harris, J. W.	32-Geological Sci

**NAG 3-47 Stevens Institute of Technology 3114**  
The influence of gyroscopic forces of the dynamic behavior and flutter of rotating blades

<i>Period</i>	<i>Obligations</i>	
06/01/80-05/31/81	FY80: \$49,220	TOTAL: \$49,220
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sisto, F.	LERC/Kiraly, L. J.	46-Mech Engr
Chang, A.	LERC/Johns, R. H.	

**NSG 1619 Stevens Institute of Technology 3115**  
Free stream disturbances, continuum eigenfunctions boundary layer instability and transition

<i>Period</i>	<i>Obligations</i>	
05/16/79-08/15/80	FY80:	TOTAL: \$25,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Salwen, H.	LARC/Bushnell, D. M.	41-Aero Engr
	LARC/Hefner, J. N.	

**NSG 3180 Trenton State College 3116**  
Analytical modeling of flash-back phenomena

<i>Period</i>	<i>Obligations</i>	
01/01/78-11/05/79	FY80:	TOTAL: \$35,377
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Feng, C. C.	LERC/Marek, C. J.	46-Mech Engr

**NEW MEXICO**

**NAG 8-347 New Mexico Institute of Mining & Tech 3117**  
Observation of Antares system soft X-ray observations from High Energy Astronomical Observatory-2 and the size and structure of the corona of AR lacertae

<i>Period</i>	<i>Obligations</i>	
04/15/80-04/14/81	FY80: \$16,536	TOTAL: \$16,536
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Gibson, D. M.	MSFC/Jones, J. B.	11-Astronomy

**NAS 8-33341 New Mexico Institute of Mining & Tech 3118**  
The size and structure of the corona of RT lacertae and the X-ray variability of HR1099

<i>Period</i>	<i>Obligations</i>	
02/22/79-05/21/80	FY80:	TOTAL: \$12,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Gibson, D. M.	MSFC/Jones, J. B.	11-Astronomy

**NAS 8-33817 New Mexico Institute of Mining & Tech 3119**  
Night-time/day-time orbital survey of lightning experiment support

<i>Period</i>	<i>Obligations</i>	
04/01/80-06/30/81	FY80: \$13,500	TOTAL: \$13,500
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Brooks, M.	MSFC/Vaughan, O. H.	31-Atmos Sci
	MSFC/Anderson, B. J.	

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**NCA 5-69**      **New Mexico Institute of Mining & Tech**      **3120**  
Cometary observations and research activities

<i>Period</i>	<i>Obligations</i>	
08/23/76-12/31/80	FY80:	TOTAL: \$5,000
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Moore, E. P.	GSFC/Hobbs, R. W.	11-Astronomy

**NAS 8-33764**      **New Mexico State University - Las Cruces**      **3127**  
Domestic hot water system test support

<i>Period</i>	<i>Obligations</i>	
11/30/79-11/29/80	FY80: \$14,694	TOTAL: \$14,694
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Available, U. N.	MSFC/Thomas, C. N.	99-Multi-Discip

**NCA 5-71**      **New Mexico Institute of Mining & Tech**      **3121**  
Cometary and astrophysical research activities

<i>Period</i>	<i>Obligations</i>	
11/01/76-09/30/80	FY80: \$20,000	TOTAL: \$80,000
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Moore, E. P.	GSFC/Hobbs, R. W.	11-Astronomy

**NAS 9-16092**      **New Mexico State University - Las Cruces**      **3128**  
Development of antenna specifications for the Advanced Synthetic Aperture Radar (ASAR) project

<i>Period</i>	<i>Obligations</i>	
02/01/80-02/01/81	FY80: \$35,000	TOTAL: \$35,000
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Carver, K.	JSC/Krishen, K.	13-Physics

**NCA 5-81**      **New Mexico Institute of Mining & Tech**      **3122**  
Analysis of solar wind velocity international solar polar mission

<i>Period</i>	<i>Obligations</i>	
08/29/79-09/30/80	FY80: \$5,800	TOTAL: \$5,800
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Moore, E. P.	GSFC/Brandt, J.	11-Astronomy

**NAS 9-95497**      **New Mexico State University - Las Cruces**      **3129**  
Feasibility study to determine if a dual polarized L-band antenna for MW systems can be developed using microstrip and honeycomb techniques

<i>Period</i>	<i>Obligations</i>	
07/09/79-06/30/80	FY80: \$6,781	TOTAL: \$20,550
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Carver, K.	JSC/Fenner, R. G.	39-Env Sci, NEC

**NAG 2-23**      **New Mexico State University - Las Cruces**      **3123**  
Numerical methods for phase plane problems in ordinary differential equations

<i>Period</i>	<i>Obligations</i>	
03/01/80-02/28/81	FY80: \$7,074	TOTAL: \$7,074
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
McLeod, R. J.	ARC/Chapman, G. T.	21-Mathematics

**NAS 9-95504**      **New Mexico State University - Las Cruces**      **3130**  
Preparation of NASA White Sands Test Facility capabilities brochure

<i>Period</i>	<i>Obligations</i>	
04/10/80-07/31/80	FY80: \$19,990	TOTAL: \$19,990
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Guard, K.	JSC/Gomez, L. R.	99-Multi-Discip

**NAS 5-24241**      **New Mexico State University - Las Cruces**      **3124**  
Sounding rocket support

<i>Period</i>	<i>Obligations</i>	
08/01/77-08/31/80	FY80: \$1,135,196	TOTAL: \$3,829,272
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lawrence, H.	GSFC/Pincus, B. R.	49-Engr, NEC
Connell, H.		

**NGL 32-003-001**      **New Mexico State University - Las Cruces**      **3131**  
Photographic patrol and study of physical conditions on the Moon and planets

<i>Period</i>	<i>Obligations</i>	
04/15/61-06/30/81	FY80: \$60,220	TOTAL: \$2,019,021
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Beebe, R. F.	HD-SL/Brunk, W. E.	11-Astronomy
	HD-SL/Murphy, R. E.	

**NAS 5-26332**      **New Mexico State University - Las Cruces**      **3125**  
Field and analytical engineering support for the sounding rocket program

<i>Period</i>	<i>Obligations</i>	
09/10/80-07/09/83	FY80: \$248,736	TOTAL: \$248,736
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lawrence, H.	GSFC/Pincus, B. R.	49-Engr, NEC
Connell, H.	GSFC/Cameron, J. W.	

**NSG 7622**      **New Mexico State University - Las Cruces**      **3132**  
Speed-dependent collision effects on radar back-scattering from the ionosphere

<i>Period</i>	<i>Obligations</i>	
09/01/79-08/31/81	FY80: \$38,000	TOTAL: \$65,000
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Theimer, O. H.	HD-ST/Mayr, H. G.	19-Phys Sci, NEC
	HD-ST/Schmerling, E. R.	

**NAS 6-3087**      **New Mexico State University - Las Cruces**      **3126**  
Pulse code modulation decoder, model GIA5-2

<i>Period</i>	<i>Obligations</i>	
03/11/80-07/16/80	FY80: \$12,271	TOTAL: \$12,271
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Gammill, B. G.	WFC/West, W. W.	49-Engr, NEC

**NAG 1-95**      **University of New Mexico**      **3133**  
Study of the photovoltaic effect in thin film barium titanate

<i>Period</i>	<i>Obligations</i>	
08/25/80-08/24/81	FY80: \$44,317	TOTAL: \$44,317
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Grantemann, W. W.	LARC/Hayes, P. J.	45-Elec Engr

**NASA'S UNIVERSITY PROGRAM  
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**NASW 2936** University of New Mexico 3134  
Operation of NASA's Industrial Applications Center  
*Period Obligations*  
07/01/76-09/30/80 FY80: \$250,000 TOTAL: \$1,048,864  
*Prin Invest NASA Tech Officer CASE Category*  
Unavailable HD-ET/Bivins, R. G. 99-Multi-Discip

**NAS13-109** University of New Mexico 3135  
Conduct short courses in remote sensing  
*Period Obligations*  
03/29/79-01/28/80 FY80: TOTAL: \$15,931  
*Prin Invest NASA Tech Officer CASE Category*  
Morain, S R NSTL/Atwell, B. H. 32-Geological Sci

**NGL 32-004-011** University of New Mexico 3136  
Comparative study of lunar craters and terrestrial volcano-tectonic  
depressions in rhyolite ash-flow plateaus  
*Period Obligations*  
10/12/64-12/31/79 FY80: TOTAL: \$395,800  
*Prin Invest NASA Tech Officer CASE Category*  
Elston, W. F HD-SL/Dwornik, S. E. 32-Geological Sci

**NGL 32-004-063** University of New Mexico 3137  
Lunar sample analysis  
*Period Obligations*  
01/06/71-01/31/81 FY80 \$72,915 TOTAL \$917,843  
*Prin Invest NASA Tech Officer CASE Category*  
Keil, K JSC/Harris, J. W. 12-Chemistry

**NGL 32-004-064** University of New Mexico 3138  
Mineralogy and chemistry of polymict-brecciated stone mete-  
orites  
*Period Obligations*  
06/14/71-02/28/81 FY80 \$64,022 TOTAL: \$657,349  
*Prin Invest NASA Tech Officer CASE Category*  
Keil, K HD-SL/French, B. M. 32-Geological Sci  
Fodor, R V HD-SL/Quaide, W. L.  
Taylor, G J

**NGR 32-004-062** University of New Mexico 3139  
Search for evidence of dynamic process  
*Period Obligations*  
06/22/70-04/30/81 FY80: \$26,983 TOTAL: \$233,073  
*Prin Invest NASA Tech Officer CASE Category*  
Elston, W F HD-SL/Boyce, J. M. 32-Geological Sci  
HD-SL/Quaide, W L

**NGT 32-004-770** University of New Mexico 3140  
A pre-cooperative education program  
*Period Obligations*  
07/25/77-07/24/81 FY80: \$12,000 TOTAL: \$46,208  
*Prin Invest NASA Tech Officer CASE Category*  
Fitter, D M HD-LU/Pohly, J G 49-Engr, NEC  
HD-U/Jenkins, H G.

**NSG 7579** University of New Mexico 3141  
Chemical weathering on Mars  
*Period Obligations*  
03/01/79-09/30/80 FY80: \$52,347 TOTAL: \$79,577  
*Prin Invest NASA Tech Officer CASE Category*  
Keil, K. HD-SL/Quaide, W. L. 31-Atmos Sci  
HD-SL/Boyce, J. M.

**NEW YORK**

**NAG 1-44** Brooklyn College 3142  
Photoelectrolysis of water with surface modified metal oxide  
electrodes  
*Period Obligations*  
03/01/80-02/28/81 FY80: \$32,720 TOTAL: \$32,720  
*Prin Invest NASA Tech Officer CASE Category*  
Tomkiewicz, M. LARC/Byvik, C. E. 19-Phys Sci, NEC  
Aronson, S. LARC/Conway, E. J.

**NSG 1378** Brooklyn College 3143  
Research in medium and high energy atomic physics theory  
*Period Obligations*  
12/03/76-06/30/80 FY80: TOTAL: \$42,170  
*Prin Invest NASA Tech Officer CASE Category*  
Franco, V LARC/Meador, W. E. 13-Physics  
Thomas, B. K. LARC/Wilson, J. W.

**NAG 1-6** City College of New York 3144  
An adaptive learning control system for large flexible space  
structures  
*Period Obligations*  
11/01/79-10/31/80 FY80: \$40,593 TOTAL: \$40,593  
*Prin Invest NASA Tech Officer CASE Category*  
Thau, F. E. LARC/Montgomery, R. C. 42-Astro Engr

**NAGW 22** City College of New York 3145  
A study of the Martian fretted terrains-lightly cratered terrains  
boundary  
*Period Obligations*  
01/01/80-12/31/80 FY80: \$28,548 TOTAL: \$28,548  
*Prin Invest NASA Tech Officer CASE Category*  
Weiss, D. HD-SL/Boyce, J. M. 32-Geological Sci  
HD-SL/Quaide, W L

**NAGW 59** City College of New York 3146  
Equilibrium condensation of planetary materials  
*Period Obligations*  
04/01/80-03/31/81 FY80: \$13,540 TOTAL: \$13,540  
*Prin Invest NASA Tech Officer CASE Category*  
Saxena, S. K HD-SL/Quaide, W. L. 32-Geological Sci  
HD-SL/French, B. M.

**NASA'S UNIVERSITY PROGRAM  
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**NAS 1-15669** City College of New York 3147  
Verification Seasat wind speed and direction objectives and demonstration of global capability for extratropical cyclones

<i>Period</i>	<i>Obligations</i>	
02/27/79-06/01/81	FY80: \$141,375	TOTAL: \$221,375
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Pierson, W. J.	LARC/Schroeder, L. C.	
Salfi, R. K.	LARC/Jones, W. L.	33-Oceanography

**NAS 9-13940** City College of New York 3148  
Communication systems analysis study

<i>Period</i>	<i>Obligations</i>	
04/04/74-12/01/80	FY80: \$40,000	TOTAL: \$279,892
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Schilling, D. L.	JSC/Land, C. K.	45-Elec Engr
Scheinberg, N.		
Davidovici, S.		

**NGL 33-013-040** City College of New York 3149  
Theoretical research in astrophysics and astronomy

<i>Period</i>	<i>Obligations</i>	
04/23/69-11/30/82	FY80: \$20,000	TOTAL: \$414,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Arons, M.	GSFC/Canuto, V.	11-Astronomy

**NGR 33-013-086** City College of New York 3150  
Models for large scale meteorological prediction experiments

<i>Period</i>	<i>Obligations</i>	
10/01/73-01/31/81	FY80: \$50,733	TOTAL: \$321,666
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Spar, J.	GSFC/Hansen, J. E.	31-Atmos Sci

**NSG 1485** City College of New York 3151  
Theory of strong turbulence by renormalization into repeated-cascade

<i>Period</i>	<i>Obligations</i>	
01/15/78-01/14/81	FY80:	TOTAL: \$53,398
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Tchen, C. M.	LARC/Hess, R. V.	39-Env Sci, NEC
	LA 'C/Maestrello, L	

**NSG 2348** City College of New York 3152  
Theoretical problems of spiral galaxies

<i>Period</i>	<i>Obligations</i>	
11/01/78-11/30/80	FY80: \$33,835	TOTAL: \$73,761
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Yuan, C.	ARC/Black, D. C.	11-Astronomy
	ARC/Smith, B. F.	

**NSG 3174** City College of New York 3153  
Analysis of turbulent coaxial flow with international energy generation

<i>Period</i>	<i>Obligations</i>	
10/03/77-01/31/80	FY80:	TOTAL: \$78,583
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Weinstein, H.	LERC/Braun, W. H.	49-Engr, NEC

**NSG 5013** City College of New York 3154  
Efficient processing of video signals

<i>Period</i>	<i>Obligations</i>	
06/15/74-10/31/80	FY80: \$66,000	TOTAL: \$261,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Schilling, D. L.	LERC/Barnes, S. P.	45-Elec Engr

**NSG 5334** City Univ of NY - Grad School & Univ Cen 3155  
Relativistic effects in atoms

<i>Period</i>	<i>Obligations</i>	
02/01/79-01/31/81	FY80: \$20,198	TOTAL: \$40,133
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Mittleman, M. H.	GSFC/Temkin, A.	13-Physics

**NAS 8-32944** Clarkson College of Technology 3156  
Experiment for materials processing in space, physical phenomena in containerless glass processing

<i>Period</i>	<i>Obligations</i>	
02/23/78-02/23/83	FY80: \$117,000	TOTAL: \$372,502
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Subramanian, R. S.	MSFC/Williams, J. R.	13-Physics
Cole, R.	MSFC/Johnson, J. L.	

**NSG 1572** Clarkson College of Technology 3157  
Convection effects during bridgman growth of semiconductors

<i>Period</i>	<i>Obligations</i>	
12/01/78-04/09/81	FY80: \$59,794	TOTAL: \$103,775
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Carlson, F.	LARC/Fripp, A. L.	13-Physics
	LARC/Crouch, R. K.	

**NSG 3191** Clarkson College of Technology 3158  
Design of a microprocessor-based high speed space borrh message switch

<i>Period</i>	<i>Obligations</i>	
04/15/78-05/31/80	FY80:	TOTAL: \$76,394
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Arozullah, M.	LERC/Reinem, J. O.	45-Elec Engr

**NSG 9059** Clarkson College of Technology 3159  
Light flash phenomena induced by HZE particles

<i>Period</i>	<i>Obligations</i>	
09/01/77-02/29/80	FY80:	TOTAL: \$34,114
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
McNulty, P.	JSC/Barnes, C. M.	13-Physics
Pease, V.		

**NAG 3-15** Columbia University 3160  
A preliminary in viva study of the effects of electric stimulation on bone ingrowth to textured surfaces of orthopedic implants

<i>Period</i>	<i>Obligations</i>	
12/01/79-11/30/80	FY80: \$25,412	TOTAL: \$25,412
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Pawluk, R. J.	LERC/Wintucky, E. G.	
Bassett, C. A.		56-Medical Sciences

**NASA'S UNIVERSITY PROGRAM  
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**NAG 3-57** Columbia University 3161  
The role of cobalt in nickel base super alloys  
*Period* *Obligations*  
07/01/80-06/30/81 FY80: \$114,987 TOTAL: \$114,987  
*Prin Invest* NASA Tech Officer CASE Category  
Tien, J. K. LERC/Stephens, J. R. 47-Materials Engr

**NAS 5-24457** Columbia University 3167  
Solar flare X-ray polarimeter experiment  
*Period* *Obligations*  
02/22/78-10/31/81 FY80: \$29,355 TOTAL: \$921,610  
*Prin Invest* NASA Tech Officer CASE Category  
Novick, R. GSFC/Eiband, A. M. 11-Astronomy  
Chanan, G. A.

**NAG 5-33** Columbia University 3162  
Research relative to the effect of subduction zones on the low-order of the geoid  
*Period* *Obligations*  
04/01/80-03/31/81 FY80: \$30,000 TOTAL: \$30,000  
*Prin Invest* NASA Tech Officer CASE Category  
Haxby, W. F. GSFC/Holweck, E. C. 32-Geological Sci  
Cochran, J. R. GSFC/Smith, D. E.

**NAS 5-25422** Columbia University 3168  
Technical services operations and materials for the acquisitions, processing and cataloging of books, periodicals and other literature for Goddard Institute for Space Studies (GISS)  
*Period* *Obligations*  
04/01/79-09/30/80 FY80: \$65,000 TOTAL: \$92,533  
*Prin Invest* NASA Tech Officer CASE Category  
Yavarkovsky, J. GSFC/Jennings, N. 99-Multi-Discip

**NAG 5-98** Columbia University 3163  
Research of the relationship between gravity and bathymetry in the Pacific Ocean  
*Period* *Obligations*  
10/01/80-09/30/81 FY80: \$50,000 TOTAL: \$50,000  
*Prin Invest* NASA Tech Officer CASE Category  
Watts, T. S. GSFC/Harper, E. L. 32-Geological Sci  
GSFC/Smith, D. E.

**NAS 5-25759** Columbia University 3169  
Next generation communication satellites: Multiple access and network studies  
*Period* *Obligations*  
07/09/79-09/08/80 FY80: TOTAL: \$69,493  
*Prin Invest* NASA Tech Officer CASE Category  
Stern, T. E. LERC/Leroy, B. 31-Atmos Sci  
Schwartz, M.

**NAGW 18** Columbia University 3164  
Reduction and analysis of stellar X-ray spectral and polarimetric data obtained with the Columbia University Orbiting Solar Observatory 8  
*Period* *Obligations*  
10/01/79-10/30/80 FY80: \$30,000 TOTAL: \$30,000  
*Prin Invest* NASA Tech Officer CASE Category  
Novick, R. HD-SC/Kaluzienski, L. J. 11-Astronomy  
HD-SC/Opp, A. G.

**NAS 5-25891** Columbia University 3170  
Analysis of intermediate wavelength anomalies over the oceans in magnetic fields monitor satellite and sea surface data  
*Period* *Obligations*  
02/01/80-05/31/81 FY80: \$81,329 TOTAL: \$81,329  
*Prin Invest* NASA Tech Officer CASE Category  
Labreque, J. GSFC/Oseroff, H. 31-Atmos Sci

**NAS 3-22464** Columbia University 3165  
Study contract for multiple access and network studies for next generation communications satellites  
*Period* *Obligations*  
08/15/80-08/14/81 FY80: \$88,769 TOTAL: \$88,769  
*Prin Invest* NASA Tech Officer CASE Category  
Meadows, H. LERC/Leroy, B. 45-Elec Engr  
Schwarz, M.

**NAS 5-26041** Columbia University 3171  
Generate an investigation development plan and establish the preliminary interfaces between the space transportation system/Spacelab and instrument for the wide-band germanium X-ray spectrometer  
*Period* *Obligations*  
02/15/80-12/31/80 FY80: \$119,317 TOTAL: \$119,317  
*Prin Invest* NASA Tech Officer CASE Category  
Novick, R. GSFC/Underwood, C. 11-Astronomy

**NAS 5-24152** Columbia University 3166  
Data reduction and analysis of graphite crystal X-ray spectrometer OSO-1  
*Period* *Obligations*  
10/01/77-06/30/80 FY80: TOTAL: \$355,351  
*Prin Invest* NASA Tech Officer CASE Category  
Novick, R. GSFC/Gemmell, J. D. 11-Astronomy  
GSFC/Kupperian, J. E., Jr.

**NAS 8-30753** Columbia University 3172  
Design, development and operation of the HEAO mission B X-ray telescope experiment  
*Period* *Obligations*  
06/01/74-09/30/81 FY80: \$238,000 TOTAL: \$616,451  
*Prin Invest* NASA Tech Officer CASE Category  
Novick, R. MSFC/Jones, J. B. 11-Astronomy

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**NAS 8-32212** Columbia University 3173  
Space vehicle control system  
Period Obligations  
09/01/76-10/31/79 FY80: TOTAL: \$20,054  
Prin Invest NASA Tech Officer CASE Category  
Likins, P. A. MSFC/Seltzer, S. M. 19-Phys Sci, NEC  
Longman, R. MSFC/Shelton, H. L.

**NAS 8-33085** Columbia University 3174  
A search for collapsed companions among selected OB stars  
Period Obligations  
06/23/78-02/22/79 FY80: TOTAL: \$7,000  
Prin Invest NASA Tech Officer CASE Category  
Novick, R. MSFC/Dailey, C. C. 11-Astronomy  
Helfand, D. J.

**NAS 8-33378** Columbia University 3175  
Acoustic and gravity waves in the neutral atmosphere and the ionosphere  
Period Obligations  
04/18/79-05/17/81 FY80: \$77,000 TOTAL: \$154,618  
Prin Invest NASA Tech Officer CASE Category  
Balachandran, N. K. MSFC/West, G. S. 31-Atmos Sci  
MSFC/Torkar, J. E.

**NCC 1-5** Columbia University 3176  
The influence of auditory inputs on simulated flight operations  
Period Obligations  
04/15/79-12/31/80 FY80: \$76,780 TOTAL: \$115,066  
Prin Invest NASA Tech Officer CASE Category  
Galanter, E. LARC/Harris, R. L., Sr. 41-Aero Engr

**NCC 5-3** Columbia University 3177  
Research of the relationship between gravity and bathymetry in the Pacific Ocean  
Period Obligations  
04/01/79-09/30/80 FY80: TOTAL: \$50,000  
Prin Invest NASA Tech Officer CASE Category  
Watts, A. B. GSFC/Smith, D. E. 32-Geological Sci  
McKenzie, D. P.

**NCC 5-16** Columbia University 3178  
Multidisciplinary research in space science  
Period Obligations  
05/15/79-06/30/81 FY80: \$511,000 TOTAL: \$835,506  
Prin Invest NASA Tech Officer CASE Category  
Broecker, W. S. GSFC/Thaddeus, P. 31-Atmos Sci  
Flynn G.

**NCC 5-20** Columbia University 3179  
Application of digital analysis of multi-spectral scanner to agro-environmental studies  
Period Obligations  
01/01/80-12/ 80 FY80: \$79,941 TOTAL: \$79,941  
Prin Invest NASA Tech Officer CASE Category  
Lewis, R. A. GSFC/Ungar, S. G. 32-Geological Sci  
Goward, S. N.

**NGR 33-008-102** Columbia University 3180  
Research in X-ray astronomy  
Period Obligations  
01/30/68-01/31/81 FY80: \$250,000 TOTAL: \$2,458,342  
Prin Invest NASA Tech Officer CASE Category  
Novick, R. GSFC/Guidotti, J. 11-Astronomy  
Long, K. S. HD-SC/Opp, A. G.  
Helfand, D. J.

**NGR 33-008-146** Columbia University 3181  
Study of strain buildup, release and earthquake prediction  
Period Obligations  
02/09/71-04/30/81 FY80: \$90,056 TOTAL: \$645,542  
Prin Invest NASA Tech Officer CASE Category  
Johnson, T. L. GSFC/Smith, D. E. 19-Phys Sci, NEC  
Scholz, C. H.  
Bilham, R. G.

**NSG 1450** Columbia University 3182  
Aircraft cabin noise, prediction and optimization  
Period Obligations  
09/06/77-01/05/81 FY80: TOTAL: \$160,712  
Prin Invest NASA Tech Officer CASE Category  
Vaicaitis, R. LARC/Mixson, J. S. 41-Aero Engr  
LARC/Stephens, D. G.

**NSG 1550** Columbia University 3183  
Time-of-day effects on the numerical representation of community response to noise  
Period Obligations  
07/01/78-06/30/81 FY80: \$70,752 TOTAL: \$169,142  
Prin Invest NASA Tech Officer CASE Category  
Galanter, E. LARC/Stephens, D. G. 49-Engr, NEC  
LARC/Cievenson, S. A.

**NSG 5072** Columbia University 3184  
Surface deformation and elasticity studies  
Period Obligations  
08/01/75-01/31/79 FY80: TOTAL: \$97,766  
Prin Invest NASA Tech Officer CASE Category  
Bilham, R. G. GSFC/Allenby, R. J. 32-Geological Sci  
GSFC/Mead, G. D.

**NSG 5080** Columbia University 3185  
Application of LANDSAT data to agricultural resource problems  
Period Obligations  
08/15/75-12/31/79 FY80: \$59 TOTAL: \$304,473  
Prin Invest NASA Tech Officer CASE Category  
High, C. J. GSFC/Ungar, S. G. 32-Geological Sci  
Goward, S. N.

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**NSG 5163** Columbia University 3186  
Multidisciplinary research in the space studies  
Period Obligations  
03/01/77-09/30/79 FY80: TOTAL: \$928,435  
Prin Invest NASA Tech Officer CASE Category  
Happner, W. GSFC/Thaddeus, P. 11-Astronomy  
Broecker, W. S. GSFC/Hansen, J. E.

**NSG 5194** Columbia University 3187  
Simultaneous X-ray photometric and polarimetric observations  
of the cygnus field  
Period Obligations  
08/01/77-01/31/79 FY80: TOTAL: \$7,000  
Prin Invest NASA Tech Officer CASE Category  
Novick, R. GSFC/Kupperian, J. E., Jr. 11-Astronomy

**NSG 5222** Columbia University 3188  
Remote spectral analysis of mineral induced plant stress using  
airborne techniques  
Period Obligations  
01/16/78-07/15/79 FY80: TOTAL: \$55,332  
Prin Invest NASA Tech Officer CASE Category  
Kuo, J. T. GSFC/Labovitz, M. 32-Geological Sci  
Collins, W. E. GSFC/Schnetzler, C. C.

**NSG 5273** Columbia University 3189  
Application of GEOS-3 altimeter data to solution of problems  
in Earth dynamics  
Period Obligations  
07/01/78-06/30/79 FY80: TOTAL: \$50,000  
Prin Invest NASA Tech Officer CASE Category  
Talwan, M. GSFC/Smith, D. F. 32-Geological Sci  
Watts, A. B.

**NSG 7105** Columbia University 3190  
Calculation of collision cross sections of astrophysical interest  
Period Obligations  
12/01/74-11/30/80 FY80: \$35,000 TOTAL: \$213,000  
Prin Invest NASA Tech Officer CASE Category  
Flynn, G. HD-SC/Doggett, N. W. 11-Astronomy  
Bernstein, R. B. HD-SC/Roman, N. G.

**NSG 7194** Columbia University 3191  
A critical study of constraints imposed by existing observational  
data  
Period Obligations  
02/01/76-01/31/79 FY80: TOTAL: \$93,855  
Prin Invest NASA Tech Officer CASE Category  
Keilm, S. J. HD-SL/Quaide, W. L. 32-Geological Sci  
HD-SL/French, B. E.

**NSG 7434** Columbia University 3192  
Phase stability and elastic wave velocity determinations for  
stoichiometric FeS  
Period Obligations  
02/01/78-01/31/80 FY80: TOTAL: \$63,123  
Prin Invest NASA Tech Officer CASE Category  
Takahashi, T. HD-SL/Quaide, W. L. 32-Geological Sci  
HD-SL/French, B. E.

**NSG 7466** Columbia University 3193  
Petrogenesis of chondrules and chondrites  
Period Obligations  
05/01/78-03/31/80 FY80: TOTAL: \$100,445  
Prin Invest NASA Tech Officer CASE Category  
Zindler, A. HD-SL/French, B. M. 32-Geological Sci

**NAG 1-18** Cooper Union College 3194  
A comprehensive model to determine the effects of temperature  
and species fluctuations on reaction rates in turbulent reacting  
flows  
Period Obligations  
02/01/79-01/31/81 FY80: \$19,889 TOTAL: \$19,889  
Prin Invest NASA Tech Officer CASE Category  
Chintz, W. LARC/Evans, J. S. 21-Mathematics  
LARC/Beach, H. L.

**NAG 1-83** Cornell University 3195  
Graphoepitaxy of gallium-arsenic (GaAs)  
Period Obligations  
07/01/80-06/30/81 FY80: \$47,466 TOTAL: \$47,466  
Prin Invest NASA Tech Officer CASE Category  
Ballantyne, J. M. LARC/Conway, E. J. 45-Elec Engr  
Wagner, D. K. LARC/Walker, G. H.

**NAG 2-13** Cornell University 3196  
Analysis of transonic flow past helicopter rotors  
Period Obligations  
01/01/80-10/31/80 FY80: \$10,500 TOTAL: \$10,500  
Prin Invest NASA Tech Officer CASE Category  
Caughy, D. A. ARC/Tauber, M. E. 41-Aero Engr

**NAG 3-19** Cornell University 3197  
Analysis of rotational, transonic flows in turbomachinery  
Period Obligations  
01/01/80-12/31/80 FY80: \$53,080 TOTAL: \$53,080  
Prin Invest NASA Tech Officer CASE Category  
Caughy, D. A. LERC/Johnson, G. M. 41-Aero Engr

**NAG 3-104** Cornell University 3198  
Analysis of wind energy systems  
Period Obligations  
09/22/80-09/21/81 FY80: \$34,310 TOTAL: \$34,310  
Prin Invest NASA Tech Officer CASE Category  
Thomas, R. J. LERC/Gilbert, L. J. 45-Elec Engr



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**NAG 5-39** **Cornell University** **3199**  
Finite element research of the surface strain field adjacent to the San Andreas fault  
*Period* *Obligations*  
04/01/80-03/31/81 **FY80: \$28,000** **TOTAL: \$28,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Turcotte, D. L. GSFC/Holweck, E. C. 32-Geological Sci  
Kulhawy, F. H. GSFC/Cohen, S. C.

**NCA 2-175001** **Cornell University** **3205**  
The motion of circumplanetary particles: The origin and evolution of planetary rings, and possible dust coatings of regular satellites  
*Period* *Obligations*  
02/01/80-01/31/81 **FY80: \$6,545** **TOTAL: \$6,545**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Burns, J. A. ARC/Pollack, J. B. 31-Atmos Sci

**NAG 5-40** **Cornell University** **3200**  
Research of precise leveling space geodesy and geodynamics  
*Period* *Obligations*  
04/01/80-03/31/81 **FY80: \$40,000** **TOTAL: \$40,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Oliver, J. GSFC/Harper, E. L. 32-Geological Sci  
Brown, L. D. GSFC/Allenby, R. J.

**NCA 2-175002** **Cornell University** **3206**  
A study of the performance of stressed photoconductor detectors for far infrared astronomy  
*Period* *Obligations*  
07/01/80-12/31/80 **FY80: \$8,007** **TOTAL: \$8,007**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Harwit, M. ARC/Erickson, E. F. 11-Astronomy  
Russell, R. W.

**NAGW 3** **Cornell University** **3201**  
The amyloplast as a gravity sensing device in plants  
*Period* *Obligations*  
10/01/79-09/30/80 **FY80: \$51,900** **TOTAL: \$51,900**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Leopold, A. C. HD-SB/Halstead, T. W. 51-Biological Sci

**NCC 2-79** **Cornell University** **3207**  
Prototype GE: GA detectors for a cooled grating spectrometer  
*Period* *Obligations*  
05/01/80-12/31/80 **FY80: \$24,500** **TOTAL: \$24,500**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Houck, J. R. ARC/Lum, H. 11-Astronomy  
Briotta, D.

**NAGW 90** **Cornell University** **3202**  
Theoretical studies of plasma convection and magnetic field reconnection in the Sun and in the Earth's magnetosphere  
*Period* *Obligations*  
06/01/80-05/31/81 **FY80: \$152,000** **TOTAL: \$152,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Sudan, R. N. HD-ST/Birmingham, T. J. 13-Physics  
HD-ST/Newton, G. P.

**NCC 5-2** **Cornell University** **3208**  
Finite element research of the surface field adjacent to the San Andreas fault  
*Period* *Obligations*  
04/01/79-03/31/80 **FY80:** **TOTAL: \$31,899**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Turcotte, D. L. GSFC/Cohen, S. C. 11-Astronomy  
Kulhawy, F. H.

**NAS 5-23236** **Cornell University** **3203**  
Feasibility study for infrared interferometer, spectrometer, and radiometer for Mariner/Jupiter 1977 launch  
*Period* *Obligations*  
05/01/73-10/31/81 **FY80: \$17,000** **TOTAL: \$78,300**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Gierasch, P. J. GSFC/Conrath, B. J. 13-Physics  
GSFC/Hanel, R. A.

**NCC 5-4** **Cornell University** **3209**  
Research of precise leveling, space geodesy and geodynamics  
*Period* *Obligations*  
04/01/79-03/31/80 **FY80:** **TOTAL: \$60,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Oliver, J. GSFC/Allenby, R. J. 32-Geological Sci  
Brown, L. D.

**NASW 3342** **Cornell University** **3204**  
Set up a computer system for the Spacecraft Planetary Imaging Facility at Cornell  
*Period* *Obligations*  
10/01/79-10/30/80 **FY80: \$86,000** **TOTAL: \$86,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Veverka, J. HD-SL/Boyce, J. M. 32-Geological Sci  
HD-SL/Quaide, W. L.

**NGL 33-010-082** **Cornell University** **3210**  
The study of lunar and planetary surfaces and atmospheres  
*Period* *Obligations*  
09/23/68-10/31/80 **FY80: \$39,700** **TOTAL: \$770,918**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Sagan, C. E. HD-SL/Murphy, R. E. 31-Atmos Sci

**NGL 33-010-171** **Cornell University** **3211**  
A program in remote sensing  
*Period* *Obligations*  
02/14/72-05/01/83 **FY80: \$100,000** **TOTAL: \$1,000,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Liang, T. HD-ET/Vitale, J. A. 39-Env Sci, NEC

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**NGL 33-010-186** Cornell University 3212  
Studies of thermal structure and motion of planetary atmospheres  
*Period* *Obligations*  
04/18/73-06/14/81 FY80: \$50,283 TOTAL: \$317,792  
*Prin Invest* NASA Tech Officer CASE Category  
Gierasch, P. J. HD-SL/Murphy, R. E. 31-Atmos Sci  
HD-SL/Brunk, W. E.

**NGR 33-010-081** Cornell University 3213  
2 to 4 micron spectroscopy of Mars  
*Period* *Obligations*  
03/01/73-10/31/80 FY80: \$98,180 TOTAL: \$476,767  
*Prin Invest* NASA Tech Officer CASE Category  
Houck, J. R. ARC/Haughney, L. C. 11-Astronomy  
Forrest, W. J. ARC/Gillespie, C. M.  
Pollack, J. B.

**NGR 33-010-101** Cornell University 3214  
An integrated program in exobiology and problems related to origin of life  
*Period* *Obligations*  
10/09/69-10/01/80 FY80: \$90,000 TOTAL: \$869,945  
*Prin Invest* NASA Tech Officer CASE Category  
Sagan, C. E. HD-SB/Devincenzi, D. L. 12-Chemistry  
Khare, B. N.

**NGR 33-010-108** Cornell University 3215  
Implications of convection within the Moon  
*Period* *Obligations*  
05/18/70-01/31/81 FY80: \$30,346 TOTAL: \$229,566  
*Prin Invest* NASA Tech Officer CASE Category  
Turcotte, D. L. HD-SL/Quaide, W. L. 32-Geological Sci  
HD-SL/French, B. E.

**NGR 33-010-146** Cornell University 3216  
Submillimeter astronomical spectrometry from aircraft  
*Period* *Obligations*  
02/16/72-10/31/80 FY80: \$52,000 TOTAL: \$294,714  
*Prin Invest* NASA Tech Officer CASE Category  
Harwit, M. ARC/Mason, R. H. 11-Astronomy  
ARC/Haughney, L. C.

**NGR 33-010-161** Cornell University 3217  
Studies of the magnetospheres of Earth and Jupiter  
*Period* *Obligations*  
01/18/72-06/30/80 FY80: \$72,000 TOTAL: \$359,790  
*Prin Invest* NASA Tech Officer CASE Category  
Farley, D. T. HD-ST/Hedin, A. E. 13-Physics  
HD-ST/Schmerling, E. R.

**NGR 33-010-182** Cornell University 3218  
16 to 40 micron spectroscopy of Jupiter  
*Period* *Obligations*  
12/20/72-10/31/80 FY80: TOTAL: \$245,084  
*Prin Invest* NASA Tech Officer CASE Category  
Houck, J. R. ARC/Cameron, R. M. 11-Astronomy  
Forrest, W. J. ARC/Mason, R. H.  
Pollack, J. B.

**NGR 33-010-220** Cornell University 3219  
Interdisciplinary investigations of Mariner 9 data  
*Period* *Obligations*  
12/05/73-09/30/80 FY80: \$40,000 TOTAL: \$347,791  
*Prin Invest* NASA Tech Officer CASE Category  
Sagan, C. E. HD-SL/Boyce, J. M. 32-Geological Sci

**NSG 1642** Cornell University 3220  
Devices for integrated electro-optic circuits  
*Period* *Obligations*  
07/15/79-07/14/81 FY80: \$49,965 TOTAL: \$99,500  
*Prin Invest* NASA Tech Officer CASE Category  
Frey, J. LARC/Hendricks, H. D. 45-Elec Engr

**NSG 1651** Cornell University 3221  
Holographic fabrication of gratings in metal substrates  
*Period* *Obligations*  
08/15/79-10/31/80 FY80: \$11,592 TOTAL: \$67,567  
*Prin Invest* NASA Tech Officer CASE Category  
Ballantyne, J. M. LARC/Conway, E. J. 45-Elec Engr  
Wagner, D. K. LARC/Walker, G. H.

**NSG 2347** Cornell University 3222  
Far infrared spectral line observations from the G. P. Kuiper Airborne Observatory  
*Period* *Obligations*  
10/01/78-10/31/80 FY80: \$104,000 TOTAL: \$194,500  
*Prin Invest* NASA Tech Officer CASE Category  
Harwit, M. ARC/Haughney, L. C. 11-Astronomy  
Russell, R. W. ARC/Gillespie, C. M.

**NSG 2382** Cornell University 3223  
A study to assess the potential for using long chain polymers dissolved in water to study turbulence  
*Period* *Obligations*  
06/01/79-05/31/81 FY80: \$40,000 TOTAL: \$65,000  
*Prin Invest* NASA Tech Officer CASE Category  
Lumley, J. L. ARC/Chapman, G. T. 41-Aero Engr

**NSG 2389** Cornell University 3224  
An evaluation of metal oxide semiconductor field effect transistor and metal semiconductor field effect transistor devices as preamplifiers at liquid helium temperatures  
*Period* *Obligations*  
06/01/79-05/31/81 FY80: \$32,680 TOTAL: \$62,431  
*Prin Invest* NASA Tech Officer CASE Category  
Lee, C. A. ARC/McCreight, C. R. 45-Elec Engr  
Houck, J. R. ARC/Goebel, J. H.

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**NSG 2408** **Cornell University** **3225**  
Aerobic biological waste treatment for closed ecological life support systems  
*Period* *Obligations*  
09/15/79-01/14/81 **FY80: \$80,000** **TOTAL: \$95,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Shuler, M. L. ARC/Wydeven, T. 39-Env Sci, NEC

**NSG 2412** **Cornell University** **3226**  
Molecular spectroscopy from the Kuiper Airborne Observatory  
*Period* *Obligations*  
10/01/79-10/31/80 **FY80: \$52,640** **TOTAL: \$52,640**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Beckwith, S. ARC/Haughney, L. C. 11-Astronomy  
Russell, R. W. ARC/Gillespie, C. M.

**NSG 3019** **Cornell University** **3227**  
Flow processes in combustors  
*Period* *Obligations*  
07/01/74-07/31/81 **FY80:** **TOTAL: \$456,102**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Gouldin, F. C. LERC/Marek, C. J. 41-Aero Engr  
Leibovich, S. LERC/Diehl, L. A.  
McLean, W. J.

**NSG 5060** **Cornell University** **3228**  
Comparison between calculated gravity anomalies for dynamic processes in the mantle and observations  
*Period* *Obligations*  
04/01/75-09/30/79 **FY80:** **TOTAL: \$110,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Turcotte, D. L. GSFC/Cohen, S. C. 32-Geological Sci

**NSG 6020** **Cornell University** **3229**  
Rocket investigation of neutral atmosphere ionosphere coupling and planetary electrodynamics  
*Period* *Obligations*  
03/01/78-09/30/80 **FY80: \$50,545** **TOTAL: \$158,568**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Kelley, M. C. WFC/Gray, J. W. 19-Phys Sci, NEC  
Henize, K. G. WFC/Pless, R. H.

**NSG 7126** **Cornell University** **3230**  
High spatial resolution multicolor observation of Neptune during occultation by the Moon  
*Period* *Obligations*  
01/01/75-03/31/79 **FY80:** **TOTAL: \$108,391**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Veverka, J. HD-SL/Brunk, W. E. 11-Astronomy  
HD-SL/Quaide, W. L.

**NSG 7156** **Cornell University** **3231**  
Physical studies of planetary surfaces  
*Period* *Obligations*  
07/01/75-09/30/81 **FY80: \$45,400** **TOTAL: \$186,631**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Veverka, J. HD-SL/Boyce, J. M. 32-Geological Sci  
HD-SL/Quaide, W. L.

**NSG 7235** **Cornell University** **3232**  
Light-induced amino acid transport by envelope vesicles of halobacterium halobium cells  
*Period* *Obligations*  
03/01/76-01/31/80 **FY80:** **TOTAL: \$100,500**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
MacDonald, R. E. HD-SB/Young, R. S. 51-Biological Sci

**NSG 7324** **Cornell University** **3233**  
Bolometer system  
*Period* *Obligations*  
04/01/77-11/01/80 **FY80: \$35,000** **TOTAL: \$93,270**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Houck, J. R. HD-SC/Bogges, N. W. 11-Astronomy

**NSG 7445** **Cornell University** **3234**  
Consequences of past lunar tides, heating surface processes and orbital evolution  
*Period* *Obligations*  
04/01/78-04/30/80 **FY80:** **TOTAL: \$48,863**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Burns, J. A. HD-SL/Quaide, W. L. 31-Atmos Sci  
HD-SL/French, B. M.

**NSG 7487** **Cornell University** **3235**  
Astrophysical materials science theory  
*Period* *Obligations*  
10/01/78-10/29/81 **FY80: \$65,000** **TOTAL: \$130,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Ashcroft, N. W. LERC/Brown, G. V. 13-Physics

**NSG 7488** **Cornell University** **3236**  
Research on ultrahigh pressure materials science  
*Period* *Obligations*  
10/01/78-10/29/80 **FY80: \$200,000** **TOTAL: \$400,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Ruoff, A. L. LERC/Goldstein, M. E. 47-Materials Engr

**NSG 7498** **Cornell University** **3237**  
Establish and operate a Spacecraft Planetary Imagery Facility (SPIF) at Cornell  
*Period* *Obligations*  
10/01/78-09/30/80 **FY80: \$68,030** **TOTAL: \$153,277**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Veverka, J. HD-SL/Boyce, J. M. 32-Geological Sci  
HD-SL/Quaide, W. L.

**NSG 7529** **Cornell University** **3238**  
Phylogeny of photosynthetic bacteria  
*Period* *Obligations*  
02/01/79-03/31/81 **FY80: \$8,756** **TOTAL: \$18,119**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Gibson, J. HD-SB/Devincenzi, D. L. 51-Biological Sci

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<b>NSG 7546</b>	<b>Cornell University</b>	<b>3239</b>
Participation in the Mars data analysis program: Global and regional studies of wind-indicators on the surface of Mars		
<i>Period</i>	<i>Obligations</i>	
04/01/79-09/30/80	FY80: \$59,700	TOTAL: \$89,700
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Veverka, J.	HD-SL/Boyce, J. M.	32-Geological Sci
	HD-SL/Quaide, W. L.	
<b>NSG 7547</b>	<b>Cornell University</b>	<b>3240</b>
Participation in the Mars data analysis comparative study of the surface of phobos and deimos		
<i>Period</i>	<i>Obligations</i>	
03/01/79-09/30/80	FY80: \$39,300	TOTAL: \$64,300
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Veverka, J.	HD-SL/Boyce, J. M.	32-Geological Sci
	HD-SL/Quaide, W. L.	
<b>NSG 7593</b>	<b>Cornell University</b>	<b>3241</b>
Dynamical studies of phobos and deimos		
<i>Period</i>	<i>Obligations</i>	
03/01/79-09/30/80	FY80:	TOTAL: \$20,452
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Burns, J. A.	HD-SL/Quaide, W. L.	32-Geological Sci
<b>NSG 7606</b>	<b>Cornell University</b>	<b>3242</b>
Effects of photometric geometry on spectral reflectance measurements		
<i>Period</i>	<i>Obligations</i>	
05/01/79-03/31/81	FY80 \$45,900	TOTAL \$88,110
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Veverka, J.	HD-SL/Quaide, W. L.	32 Geological Sci
	HD-SL/French, B. M.	
<b>NSG 7612</b>	<b>Cornell University</b>	<b>3243</b>
Participation in the Mars data analysis program. Analysis of cloud forms in Viking and Mariner 9 images		
<i>Period</i>	<i>Obligations</i>	
04/01/79-10/30/81	FY80: \$38,870	TOTAL \$58,870
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Gierasch, P. J.	HD-SL/Murphy, R. E.	31-Atmos Sci
	HD-SL/Brunk, W. E.	
<b>NSG 2259</b>	<b>Cornell University - Medical Center</b>	<b>3244</b>
Central neural and neurochemical mechanisms subserving postural cardiovascular changes		
<i>Period</i>	<i>Obligations</i>	
10/01/77-10/31/80	FY80:	TOTAL: \$150,000
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Reis, D. J.	ARC/Sandler, H.	59-Life Sci, NEC
<b>NGR 33-209-002</b>	<b>Hofstra University</b>	<b>3245</b>
Radar studies and application of measurements of ocean wave height and directional spectrum		
<i>Period</i>	<i>Obligations</i>	
03/28/72-01/31/81	FY80: \$31,851	TOTAL: \$186,462
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Weissman, W. E.	LARC/Johnson, J. W.	45-Elec Engr
	LARC/Jones, W. L.	
<b>NSG 5325</b>	<b>Hunter College</b>	<b>3246</b>
Monitoring tropical vegetation succession with LANDSAT data		
<i>Period</i>	<i>Obligations</i>	
02/01/79-12/31/80	FY80: \$10,000	TOTAL: \$20,727
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Coiner, J. C.	GSFC/Unger, S. G.	32-Geological Sci
<b>NAG 5-73</b>	<b>New York University</b>	<b>3247</b>
Multifrequency observations of selected extragalactic sources		
<i>Period</i>	<i>Obligations</i>	
06/01/80-05/31/81	FY80: \$12,000	TOTAL: \$12,000
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Glassgold, A. E.	GSFC/Bogges, A.	11-Astronomy
	Bregman, J. N.	
	Huggins, P. I.	
<b>NAG 8-337</b>	<b>New York University</b>	<b>3248</b>
Gaseous coronae of galaxies and red quasi stellar objects		
<i>Period</i>	<i>Obligations</i>	
03/01/80-02/28/81	FY80: \$11,000	TOTAL: \$11,000
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Glassgold, A. E.	MSFC/Jones, J. B.	11-Astronomy
<b>NAG 8-343</b>	<b>New York University</b>	<b>3249</b>
Supernova-like quasars		
<i>Period</i>	<i>Obligations</i>	
03/01/80-02/28/81	FY80: \$4,500	TOTAL: \$4,500
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Huggins, P. J.	MSFC/Jones, J. B.	11-Astronomy
<b>NAG 8-358</b>	<b>New York University</b>	<b>3250</b>
The galactic supernova remnant S147		
<i>Period</i>	<i>Obligations</i>	
07/01/80-06/30/81	FY80: \$5,300	TOTAL: \$5,300
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Glassgold, A. E.	MSFC/Swearingen, J. C.	11-Astronomy
<b>NAS 8-33099</b>	<b>New York University</b>	<b>3251</b>
Electrophoresis separation (77-E)		
<i>Period</i>	<i>Obligations</i>	
08/21/78-05/05/79	FY80:	TOTAL: \$5,354
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Johnson, A. J.	MSFC/Reeves, F. A.	59-Life Sci, NEC
	MSFC/Snyder, K. S.	

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**NCA 2-525001** New York University **3252**  
Random choice methods and corresponding one-sided schemes  
for hyperbolic conservation laws  
*Period* *Obligations*  
06/15/80-09/30/80 FY80: \$14,531 TOTAL: \$14,531  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Harten, A. ARC/Warming, R. F. 21-Mathematics

**NGR 33-016-131** New York University **3253**  
Hypersonic engine airplane integration  
*Period* *Obligations*  
02/27/68-09/30/80 FY80: \$14,922 TOTAL: \$1,290,400  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Agnone, A. M. LARC/Anderson, G. Y. 41-Aero Engr  
LARC/Rogers, R. C.

**NGR 33-016-196** New York University **3254**  
Physical properties of molecular clouds  
*Period* *Obligations*  
09/01/73-05/31/81 FY80: \$61,177 TOTAL: \$229,823  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Glassgold, A. E. HD-SC/Weiler, E. J. 13-Physics  
HD-SC/Roman, N. G.

**NGR 33-016-201** New York University **3255**  
Study of transonic flow over yawed wings  
*Period* *Obligations*  
05/29/73-09/30/81 FY80: \$98,535 TOTAL: \$401,662  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Garabedian, P. R. ARC/Hicks, R. M. 41-Aero Engr

**NGT 33-016-800** New York University **3256**  
Graduate student training program in computational fluid  
dynamics  
*Period* *Obligations*  
07/01/80-12/31/80 FY80: \$75,000 TOTAL: \$75,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Garabedian, P. R. HD-RT/Graves, R. A. 41-Aero Engr

**NSG 1444** New York University **3257**  
An experimental and analytical investigation of the aerodynamics  
of a hypersonic vehicle  
*Period* *Obligations*  
08/01/77-11/30/80 FY80: TOTAL: \$227,987  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Zakkay, V. LARC/Edwards, C. L. 41-Aero Engr  
Wang, C. R. LARC/Johnson, P. J.

**NSG 1576** New York University **3258**  
Nonlinear wave propagation and super boom analysis  
*Period* *Obligations*  
11/15/78-08/31/80 FY80: TOTAL: \$35,750  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Ting, L. LARC/Darden, C. M. 13-Physics  
LARC/Carlson, H. W.

**NSG 1579** New York University **3259**  
Computational fluid dynamics on the star  
*Period* *Obligations*  
12/01/78-11/30/80 FY80: \$150,000 TOTAL: \$300,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Garabedian, P. R. LARC/South, J. C., Jr. 21-Mathematics

**NSG 1610** New York University **3260**  
Definition and implementation of a compatible family of high  
level languages for coordination and control of concurrent and  
distributed processes in imbedded avionics and space ap-  
plications  
*Period* *Obligations*  
04/15/79-08/31/80 FY80: TOTAL: \$48,250  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Schwartz, J. T. LARC/Knight, J. C. 21-Mathematics  
LARC/Harris, J. L.

**NSG 3059** New York University **3261**  
Analysis of experiments on hydrodynamics instability in the  
absence of gravity  
*Period* *Obligations*  
06/01/75-08/30/81 FY80: \$2,000 TOTAL: \$63,614  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Ting, L. LERC/Labus, T. L. 49-Engr, NEC

**NSG 5034** New York University **3262**  
Research program in climatology and meteorology  
*Period* *Obligations*  
01/01/75-08/31/81 FY80: \$140,000 TOTAL: \$563,113  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Schwartz, J. T. GSFC/Halem, M. 31-Atmos Sci

**NSG 5130** New York University **3263**  
Short term numerical weather prediction and very long term  
climate modeling  
*Period* *Obligations*  
10/01/76-10/31/82 FY80: \$55,500 TOTAL: \$225,812  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Isaacson, E. GSFC/Halem, M. 31-Atmos Sci  
Ghil, M.

**NSG 5411** New York University **3264**  
Multifrequency observations of selected galaxies and extragalactic  
sources  
*Period* *Obligations*  
10/01/79-09/30/80 FY80: \$5,000 TOTAL: \$5,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Huggins, P. J. GSFC/Boggess, A. 11-Astronomy

**NSG 7591** New York University **3265**  
Modeling the Viking boundary layer and soil thermal measure-  
ments on Mars  
*Period* *Obligations*  
03/01/79-02/28/80 FY80: TOTAL: \$15,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Hoffert, M. I. HD-SL/Murphy, R. E. 31-Atmos Sci  
HD-SL/Brunk, W. E.

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**NSG 7636**                      **New York University**                      **3266**  
To conduct research on the effectiveness of government sponsored  
civilian research and development

<i>Period</i>	<i>Obligations</i>	
07/01/79-05/30/81	FY80: TOTAL: \$168,524	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Fusfeld, H. I.	HD-ET/Roberson, F.	99-Multi-Discip
Nelson, R. R.	HD-ET/Ault, L. A.	

**NSG 7321**                      **Queens College**                      **3273**  
Phase stability and elastic wave velocity determinations for  
stoichiometric FeS

<i>Period</i>	<i>Obligations</i>	
02/01/77-11/30/78	FY80: TOTAL: \$118,823	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Takahashi, T.	HD-SL/Quaide, W. L.	32-Geological Sci

**NAGW 51**                      **Polytechnic Institute of New York**                      **3267**  
Investigate traveling ionospheric disturbances in Earth's iono-  
sphere by analysis of satellite to satellite differential Doppler  
data available from the 1975 Apollo-Soyuz test project

<i>Period</i>	<i>Obligations</i>	
08/01/80-07/31/81	FY80: \$26,000      TOTAL: \$26,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Gross, S. H.	HD-ST/Hedin, A. E.	13-Physics
	HD-ST/Schmerling, E. R.	

**NAG 4-2**                      **Queensborough Community College**                      **3274**  
The feasibility of performing in-flight measurements of air flow  
transition and boundary layers using a hot wire anemometry  
system

<i>Period</i>	<i>Obligations</i>	
02/05/80-02/04/81	FY80: \$29,714      TOTAL: \$29,714	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kousourou, G.	DFRC/Bouge, R. K.	41-Aero Engr
	DFRC/Bennett, D. L.	

**NCC 2-87**                      **Polytechnic Institute of New York**                      **3268**  
The nonlinear potential equation and its conversion to a  
Williams-Hawkins integral equation

<i>Period</i>	<i>Obligations</i>	
07/01/80-01/31/81	FY80: \$24,505      TOTAL: \$24,505	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ison, M. P.	ARC/Smith, F. H.	41-Aero Engr
	ARC/Yu, Y. H.	

**NCA 2-625902**                      **Queensborough Community College**                      **3275**  
Analysis of interaction of age, sex, and bed rest deconditioning  
on cardiovascular parameters and predictive indices

<i>Period</i>	<i>Obligations</i>	
01/01/79-12/31/80	FY80: \$18,426      TOTAL: \$36,852	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Yuster, R.	ARC/Goldwater, D.	56-Medical Sciences
	ARC/Sandler, H.	

**NSR 33-006-070**                      **Polytechnic Institute of New York**                      **3269**  
Synthesis of polypeptides, sugar phosphates and polynucleotides  
from intermediates under simulated conditions

<i>Period</i>	<i>Obligations</i>	
04/26/73-06/14/80	FY80: \$5,791      TOTAL: \$325,694	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Eirich, F. R.	HD-SB/Devincenzi, D. L.	12-Chemistry

**NAG 1-61**                      **Rensselaer Polytechnic Institute**                      **3276**  
Data acquisition and analysis of range-finding system for space  
construction

<i>Period</i>	<i>Obligations</i>	
05/01/80-04/30/81	FY80: \$60,000      TOTAL: \$60,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Shen, C. N.	LARC/Pennington, J. E.	21-Mathematics

**NSG 1248**                      **Polytechnic Institute of New York**                      **3270**  
Calculation of supersonic flow past aircraft with shocks

<i>Period</i>	<i>Obligations</i>	
10/01/75-10/31/80	FY80: \$60,016      TOTAL: \$278,007	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Moretti, G.	LARC/Salas, M. D.	41-Aero Engr

**NAG 3-22**                      **Rensselaer Polytechnic Institute**                      **3277**  
Creep-fatigue interactions in nickel base superalloys

<i>Period</i>	<i>Obligations</i>	
01/01/80-12/31/80	FY80: \$30,000      TOTAL: \$30,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Duquette, D. J.	LERC/Miner, R. V.	47-Materials Engr
Stoloff, N. S.		

**NSG 2147**                      **Polytechnic Institute of New York**                      **3271**  
Exploratory synthesis of new fire safe polymeric materials

<i>Period</i>	<i>Obligations</i>	
05/01/76-05/31/81	FY80: \$23,000      TOTAL: \$259,588	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Pearce, E. M.	ARC/Fohlen, G. M.	12-Chemistry
	ARC/Parker, J. A.	

**NAG 3-37**                      **Rensselaer Polytechnic Institute**                      **3278**  
Proposal structural dynamics studies for fan/turbine design

<i>Period</i>	<i>Obligations</i>	
03/03/80-03/02/81	FY80: \$50,000      TOTAL: \$50,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Loewy, R. G.	LERC/Kiraly, L. J.	46-Mech Engr
	LERC/Johns, R. H.	

**NSG 5284**                      **Polytechnic Institute of New York**                      **3272**  
A morphological study of waves in the thermosphere

<i>Period</i>	<i>Obligations</i>	
07/01/78-12/31/80	FY80: TOTAL: \$47,652	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Gross, S. H.	GSFC/Spencer, N. W.	31-Atmos Sci
Reber, C. A.		

**NASA'S UNIVERSITY PROGRAM  
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**NAS 8-26146** Rensselaer Polytechnic Institute 3279  
Growth of single crystals by vapor transport in zero gravity environment  
*Period* *Obligations*  
06/04/70-10/06/78 FY80: TOTAL: \$261,998  
*Prin Invest* NASA Tech Officer CASE Category  
Wiedmann, H MSFC/Davidson, M. C.  
MSFC/Thomas, P. E. 47-Materials Engr

**NAS 8-33562** Rensselaer Polytechnic Institute 3285  
Data analysis and modeling of ultra violet spectrometer and polarimeter, experiment and other related experiments for solar maximum mission  
*Period* *Obligations*  
02/08/80-02/07/83 FY80: \$98,000 TOTAL: \$98,000  
*Prin Invest* NASA Tech Officer CASE Category  
Wu, S. T. MSFC/Yates, I. C. 31-Atmos Sci  
MSFC/Zwierer, J. M.

**NAS 8-32425** Rensselaer Polytechnic Institute 3280  
Dendritic solidification at small supercooling  
*Period* *Obligations*  
03/01/77-03/31/81 FY80: \$75,390 TOTAL: \$195,290  
*Prin Invest* NASA Tech Officer CASE Category  
Glicksman, M. E. MSFC/Bannister, T. C.  
MSFC/Lacy, L. L. 47-Materials Engr

**NAS 9-16053** Rensselaer Polytechnic Institute 3286  
Solar power satellite flexible system control assessment analysis  
*Period* *Obligations*  
01/15/80-02/01/81 FY80: \$45,000 TOTAL: \$45,000  
*Prin Invest* NASA Tech Officer CASE Category  
Balas, M. J. JSC/Reid, R. C. 42-Astro Engr

**NAS 8-32639** Rensselaer Polytechnic Institute 3281  
Space processing crystal growth from the vapor phase  
*Period* *Obligations*  
09/20/77-12/31/78 FY80: TOTAL: \$27,546  
*Prin Invest* NASA Tech Officer CASE Category  
Wiedemeier, H. MSFC/Davidson, M. C.  
MSFC/Thomas, P. E. 19-Phys Sci, NEC

**NAS 8-32699** Rensselaer Polytechnic Institute 3282  
Solidification processes involving solutes  
*Period* *Obligations*  
07/24/78-10/31/80 FY80: \$21,000 TOTAL: \$82,000  
*Prin Invest* NASA Tech Officer CASE Category  
Glicksman, M. E. MSFC/Bannister, T. C. 12-Chemistry  
MSFC/Lacy, L. L.

**NAS 8-32936** Rensselaer Polytechnic Institute 3283  
Vapor growth of alloy type semiconductor crystals experiment  
*Period* *Obligations*  
03/20/79-03/20/82 FY80: \$75,000 TOTAL: \$354,000  
*Prin Invest* NASA Tech Officer CASE Category  
Wiedemeier, H. MSFC/Schaefer, D. A. 47-Materials Engr  
Davidson, M. C. MSFC/Zwierer, J. M.  
Irene, F. A.

**NGI 33-018-003** Rensselaer Polytechnic Institute 3288  
Interdisciplinary materials research including fundamental physics and chemistry of materials, environmental effects, and related problems  
*Period* *Obligations*  
09/01/70-04/30/83 FY80: \$400,000 TOTAL: \$5,709,400  
*Prin Invest* NASA Tech Officer CASE Category  
Wiberly, S. E. HD-RT/Greenfield, M. A.  
Ansell, G. S./Harris, L. A. 47-Materials Engr  
Lowery, R.

**NAS 8-33074** Rensselaer Polytechnic Institute 3284  
Study nucleation and growth of immiscible phases  
*Period* *Obligations*  
06/01/78-09/30/79 FY80: TOTAL: \$32,000  
*Prin Invest* NASA Tech Officer CASE Category  
Ross, S. MSFC/Lacy, L. L. 13-Physics  
Ross, S. MSFC/Witherow, W. K.  
Nishioka, G.

**NGI 33-018-007** Rensselaer Polytechnic Institute 3289  
Investigation of composition and chemical behavior of atmosphere of Venus  
*Period* *Obligations*  
06/19/62-08/31/80 FY80: TOTAL: \$1,487,400  
*Prin Invest* NASA Tech Officer CASE Category  
Harteck, P. HD-SL/Murphy, R. E. 31-Atmos Sci  
HD-SL/Brunk, W. E.

**NGR 33-018-148** Rensselaer Polytechnic Institute 3290  
Photochemical investigations of the atmosphere of other planets  
*Period* *Obligations*  
08/27/70-10/31/80 FY80: \$55,000 TOTAL: \$401,000  
*Prin Invest* NASA Tech Officer CASE Category  
Fennis, J. P. HD-SB/Devincenzi, D. L. 12-Chemistry

**NASA'S UNIVERSITY PROGRAM  
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**NSG 1510** Rensselaer Polytechnic Institute 3291  
Improved high modulus carbon fibers  
*Period* *Obligations*  
04/01/78-12/31/80 FY80: \$131,390 TOTAL: \$413,540  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Ansell, G. S. LARC/Dicus, D. L. 47-Materials Engr  
Dieffendorf, R. J.

**NSG 7345** Rensselaer Polytechnic Institute 3297  
Biological adaptation to low temperature: A study of the molecular mechanism governing the responses of the protein synthesizing apparatuses to low temperature  
*Period* *Obligations*  
04/01/77-09/30/79 FY80: TOTAL: \$69,100  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Pope, D. H. HD-SB/Young, R. S. 51-Biological Sci

**NSG 1624** Rensselaer Polytechnic Institute 3292  
Investigation of passive shock wave-boundary layer control for transonic airfoil drag reduction  
*Period* *Obligations*  
10/01/79-09/30/81 FY80: \$59,700 TOTAL: \$109,700  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Nagamatsu, H. T. LARC/Harris, C. D. 41-Aero Engr  
Brower, W. B. LARC/Barnwell, R. W.

**NSG 7369** Rensselaer Polytechnic Institute 3298  
Autonomous control of roving vehicles for unmanned exploration of the planets  
*Period* *Obligations*  
06/01/77-08/31/79 FY80: TOTAL: \$80,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Yerazunis, S. HD-SB/Gevarter, W. B. 49-Engr, NEC  
JP: Paine, G.

**NSG 1628** Rensselaer Polytechnic Institute 3293  
Free-electron laser from wave mechanical beats of two electron beams  
*Period* *Obligations*  
07/01/79-10/31/80 FY80 TOTAL: \$42,200  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Schwarz, H. J. LARC/Meador, W. E. 13-Physics  
LARC/Hohl, F.

**NCA 2-630001** Rockefeller University 3299  
Investigation of nuclear acid interaction with activated amino acids in amino acid polymerization  
*Period* *Obligations*  
06/01/80-05/31/81 FY80: \$25,251 TOTAL: \$25,251  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Loew, G. H. ARC/MacElroy, R. D. 51-Biological Sci

**NSG 1636** Rensselaer Polytechnic Institute 3294  
Preliminary study on the potential usefulness of array processor techniques for structural synthesis  
*Period* *Obligations*  
07/13/79-06/14/80 FY80: TOTAL: \$19,995  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Feeser, L. J. LARC/Rogers, J. L. 41-Aero Engr  
LARC/Giles, G. J.

**NCA 2-630901** Rockefeller University 3300  
The interaction of metal ions and nucleotides: Possible mechanisms for the adsorption of nucleotides on homoionic bentonite  
*Period* *Obligations*  
09/01/79-12/31/80 FY80: \$33,794 TOTAL: \$33,794  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Loew, G. H. ARC/Lawless, J. G. 51-Biological Sci

**NSG 3170** Rensselaer Polytechnic Institute 3295  
Determination of physical and chemical states of lubricants in concentrated contacts using infrared Fourier transform spectroscopy  
*Period* *Obligations*  
01/01/78-12/31/80 FY80: \$42,300 TOTAL: \$118,290  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Lauer, J. L. LERC/Jones, W. R. 13-Physics

**NSG 2380** Rockefeller University 3301  
Vestibulocollic reflexes of otolith organs  
*Period* *Obligations*  
04/01/79-12/31/80 FY80: \$35,018 TOTAL: \$70,372  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Wilson, V. J. ARC/Dauntun, M. G. 51-Biological Sci

**NSG 3262** Rensselaer Polytechnic Institute 3296  
Suggested programs for unsteady turbine heat transfer  
*Period* *Obligations*  
05/01/79-04/30/81 FY80: \$65,440 TOTAL: \$125,960  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Mayle, R. E. LERC/Simoneau, R. J. 41-Aero Engr  
LERC/Graham, R. W.

**NSG 5-24** State Univ of New York - Albany 3302  
The structural and tectonic evolution of the North anatoleon fault  
*Period* *Obligations*  
03/11/80-02/28/81 FY80: \$70,000 TOTAL: \$70,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Dewey, J. F. GSC/Lowrey, R. G. 33-Geological Sci  
Burke, K.



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**NAS 8-32893** State Univ of New York - Albany 3303  
Night-time and daytime orbital survey of lightning and convective phenomena experiment support

<i>Period</i>	<i>Obligations</i>	
05/03/78-06/03/81	FY80: \$10,000	TOTAL: \$30,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Vonnegut, B.	MSFC/Vaughn, O. H., Jr.	
	MSFC/Anderson, B. J. 39-Env Sci, NEC	

**NAS 8-32947** State Univ of New York - Albany 3304  
Static tube zero g eik 'rophoresis of human pancreatic islets of Langerhans cells

<i>Period</i>	<i>Obligations</i>	
04/07/78-11/14/80	FY80:	TOTAL: \$133,800
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
VanOss, C. J.	MSFC/Williams, J. R. 59-Life Sci, NEC	
	MSFC/Snyder, R. S.	

**NAS 8-33386** State Univ of New York - Albany 3305  
Remote observations of severe storm

<i>Period</i>	<i>Obligations</i>	
04/30/79-09/30/81	FY80: \$145,167	TOTAL: \$223,781
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Orville, R. E.	MSFC/Turner, R. E. 31-Atmos Sci	
	MSFC/Thomas, P. E.	

**NAS 9-15802** State Univ of New York - Albany 3306  
Research study of non-invasive monitoring of cardio-pulmonary function

<i>Period</i>	<i>Obligations</i>	
05/01/79-04/30/81	FY80: \$9,975	TOTAL: \$58,149
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Farhi, L.	JSC/Horngan, D. J. 59-Life Sci, NEC	
Olszowka, A. J.		

**NAS 9-15975** State Univ of New York - Albany 3307  
Neurospora experiment

<i>Period</i>	<i>Obligations</i>	
11/09/79-05/31/82	FY80: \$50,700	TOTAL: \$50,700
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sulzman, F. M.	JSC/Nolte, R. W. 51-Biological Sci	
Fuller, C. A.		
Moore-cde, M. C.		

**NAS 9-16042** State Univ of New York - Albany 3308  
Life science flight experiment: Inflight study of cardiovascular deconditioning definition phase

<i>Period</i>	<i>Obligations</i>	
01/17/80-10/31/80	FY80: \$42,345	TOTAL: \$42,345
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Farhi, L.	JSC/Peck, E. E. 59-Life Sci, NEC	

**NASW 3333** State Univ of New York - Albany 3309  
Planetary subsurface water analyzer instrument development

<i>Period</i>	<i>Obligations</i>	
10/01/79-11/30/80	FY80: \$127,515	TOTAL: \$127,515
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Anderson, D. M.	HD-SL/Boyce, J. M. 32-Geological Sci	
	HD-SL/Quaide, W. L.	

**NSG 2386** State Univ of New York - Albany 3310  
Identification of tropospheric and stratospheric air by tracer

<i>Period</i>	<i>Obligations</i>	
05/01/79-01/31/81	FY80: \$19,000	TOTAL: \$49,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lazrus, A. L.	ARC/Page, W. A. 31-Atmos Sci	

**NSG 3095** State Univ of New York - Albany 3311  
Fundamentals of radiation tolerance in silicon solar cells

<i>Period</i>	<i>Obligations</i>	
01/26/76-06/19/81	FY80: \$65,000	TOTAL: \$260,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Corbett, J. W.	LERC/Weinberg, I. 39-Env Sci, NEC	
	LERC/Brandhorst, H. W., Jr.	

**NSG 3138** State Univ of New York - Albany 3312  
Analysis of global air sampling program data

<i>Period</i>	<i>Obligations</i>	
01/10/77-09/09/80	FY80:	TOTAL: \$225,922
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Falconer, P.	LERC/Holdeman, J. D. 31-Atmos Sci	
Pratt, R.		

**NSG 5274** State Univ of New York - Albany 3313  
Global tectonic studies

<i>Period</i>	<i>Obligations</i>	
05/15/78-11/14/79	FY80:	TOTAL: \$34,964
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Burke, K.	GSFC/Frey, H. V. 32-Geological Sci	
Delong, S. E.	GSFC/Mead, G. D.	
Dewey, J. F.		

**NSG 7093** State Univ of New York - Albany 3314  
Photoelectric studies of the night glow

<i>Period</i>	<i>Obligations</i>	
12/23/74-09/30/80	FY80: \$40,000	TOTAL: \$260,803
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Weinberg, J. L.	HD-SL/Murphy, R. E. 31-Atmos Sci	
	HD-SL/Brunk, W. E.	

**NSG 7241** State Univ of New York - Albany 3315  
Studies of background starlight

<i>Period</i>	<i>Obligations</i>	
07/01/76-05/31/81	FY80: \$6,851	TOTAL: \$76,987
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Weinberg, J. L.	HD-SC/Weiler, E. J. 11-Astronomy	
Giovane, F.	HD-SC/Bogges, N. W.	

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**NSG 7501** State Univ of New York - Albany 3316  
Radiation induced rotation of small celestial bodies  
*Period* *Obligations*  
11/15/78-08/31/81 FY80: TOTAL: \$39,612  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Ratcliff, K. F. HD-RT/Whiting, E. E. 42-Astro Engr  
GSFC/Paddock, S. J.

**NSG 8040** State Univ of New York - Albany 3317  
Research study of data analysis, Skylab zodiacal light experiment  
*Period* *Obligations*  
06/28/76-04/30/80 FY80: TOTAL: \$141,059  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Weinberg, J. L. MSFC/Gary, G. A. 11-Astronomy  
MSFC/Miller, E. R.

**NAS 2-10621** State Univ of New York - Binghamton 3318  
Synchronization of primate circadian rhythms in space  
*Period* *Obligations*  
04/01/80-07/31/82 FY80: \$35,000 TOTAL: \$35,000  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Sulzman, F. M. ARC/Souza, K. A. 59-Life Sci, NEC

**NGT 33-188-800** State Univ of New York - Binghamton 3319  
Cardiovascular circadian rhythms  
*Period* *Obligations*  
09/01/80-08/31/81 FY80: \$12,000 TOTAL: \$12,000  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Sulzman, F. M. ARC/Sandler, H. 51-Biological Sci  
Marnish, D. E. ARC/Feller, D.

**NGR 33-015-108** State Univ of New York - Buffalo 3320  
Planetary curriculum and related geologic research  
*Period* *Obligations*  
06/02/70-03/31/81 FY80: \$66,205 TOTAL: \$431,591  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
King, J. S. HD-SL/Boyce, J. M. 32-Geological Sci  
HD-SL/Quaide, W. L.

**NAG 5-7** State Univ of New York - Stony Brook 3321  
Theoretical investigation of the mechanics of strike slip faulting in an inelastic Earth  
*Period* *Obligations*  
02/01/80-01/31/81 FY80: \$37,100 TOTAL: \$37,100  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Melosh, H. J. GSFC/Cohen, S. C. 32-Geological Sci

**NAG 8-332** State Univ of New York - Stony Brook 3322  
X-ray imaging observations of H-II region molecular cloud complexes using High Energy Astronomical Observatory-B  
*Period* *Obligations*  
01/15/80-02/14/81 FY80: \$7,440 TOTAL: \$7,440  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Simon, M. MSFC/Jones, J. B. 11-Astronomy

**NAGW 25** State Univ of New York - Stony Brook 3323  
Rare gases in meteorites  
*Period* *Obligations*  
02/01/80-04/01/81 FY80: \$72,321 TOTAL: \$72,321  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Schaeffer, O. A. HD-SL/French, B. M. 32-Geological Sci  
HD-SL/Quaide, W. L.

**NAGW 50** State Univ of New York - Stony Brook 3324  
Crater modification by gravity  
*Period* *Obligations*  
03/01/80-02/28/81 FY80: \$11,400 TOTAL: \$11,400  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Melosh, H. J. HD-SL/Quaide, W. L. 32-Geological Sci  
HD-SL/French, B. M.

**NAS 1-16444** State Univ of New York - Stony Brook 3325  
Science support for the Earth Radiation Budget Experiment (ERBE)  
*Period* *Obligations*  
09/24/80-09/23/85 FY80: \$31,000 TOTAL: \$31,000  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Cess, R. D. LARC/Hall, J. B. 31-Atmos Sci  
LARC/Barkstrom, B. R.

**NAS 2-10520** State Univ of New York - Stony Brook 3326  
Investigation on the effects of hypogravity on some critical cellular events in plant development  
*Period* *Obligations*  
01/17/80-12/31/80 FY80: \$9,748 TOTAL: \$9,748  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Krikorian, A. D. ARC/Rasmussen, D. N. 51-Biological Sci  
ARC/Mancini, R.

**NAS 8-32904** State Univ of New York - Stony Brook 3327  
Scientific investigations in support of the space telescope project  
*Period* *Obligations*  
02/01/78-01/31/84 FY80: TOTAL: \$139,500  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Caldwell, J. J. MSFC/ODeil, C. R. 11-Astronomy

**NCA 2-760001** State Univ of New York - Stony Brook 3328  
An investigation of laboratory produced solids and liquids as candidates for the scattering aerosols in outer planet atmospheres  
*Period* *Obligations*  
02/01/80-01/31/81 FY80: \$22,602 TOTAL: \$22,602  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Owens, T. ARC/Chang, S. 31-Atmos Sci  
Scattergood, T.

**NCC 3-2** State Univ of New York - Stony Brook 3329  
Analytic modeling of soot formation under fuel rich conditions  
*Period* *Obligations*  
07/01/79-06/29/81 FY80: \$34,586 TOTAL: \$69,576  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Yang, C. H. LERC/Brabbs, T. A. 12-Chemistry  
Beilad, A. L.

**NASA'S UNIVERSITY PROGRAM  
NEW YORK (Continued)**

**NCC 5-7 State Univ of New York - Stony Brook 3330**  
 Atmospheric pollution: Development and application  
*Period Obligations*  
 04/09/79-12/31/80 FY80: \$57,000 TOTAL: \$100,000  
*Prin Invest NASA Tech Officer CASE Category*  
 Hogan, J. S. GSFC/Stewart, R. W. 31-Atmos Sci  
 Hameed, S.

**NCC 5-23 State Univ of New York - Stony Brook 3331**  
 Planetary atmospheres research  
*Period Obligations*  
 01/15/80-03/31/81 FY80: \$165,334 TOTAL: \$165,334  
*Prin Invest NASA Tech Officer CASE Category*  
 Owen, T. GSFC/Hansen, J. E. 31-Atmos Sci

**NGL 33-015-130 State Univ of New York - Stony Brook 3332**  
 Lunar sample analysis  
*Period Obligations*  
 02/11/71-01/31/81 FY80: \$75,218 TOTAL: \$1,030,058  
*Prin Invest NASA Tech Officer CASE Category*  
 Bence, A. E. JSC/Harris, J. W. 13-Physics

**NGL 33-015-174 State Univ of New York - Stony Brook 3333**  
 Lunar sample analysis  
*Period Obligations*  
 02/01/73-01/31/80 FY80: TOTAL: \$570,396  
*Prin Invest NASA Tech Officer CASE Category*  
 Schaeffer, O. A. JSC/Harris, J. W. 12-Chemistry

**NGR 33-015-139 State Univ of New York - Stony Brook 3334**  
 Quantitative spectroscopic measurements on the principal  
 constituents in planetary atmospheres  
*Period Obligations*  
 04/12/71-05/31/81 FY80: \$36,927 TOTAL: \$316,451  
*Prin Invest NASA Tech Officer CASE Category*  
 Barghoorn, E. S. HD-SL/Murphy, R. E. 31-Atmos Sci  
 HD-SL/Brunk, W. E.

**NGR 33-015-141 State Univ of New York - Stony Brook 3335**  
 Spectroscopic observations of the planets  
*Period Obligations*  
 01/26/71-12/31/80 FY80: \$34,152 TOTAL: \$266,339  
*Prin Invest NASA Tech Officer CASE Category*  
 Owen, T. HD-SL/Brunk, W. E. 11-Astronomy  
 HD-SL/Murphy, R. E.

**NGR 33-015-165 State Univ of New York - Stony Brook 3336**  
 Planetary atmospheres research  
*Period Obligations*  
 11/01/72-01/31/80 FY80: TOTAL: \$507,420  
*Prin Invest NASA Tech Officer CASE Category*  
 Owen, T. GSFC/Hansen, J. E. 31-Atmos Sci

**NGR 33-015-180 State Univ of New York - Stony Brook 3337**  
 Cosmic rays in interplanetary space  
*Period Obligations*  
 01/07/74-01/31/81 FY80: \$24,800 TOTAL: \$124,054  
*Prin Invest NASA Tech Officer CASE Category*  
 Forman, M. A. HD-SC/Fishman, G. J. 11-Astronomy  
 Pickman, S. L. HD-SC/Kaluziewski, L. J.

**NSG 3051 State Univ of New York - Stony Brook 3338**  
 Combustion of porous solids at reduced gravitational conditions  
*Period Obligations*  
 06/01/75-06/30/79 FY80: TOTAL: \$76,563  
*Prin Invest NASA Tech Officer CASE Category*  
 Berlad, A. L. LERC/Cochran, T. H. 43-Chem Engr

**NSG 3298 State Univ of New York - Stony Brook 3339**  
 Combustion theory for clouds of porous solids at reduced  
 gravitational conditions  
*Period Obligations*  
 10/01/79-01/30/80 FY80: TOTAL: \$40,000  
*Prin Invest NASA Tech Officer CASE Category*  
 Berlad, A. L. LERC/Cochran, T. H. 13-Physics

**NSG 5125 State Univ of New York - Stony Brook 3340**  
 Research of thin-film Josephson-junction detector for millimeter  
 and submillimeter wavelength applications  
*Period Obligations*  
 11/01/76-06/30/79 FY80: TOTAL: \$42,101  
*Prin Invest NASA Tech Officer CASE Category*  
 Kao, Y. H. GSFC/Kerr, A. R. 11-Astronomy  
 GSFC/Thaddeus, P.

**NSG 5250 State Univ of New York - Stony Brook 3341**  
 Ultraviolet observations of planets, satellites and comets with  
 International Ultraviolet Explorer  
*Period Obligations*  
 03/01/78-01/31/81 FY80: \$18,000 TOTAL: \$41,993  
*Prin Invest NASA Tech Officer CASE Category*  
 Caldwell, J. J. GSFC/Bogges, A. 11-Astronomy  
 Owen, T. GSFC  
 Ponnampereuma, C.

**NSG 7270 State Univ of New York - Stony Brook 3342**  
 Cells, embryos and development in space  
*Period Obligations*  
 09/01/76-10/31/80 FY80: \$70,770 TOTAL: \$262,570  
*Prin Invest NASA Tech Officer CASE Category*  
 Krikorian, A. D. HD-SB/Halstead, T. W. 51-Biological Sci  
 Steward, F. C.

**NSG 7286 State Univ of New York - Stony Brook 3343**  
 Infrared spectroscopy of Jupiter and Saturn  
*Period Obligations*  
 09/01/76-05/31/81 FY80: \$26,318 TOTAL: \$98,048  
*Prin Invest NASA Tech Officer CASE Category*  
 Knacke, R. F. HD-SL/Brunk, W. E. 11-Astronomy  
 HD-SL/Murphy, R. E.

**NASA'S UNIVERSITY PROGRAM**

**NEW YORK (Continued)**

**NSG 7320 State Univ of New York - Stony Brook 3344**  
 Theoretical planetary physics  
*Period* *Obligations*  
 04/01/77-08/31/81 FY80 \$31,500 TOTAL \$109,910  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
 Caldwell, J. J. HD-SL/Brunk, W. F. 11-Astronomy  
 HD-SL/Murphy, R. F.

**NSG 7553 State Univ of New York - Stony Brook 3345**  
 Outer solar system nomenclature  
*Period* *Obligations*  
 04/01/79-03/31/81 FY80: \$9,923 TOTAL \$20,744  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
 Owen, T. HD-SL/Dwornik, S. F. 32-Geological Sci  
 HD-SL/Boycot, J. M.

**NSG 9013 State Univ of New York - Stony Brook 3346**  
 Dating of lunar cratering events and rates of lunar surface processes  
*Period* *Obligations*  
 07/15/74-01/31/80 FY80 TOTAL \$308,669  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
 Hartung, J. B. JSC/Harris, J. W. 32-Geological Sci

**NSG 9044 State Univ of New York - Stony Brook 3347**  
 Petrologic and stratigraphic studies of lunar drill cores and drive tubes  
*Period* *Obligations*  
 09/01/76-01/31/81 FY80 \$74,374 TOTAL \$407,115  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
 Papike, J. J. JSC/Harris, J. W. 13-Physics

**NCA 2-765001 State Univ of New York - Upstate Med Ctr 3348**  
 Isolation and characterization of post-hypoxic hemolytic factors in blood  
*Period* *Obligations*  
 06/01/80-05/31/82 FY80 \$17,000 TOTAL \$17,000  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
 Landaw, S. A. ARC/Leon, H. A. 56-Medical Sciences

**NCA 2-750001 State Univ of New York College, Buffalo 3349**  
 Simulation of water influence on molecular structure using an improved molecular dynamics approach  
*Period* *Obligations*  
 03/01/80-02/28/81 FY80 \$7,000 TOTAL \$7,000  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
 Egan, J. T. ARC/MacElroy, R. D. 51-Biological Sci

**NAG 5-113 State Univ of New York Col - Geneseo 3350**  
 Simultaneous in-eclipse ultra-violet observations of early-type eclipsing  
*Period* *Obligations*  
 10/01/80-09/30/81 FY80 \$1,120 TOTAL \$1,120  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
 Meisel, D. D. GSFC/Corrigan, J. P. 11-Astronomy

**NAS 5-25967 State University of New York at Oneonta 3351**  
 Demonstration project to evaluate the utility of operational applications of LANDSAT to county and local government agencies  
*Period* *Obligations*  
 02/05/80-11/05/80 FY80: \$13,057 TOTAL: \$13,057  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
 Baumann, P. R. GSFC/Austin, T. W. 39-Env Sci, NEC

**NSG 5077 State Univ of New York College - Purchase 3352**  
 Spectral and Monte Carlo predictability studies  
*Period* *Obligations*  
 09/01/75-08/31/81 FY80: \$32,065 TOTAL: \$103,285  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
 Tenenbaum, J. GSFC/Halem, M. 31-Atmos Sci

**NSG 1602 Syracuse University 3353**  
 Advanced programmable image sensor/processor  
*Period* *Obligations*  
 03/15/79-04/14/81 FY80 \$55,800 TOTAL \$107,081  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
 Kowel, S. T. LARC/Benz, H. F. 45-Elec Engr  
 Kornreich, P. F. LARC/Breckenridge, R. A.

**NSG 1611 Syracuse University 3354**  
 Surface Acoustic Waves (SAW) silicon monolithic programmable sensor, processor  
*Period* *Obligations*  
 05/01/79-04/30/81 FY80 \$74,233 TOTAL \$149,457  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
 Kowel, S. T. LARC/Segura, R. 45-Elec Engr  
 Kornreich, P. G.

**NSG 1654 Syracuse University 3355**  
 Magn. ation changes in small volume elements by stress control  
*Period* *Obligations*  
 09/01/79-08/31/80 FY80 TOTAL \$32,495  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
 Schroder, K. LARC/Hayes, P. J. 47-Materials Engr

**NAG 5-46 University of Rochester 3356**  
 Ultraviolet observations of the continua of nebulae and their exciting stars  
*Period* *Obligations*  
 05/01/80-04/30/81 FY80: \$7,435 TOTAL \$7,435  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
 Helfer, H. L. GSFC/Bogges, A. 11-Astronomy  
 Pipher, J. L.  
 Herter, T. L.

**NAS 9-16187 University of Rochester 3357**  
 Biochemical assays of cultured kidney cells  
*Period* *Obligations*  
 08/01/80-06/01/81 FY80: \$34,992 TOTAL: \$34,992  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
 Barlow, G. H. JSC/Mo. son, D. R. 51-Biological Sci  
 JSC/Mieszkue, B.

**NASA'S UNIVERSITY PROGRAM  
NEW YORK (Continued)**

<b>NSG 2198</b>	<b>University of Rochester</b>	<b>3358</b>			
Energy transfer between molecular collision systems and laser radiation fields					
<i>Period</i>	<i>Obligations</i>				
12/31/76-12/31/80	FY80: \$38,000	TOTAL: \$183,408			
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
George, T. F. Devines, P. L.	ARC/Stallcop, J. R.	13-Physics			
<b>NSG 2343</b>	<b>University of Rochester</b>	<b>3359</b>			
Determination of a galactic gradient. Measurements of the fine structure lines of AR-II, and S-III in galactic H-II regions					
<i>Period</i>	<i>Obligations</i>				
10/01/78-10/31/80	FY80: \$27,928	TOTAL: \$55,346			
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Pipher, J. L. Helfer, H. L.	ARC/Haughney, L. C. ARC/Gillespie, C. M.	11-Astronomy			
<b>NSG 5354</b>	<b>University of Rochester</b>	<b>3360</b>			
Search for coronal features or circumstellar clouds around Sirius					
<i>Period</i>	<i>Obligations</i>				
06/01/79-11/30/80	FY80:	TOTAL: \$7,008			
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Vanhorn, H. M.	GSFC/Kuppenan, J. E., Jr.	11-Astronomy			
<b>NSG 7562</b>	<b>University of Rochester</b>	<b>3361</b>			
Basic research in sunspot dynamics					
<i>Period</i>	<i>Obligations</i>				
10/01/78-09/30/80	FY80 \$19,000	TOTAL: \$38,000			
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Thomas, J. H.	HD-ST/Bohlin, J. D.	13-Physics			
<b>NSG 7454</b>	<b>York College</b>	<b>3362</b>			
Irradiation effects on surface of Moon, Mercury, asteroids and solar system bodies					
<i>Period</i>	<i>Obligations</i>				
06/01/78-05/31/81	FY80: \$41,822	TOTAL: \$106,251			
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Spergel, M. S.	HD-SL/Quaide, W. L. HD-LU/Pohly, J. G.	13-Physics			
<b>NAS 9-16020</b>	<b>Duke University</b>	<b>3364</b>			
Optimal multicrop sampling and aggregation procedures development					
<i>Period</i>	<i>Obligations</i>				
01/01/80-12/31/80	FY80: \$38,800	TOTAL: \$38,800			
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Hartley, H. O.	JSC/Hallum, C. R.	21-Mathematics			
<b>NSG 1647</b>	<b>Duke University</b>	<b>3365</b>			
Improvement of nonlinear transient analysis efficiency					
<i>Period</i>	<i>Obligations</i>				
09/01/79-02/28/81	FY80:	TOTAL: \$42,189			
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Melosh, R. J.	LARC/Hayduk, R. J. LARC/Thomson, R. G.	49-Engr, NEC			
<b>NSG 3157</b>	<b>Duke University</b>	<b>3366</b>			
Design feasibility of high-power lightweight dc-to-dc converters for space power applications					
<i>Period</i>	<i>Obligations</i>				
07/01/77-05/30/81	FY80: \$81,660	TOTAL: \$304,660			
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Wilson, T. G. Owen, H. A.	LERC/Gruber, R. P.	45-Elec Engr			
<b>NSG 3160</b>	<b>Duke University</b>	<b>3367</b>			
Acceleration of convergence					
<i>Period</i>	<i>Obligations</i>				
06/01/77-05/30/81	FY80: \$14,966	TOTAL: \$49,951			
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Smith, D. A.	LERC/Ford, W. F.	21-Mathematics			
<b>NSG 7540</b>	<b>Duke University</b>	<b>3368</b>			
Millimeter and submillimeter spectroscopy of molecules of atmospheric importance					
<i>Period</i>	<i>Obligations</i>				
03/01/79-02/29/81	FY80:	TOTAL: \$43,659			
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Delucia, F. C.	HD-EB/Toth, R. A. HD-EB/Tilford, S. G.	31-Atmos Sci			
<b>NAG 1-82</b>	<b>North Carolina A&amp;T State University</b>	<b>3369</b>			
System compaction and integration-lasers					
<i>Period</i>	<i>Obligations</i>				
07/14/80-07/13/81	FY80: \$50,000	TOTAL: \$50,000			
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Yu, C.	LARC/Hoell, J. M. LARC/Brockman, P.	19-Phys Sci, NEC			
<b>NAG 1-70</b>	<b>Duke University</b>	<b>3363</b>			
Evaluation of Computer-Aided Reliability Estimation (CARE) III					
<i>Period</i>	<i>Obligations</i>				
06/01/80-12/31/80	FY80: \$25,922	TOTAL: \$25,922			
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Trivedi, K. S.	LARC/Bavuso, S. J. LARC/Lupton, A. O.	22-Computer Science			
<b>NCC 1-37</b>	<b>North Carolina A&amp;T State University</b>	<b>3370</b>			
Dynamic analysis of the Solar Electric Propulsion (SEP) solar array and space shuttle					
<i>Period</i>	<i>Obligations</i>				
09/01/80-05/31/81	FY80: \$22,445	TOTAL: \$22,445			
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Abu-saba, E. G.	LARC/Montgomery, R. C.	44-Civil Engr			

**NORTH CAROLINA**

**NASA'S UNIVERSITY PROGRAM  
NORTH CAROLINA (Continued)**

**NGT 34-012-800** North Carolina A&T State University 3371  
Summer faculty fellowship program in engineering systems design

<i>Period</i>	<i>Obligations</i>	
01/01/80-03/31/81	FY80: \$205,817	TOTAL: \$205,817
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Abu-saba, E. G.	HD-LU/Carter, C. H.	49-Engr, NEC

**NSG 1390** North Carolina A&T State University 3372  
Material growth and characterization of III-V compounds for solid state devices

<i>Period</i>	<i>Obligations</i>	
02/01/77-03/31/81	FY80: \$150,000	TOTAL: \$600,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Stefanakos, E. Collis, W. J.	LARC/Hendricks, H. D.	45-Elec Engr

**NSG 1516** North Carolina A&T State University 3373  
Patterns of residual stresses within complex welded steel structures

<i>Period</i>	<i>Obligations</i>	
04/15/78-05/14/81	FY80: \$22,230	TOTAL: \$67,090
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Botros, B. M.	LARC/Buckley, J. D.	47-Materials Engr

**NSG 1631** North Carolina A&T State University 3374  
Design and testing of small composite specimens

<i>Period</i>	<i>Obligations</i>	
08/17/79-12/31/80	FY80:	TOTAL: \$35,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sharma, A. V.	LARC/Rhodes, M. D. LARC/Mikulas, M. M.	44-Civil Engr

**NSG 5406** North Carolina A&T State University 3375  
Two dimensional recursive digital filters for new real time image processing

<i>Period</i>	<i>Obligations</i>	
09/13/79-12/31/80	FY80:	TOTAL: \$55,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Alexander, W. E. Olson, D. E.	GSFC/Ramapnyan, H. K.	21-Mathematics

**NSG 8045** North Carolina A&T State University 3376  
Research study of composites as substrate materials in large space telescopes

<i>Period</i>	<i>Obligations</i>	
10/15/76-08/15/79	FY80:	TOTAL: \$48,155
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sharma, A. V.	MSFC/Stuckey, J. M. MSFC/Kent, M. I.	46-Mech Engr

**NSG 5120** North Carolina Central University 3377  
Optically pumped submillimeter waves and applications

<i>Period</i>	<i>Obligations</i>	
06/07/76-08/31/81	FY80: \$45,022	TOTAL: \$196,821
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Jones, C. R. Dutta, J. M.	GSFC/McAvoy, N. GSFC/Lawandy, N.	13-Physics

**NAG 1-20** North Carolina State Univ. - Raleigh 3378  
Studies of image analysis

<i>Period</i>	<i>Obligations</i>	
02/01/80-12/31/81	FY80: \$89,000	TOTAL: \$89,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Snyder, W. E. Rajala, S. A.	LARC/Beng, H. F. LARC/Husson, C.	45-Elec Engr

**NAG 1-29** North Carolina State Univ. - Raleigh 3379  
Trailing-edge flow and their influence on airfoil noise

<i>Period</i>	<i>Obligations</i>	
01/15/80-01/14/81	FY80: \$20,000	TOTAL: \$20,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hodgson, T. H.	LARC/Yu, J. C.	13-Physics

**NAG 1-103** North Carolina State Univ. - Raleigh 3380  
Shape preserving approximation with application to computer aided geometric design

<i>Period</i>	<i>Obligations</i>	
10/01/80-09/30/81	FY80: \$27,340	TOTAL: \$27,340
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
McAllister, D. F.	LARC/Park, S. K.	22-Computer Science

**NAG 3-89** North Carolina State Univ. - Raleigh 3381  
Boundary layer studies of model and full scale VTOL inlets in the diffusion limited flow regions

<i>Period</i>	<i>Obligations</i>	
09/01/80-08/31/81	FY80: \$24,046	TOTAL: \$24,046
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Boles, M. A.	LERC/Stockman, N. O. LERC/Hwang, D. P.	41-Aero Engr

**NAS 5-26157** North Carolina State Univ. - Raleigh 3382  
Magnetic fields monitor satellite science investigation data and aeromagnetic data in the Eastern Piedmont of the United States

<i>Period</i>	<i>Obligations</i>	
05/01/80-03/01/82	FY80: \$20,000	TOTAL: \$20,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Won, I. J. Leith, C. J.	GSFC/Oseroff, H.	32-Geological Sci

**NAS 6-3018** North Carolina State Univ. - Raleigh 3383  
Perform statistical modelling of surface water movements using radar altimeter data

<i>Period</i>	<i>Obligations</i>	
07/01/79-09/30/81	FY80: \$14,990	TOTAL: \$39,972
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Tung, C.	WFC/Huang, N. E. WFC/Long, S. R.	33-Oceanography

**NASA'S UNIVERSITY PROGRAM  
NORTH CAROLINA (Continued)**

**NCC 1-13 North Carolina State Univ. - Raleigh 3384**  
Investigation of aerodynamic characteristics of wings at subsonic speeds

<i>Period</i>	<i>Obligations</i>	
05/16/79-08/15/80	FY80:	TOTAL: \$28,636
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Dejarnette, F. R.	LARC/Lamar, J. E.	41-Aero Engr
Frink, N. T.	LARC/Campbell, J. F.	

**NSG 1355 North Carolina State Univ. - Raleigh 3390**  
A study of real-time computer graphic display technology for aeronautical applications

<i>Period</i>	<i>Obligations</i>	
01/01/77-03/31/81	FY80: \$25,016	TOTAL: \$84,798
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Rajala, S. A.	LARC/Batson, V. M.	45-Elec Engr
	LARC/Hatfield, J. J.	

**NCC 1-22 North Carolina State Univ. - Raleigh 3385**  
Computational fluid mechanics

<i>Period</i>	<i>Obligations</i>	
06/15/79-09/14/82	FY80: \$99,944	TOTAL: \$191,929
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hassan, H. A.	LARC/South, J. C.	41-Aero Engr
Dejarnette, F. R.	LARC/Erickson, W. D.	

**NSG 1377 North Carolina State Univ. - Raleigh 3391**  
Investigation of flow noise from streamlined and blunt bodies trailing edge effects

<i>Period</i>	<i>Obligations</i>	
01/01/77-04/30/80	FY80:	TOTAL: \$117,000
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hodgson, T. H.	LARC/Brooks, T. F.	41-Aero Engr
	LARC/Preisser, J. S.	

**NCC 1-35 North Carolina State Univ. - Raleigh 3386**  
Development of an aerodynamic heating computer program for computer-aided design systems

<i>Period</i>	<i>Obligations</i>	
02/15/80-02/14/81	FY80: \$30,882	TOTAL: \$30,882
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Dejarnette, F. R.	LARC/Wurster, K. E.	41-Aero Engr
	LARC/Wilhite, A. W.	

**NSG 1463 North Carolina State Univ. - Raleigh 3392**  
Nuclear magnetic resonance and infra-red study of moisture in epoxy resins and resin-graphite fiber composites

<i>Period</i>	<i>Obligations</i>	
11/01/77-03/31/80	FY80:	TOTAL: \$36,426
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Memory, J. D.	LARC/Long, E. R., Jr.	
Fornes, R. F.		47-Materials Engr

**NCC 1-46 North Carolina State Univ. - Raleigh 3387**  
Investigation of the aerodynamic characteristics leading edge vortex flaps

<i>Period</i>	<i>Obligations</i>	
09/18/80-01/02/82	FY80: \$33,275	TOTAL: \$33,275
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Dejarnette, F. R.	LARC/Campbell, J. F.	41-Aero Engr
Tingas, S. A.		

**NSG 1549 North Carolina State Univ. - Raleigh 3393**  
Constrained interpolation and approximation with application to computer aided geometric design

<i>Period</i>	<i>Obligations</i>	
09/01/78-10/31/80	FY80:	TOTAL: \$75,601
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Roulier, J. A.	LARC/Park, S. K.	22-Computer Science
McAllister, D. F.	LARC/Smith, R. E.	

**NSG 1058 North Carolina State Univ. - Raleigh 3388**  
Analyses of nuclear induced plasmas by means of kinetic theory

<i>Period</i>	<i>Obligations</i>	
07/01/74-06/30/81	FY80:	TOTAL: \$181,100
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hassan, H. A.	LARC/Meador, W. E.	13-Physics
	LARC/Iohl, F.	

**NSG 1562 North Carolina State Univ. - Raleigh 3394**  
Study of the effects of high energy radiation on the mechanical properties of graphite-fiber reinforced epoxy resins

<i>Period</i>	<i>Obligations</i>	
10/01/78-12/31/81	FY80: \$103,111	TOTAL: \$141,291
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Fornes, R. E.	LARC/Long, E. R., Jr.	13-Physics
Memory, J. D.		

**NSG 1353 North Carolina State Univ. - Raleigh 3389**  
Pattern classifiers using charge transfer devices applications

<i>Period</i>	<i>Obligations</i>	
11/22/76-01/31/80	FY80: \$6,355	TOTAL: \$111,785
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Snyder, W. E.	LARC/Benz, H. F.	45-Elec Engr
	LARC/Husson, C.	

**NSG 1584 North Carolina State Univ. - Raleigh 3395**  
Optimum nacelle shapes and flow port locations for minimum drag and effective engine cooling for general aviation aircraft

<i>Period</i>	<i>Obligations</i>	
01/01/79-12/31/80	FY80: \$55,000	TOTAL: \$106,258
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Smetana, F. O.	LARC/Crane, H. L.	41-Aero Engr
	LARC/Judd, J. H.	

**NASA'S UNIVERSITY PROGRAM  
NORTH CAROLINA (Continued)**

**NSG 1588** North Carolina State Univ. - Raleigh 3396  
Large reflector antenna analysis research  
*Period* *Obligations*  
01/01/79-12/31/80 FY80: \$30,806 TOTAL: \$69,683  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Kauffman, J. F. LARC/Cockrell, C. R. 45-Elec Engr  
LARC/Beck, F. B.

**NSG 4025** North Carolina State Univ. - Raleigh 3397  
An investigation to improve the performance of a technique to identify lift, drag and power simultaneously from flight test data  
*Period* *Obligations*  
07/23/79-07/22/80 FY80: TOTAL: \$47,804  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Smetana, F. O. DFRC/Kurtenbach, F. J. 41-Aero Engr  
DFRC/Hliff, K. W.

**NSG 2390** University of North Carolina-Greensboro 3398  
Automaticity and skill acquisition in a multiple task  
*Period* *Obligations*  
07/01/79-06/30/80 FY80: TOTAL: \$36,216  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Regan, J. E. ARC/Curry, R. E. 69-Psych, NEC

**NAGW 96** Wake Forest University 3399  
A study of the mechanism of thigmomorphogenesis in plants  
*Period* *Obligations*  
08/01/80-07/31/81 FY80: \$36,500 TOTAL: \$36,500  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Jaffe, M. J. HD-SB/Halstead, T. W. 51-Biological Sci

**NAS 2-10523** Wake Forest University 3400  
Life science experiment ARC 781-127, correlation macro and microcirculatory alterations during weightlessness  
*Period* *Obligations*  
01/17/80-04/30/81 FY80: \$10,447 TOTAL: \$10,447  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Hutchins, P. M. ARC/Ferandin, J. 51-Biological Sci  
ARC/Lee, R. C.

**OHIO**

**NAG 5-64** Bowling Green State University 3401  
Investigation of emission line profiles in type I Seyfert galaxies  
*Period* *Obligations*  
06/01/80-05/31/81 FY80: \$1,370 TOTAL: \$1,370  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Gregory, S. GSFC/Bogges, A. 11-Astronomy  
Plak, R. L.  
Stoner, R. E.

**NAG 3-2** Case Western Reserve University 3402  
Improved and efficient laser anemometers  
*Period* *Obligations*  
11/01/79-10/31/80 FY80: \$50,333 TOTAL: \$50,333  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Edwards, R. V. LERC/Seasholtz, R. G. 49-Engr, NEC

**NAG 3-12** Case Western Reserve University 3403  
Dissolution transfer casting of biopolymers  
*Period* *Obligations*  
11/16/79-11/17/80 FY80: \$30,170 TOTAL: \$30,170  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Gibbons, D. F. LERC/Weigand, A. J.  
Picha, G. J. 56-Medical Sciences

**NAG 3-24** Case Western Reserve University 3404  
Diamond II resistivity, dielectric constant, and tangent delta from 10 GHz to 100 GHz as well as thermal conductivity from 0 C to 500 C  
*Period* *Obligations*  
01/07/80-01/06/81 FY80: \$50,000 TOTAL: \$50,000  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Hazony, D. LERC/Kosmahl, H. G. 13-Physics

**NAG 3-30** Case Western Reserve University 3405  
Influence of cobalt on the microstructure and mechanical properties of MAR M-247  
*Period* *Obligations*  
01/28/80-01/27/83 FY80: \$59,991 TOTAL: \$59,991  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Ebert, L. J. LERC/Gray, H. R. 47-Materials Engr

**NAG 3-39** Case Western Reserve University 3406  
Constitutive equations for analysis and design of turbine engine hot section components  
*Period* *Obligations*  
04/01/80-03/31/81 FY80: \$44,912 TOTAL: \$44,912  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Mendelson, A. LERC/Thompson, R. L. 47-Materials Engr

**NAG 3-46** Case Western Reserve University 3407  
Crack initiation and early propagation under thermo-mechanical loading  
*Period* *Obligations*  
03/15/80-03/14/81 FY80: \$47,128 TOTAL: \$47,128  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Manson, S. S. LERC/Halford, G. R. 47-Materials Engr  
LERC/Hirschberg, M. H.

**NAG 3-49** Case Western Reserve University 3408  
Stress generation in thermally grown oxide scales  
*Period* *Obligations*  
03/25/80-03/24/81 FY80: \$12,500 TOTAL: \$12,500  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Ebert, L. J. LERC/Smialek, J. L. 47-Materials Engr



**NASA'S UNIVERSITY PROGRAM  
OHIO (Continued)**

**NAG 3-58 Case Western Reserve University 3409**  
Evolution and adherence of oxide films formed on NiAl and NiCrAl alloys  
*Period* *Obligations*  
06/15/80-06/14/83 FY80: \$59,940 TOTAL: \$59,940  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Ebert, L. J. LERC/Smialek, J. L. 47-Materials Engr

**NAG 3-61 Case Western Reserve University 3410**  
Model development for shock wave boundary layer interaction experiment  
*Period* *Obligations*  
04/24/80-04/23/81 FY80: \$21,200 TOTAL: \$21,200  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Greber, I. LERC/Hingst, W. R. 41-Aero Engr

**NAG 3-66 Case Western Reserve University 3411**  
Electrochemical fluorination of polymeric materials for high energy density aqueous and non-aqueous battery and fuel cell  
*Period* *Obligations*  
05/28/80-05/27/81 FY80: \$69,465 TOTAL: \$69,465  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Liu, C. C. LERC/Hsu, L. C. 43-Chem Engr  
LERC/Sanabria, O. D.

**NAG 3-80 Case Western Reserve University 3412**  
Planar multijunction high voltage solar cells  
*Period* *Obligations*  
06/02/80-06/01/81 FY80: \$20,000 TOTAL: \$20,000  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Kapoor, V. J. LERC/Evans, J. 13-Physics  
Ko, W. H. LERC/Chai, A. T.  
Valco, G.

**NAG 3-97 Case Western Reserve University 3413**  
Mass and heat transfer characteristics of felt metals  
*Period* *Obligations*  
09/08/80-09/07/81 FY80: \$47,030 TOTAL: \$47,030  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Dybbbs, A. LERC/Liebert, C. H. 46-Mech Engr  
LERC/Ludwig, L. P.

**NAG 3-101 Case Western Reserve University 3414**  
Computer program to minimize three-dimensional flight time tracks  
*Period* *Obligations*  
09/15/80-12/15/80 FY80: \$4,800 TOTAL: \$4,800  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Parke, F. I. LERC/Steinberg, R. 41-Aero Engr

**NAG 3-102 Case Western Reserve University 3415**  
Experiments on viscous flows on supersonic streams in XI Lewis supersonic wind tunnel  
*Period* *Obligations*  
07/15/80-03/15/82 FY80: \$30,000 TOTAL: \$30,000  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Greber, I. LERC/Hingst, W. R. 41-Aero Engr

**NAG 3-115 Case Western Reserve University 3416**  
Effect of morphological and mechanical parameters of ion sputters materials on the Gingival seal of an oral implant model  
*Period* *Obligations*  
11/01/80-10/31/81 FY80: \$50,000 TOTAL: \$50,000  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Hottel, T. LERC/Weigand, A. J. 56-Medical Sciences  
LERC/Banks, B. A.

**NAGW 31 Case Western Reserve University 3417**  
The infrared spectral analysis of CF2Cl2: Application to atmospheric detection and abundance measurements for planned in-site experiments  
*Period* *Obligations*  
02/01/80-01/31/81 FY80: \$29,995 TOTAL: \$29,995  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Nordstrom, R. J. HD-EB/Toth, R. A. 31-Atmos Sci  
HD-EB/Tilford, S. G.

**NAGW 83 Case Western Reserve University 3418**  
Prenatal and postnatal development and functional differentiation of the vestibular system in normal, rotated and centrifuged rats and mice  
*Period* *Obligations*  
07/01/80-06/30/81 FY80: \$34,200 TOTAL: \$34,200  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Keefe, J. R. HD-SB/Halstead, T. W. 51-Biological Sci

**NAS 3-21046 Case Western Reserve University 3419**  
Spacelab experiment on surface tension driven convection  
*Period* *Obligations*  
09/16/77-12/31/79 FY80: TOTAL: \$97,730  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Ostrack, S. LERC/Labus, T. M. 46-Mech Engr

**NAS 3-21365 Case Western Reserve University 3420**  
Low sidelobe level low-cost Earth station antennas for the twelve GHz broadcasting satellite service  
*Period* *Obligations*  
06/06/78-06/06/79 FY80: TOTAL: \$59,601  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Collins, R. E. LERC/Smetana, J. 49-Engr, NEC

**NAS 3-21946 Case Western Reserve University 3421**  
Determination of fatigue characteristics of ion beam textured orthopedic implant alloy MP35N in a physiological solution  
*Period* *Obligations*  
06/11/79-07/30/80 FY80: \$4,491 TOTAL: \$14,622  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Bahniuk, E. LERC/Wintucky, E. G. 49-Engr, NEC

**NASA'S UNIVERSITY PROGRAM  
OHIO (Continued)**

**NAS 3-21965** Case Western Reserve University 3422  
Vapor phase diamond growth technology  
*Period* Obligations  
09/21/79-10/20/80 FY80: TOTAL: \$17,360  
*Prn Invest* NASA Tech Officer CASE Category  
Angus, J. LERC/Riley, T. J. 12-Chemistry  
Mann, J. LERC/Myers, I. T.

**NAS 3-22259** Case Western Reserve University 3423  
Biomedical application of ion thruster technology  
*Period* Obligations  
09/25/79-10/15/80 FY80: TOTAL: \$23,100  
*Prn Invest* NASA Tech Officer CASE Category  
Gibbons, D. F. LERC/Weigand, A. J. 19-Phys Sci, NEC

**NAS 3-22342** Case Western Reserve University 3424  
Design, fabricate and test prime focus feeds for parabolic Earth station antennas for the 12 GHz broadcast satellite service  
*Period* Obligations  
04/01/80-07/01/81 FY80: \$51,023 TOTAL: \$51,023  
*Prn Invest* NASA Tech Officer CASE Category  
Collins, R. E. LERC/Smetana, J. 19-Phys Sci, NEC

**NAS 3-22443** Case Western Reserve University 3425  
Center of excellence for biomedical application of ion thruster technology  
*Period* Obligations  
07/17/80-03/02/82 FY80: \$148,414 TOTAL: \$148,414  
*Prn Invest* NASA Tech Officer CASE Category  
Gibbons, D. F. LERC/Weigand, A. J.  
LERC/Banks, B. A. 56-Medical Sciences

**NAS 5-24144** Case Western Reserve University 3426  
Axially grooved heat pipe study  
*Period* Obligations  
04/25/77-09/25/78 FY80: TOTAL: \$13,169  
*Prn Invest* NASA Tech Officer CASE Category  
Kainotani, Y. GSFC/Ollendorf, S. 46-Mech Engr  
GSFC/McIntosh, R.

**NAS 8-33015** Case Western Reserve University 3427  
Surface tension driven convection phenomena experiment  
*Period* Obligations  
05/23/78-08/07/81 FY80: \$227,151 TOTAL: \$440,244  
*Prn Invest* NASA Tech Officer CASE Category  
Ostrach, S. MSFC/Schaefer, D. A. 13-Physics  
Mann, J. A. MSFC/Zwiener, J. M.

**NASW 3404** Case Western Reserve University 3428  
Development of a high resolution gamma ray telescope  
*Period* Obligations  
01/01/80-12/31/80 FY80: \$118,347 TOTAL: \$118,347  
*Prn Invest* NASA Tech Officer CASE Category  
Frye, G. HD-SC/Gilman, D. A. 11-Astronomy  
HD-SC/Opp, A. G.

**NCC 3-4** Case Western Reserve University 3429  
Interactive flow-field calculations in turbomachinery  
*Period* Obligations  
08/01/79-02/01/81 FY80: TOTAL: \$35,642  
*Prn Invest* NASA Tech Officer CASE Category  
Reshotko, E. LERC/Sockol, P. M. 41-Aero Engr

**NCC 3-8** Case Western Reserve University 3430  
Microprocessor control of a wind turbine  
*Period* Obligations  
04/15/80-04/14/81 FY80: \$129,090 TOTAL: \$129,090  
*Prn Invest* NASA Tech Officer CASE Category  
Dybbbs, A. LERC/Fanner, H. G. 49-Engr, NEC  
Kitchen, T. C. LERC/Finnegan, P. M.

**NGR 36-027-064** Case Western Reserve University 3431  
Study of effects of layer control on shock wave turbulent boundary layer interactions in supersonics inlets  
*Period* Obligations  
08/01/73-10/29/80 FY80: \$50,369 TOTAL: \$256,738  
*Prn Invest* NASA Tech Officer CASE Category  
Reshotko, E. LERC/Bishop, A. R. 41-Aero Engr

**NGT 36-027-011** Case Western Reserve University 3432  
Summer program of NASA-ASEE summer faculty fellowships  
*Period* Obligations  
12/16/69-03/31/81 FY80: \$191,160 TOTAL: \$1,447,093  
*Prn Invest* NASA Tech Officer CASE Category  
Prahe, J. M. HD-LU/Carter, C. H. 49-Engr, NEC

**NGT 36-027-790** Case Western Reserve University 3433  
Pre-co-op engineering education program  
*Period* Obligations  
08/01/79-07/31/80 FY80: TOTAL: \$6,224  
*Prn Invest* NASA Tech Officer CASE Category  
Chenelle, D. W. HD-LU/Pohly, J. G. 49-Engr, NEC  
LERC/Allen, R. P.

**NSG 2384** Case Western Reserve University 3434  
Prediction of system invariants in the presence of failure  
*Period* Obligations  
06/01/79-05/31/81 FY80: \$30,649 TOTAL: \$60,250  
*Prn Invest* NASA Tech Officer CASE Category  
Martin, C. F. ARC/Doolin, B. F. 49-Engr, NEC

**NSG 3040** Case Western Reserve University 35  
Heat transfer characteristics of porous materials  
*Period* Obligations  
10/01/74-10/30/80 FY80: TOTAL: \$180,000  
*Prn Invest* NASA Tech Officer CASE Category  
Dybbbs, A. LERC/Fortini, A. 47-Materials Engr

**NASA'S UNIVERSITY PROGRAM  
OHIO (Continued)**

**NSG 3085 Case Western Reserve University 3436**  
 Demonstration experiment on utilization of buffer memory system for transmission of color video using moderate bandwidth communications satellite channels  
*Period Obligations*  
 10/23/75-11/19/80 FY80: \$53,999 TOTAL: \$572,510  
*Prin Invest NASA Tech Officer CASE Category*  
 Claspy, P. C. LERC/Stevens, G. H. 45-Elec Engr  
 Merat, F. L.

**NSG 3115 Case Western Reserve University 3437**  
 Computer graphic techniques for visualizing and interpreting fluid flow models  
*Period Obligations*  
 06/30/76-06/29/79 FY80: TOTAL: \$48,000  
*Prin Invest NASA Tech Officer CASE Category*  
 Lynch, W. C. LERC/Anderson, B. H. 41-Aero Engr  
 Parke, F. R.

**NSG 3126 Case Western Reserve University 3438**  
 Effect of surface texture by ion beam sputtering on implant biocompatibility and soft tissue attachment  
*Period Obligations*  
 10/01/76-03/31/80 FY80: TOTAL: \$40,577  
*Prin Invest NASA Tech Officer CASE Category*  
 Gibbons, D. F. LERC/Weigand, A. J. 49-Engr. NEC  
 LERC/Banks, B. A.

**NSG 3131 Case Western Reserve University 3439**  
 Adaptation of ion beam technology to microfabrication of solid state devices and transducers  
*Period Obligations*  
 11/01/76-01/30/80 FY80 TOTAL: \$78,139  
*Prin Invest NASA Tech Officer CASE Category*  
 Smith, S. LERC/Mirtich, M. J. 19-Phys Sci, NEC  
 Ko, W. H. LERC/Banks, B. A.

**NSG 3140 Case Western Reserve University 3440**  
 Spectroscopic investigation of the effects of moisture on epoxy resins  
*Period Obligations*  
 02/01/77-01/31/81 FY80: TOTAL: \$57,342  
*Prin Invest NASA Tech Officer CASE Category*  
 Koenig, J. L. LERC/Scrafini, T. T. 12-Chemistry  
 LERC/Lauver, R. W.

**NSG 3151 Case Western Reserve University 3441**  
 The evaluation of surface texturing, by ion beam sputtering, on the mechanical fixation and biological compatibility of orthopedic alloys in bone  
*Period Obligations*  
 05/01/77-06/29/81 FY80 TOTAL: \$28,569  
*Prin Invest NASA Tech Officer CASE Category*  
 Gibbons, D. F. LERC/Weigand, A. G. 56-Medical Sciences

**NSG 3197 Case Western Reserve University 3442**  
 Secondary electron emission yield  
*Period Obligations*  
 07/01/78-06/29/81 FY80: \$49,963 TOTAL: \$148,217  
*Prin Invest NASA Tech Officer CASE Category*  
 Gordan, W. L. LERC/Purvis, C. K. 13-Physics  
 Hoffman, R. W. LERC/Stevens, N. J.

**NSG 3203 Case Western Reserve University 3443**  
 The development of sensors and techniques for in-situ water quality monitoring  
*Period Obligations*  
 07/01/78-07/28/80 FY80: TOTAL: \$59,934  
*Prin Invest NASA Tech Officer CASE Category*  
 Liu, C. C. LERC/Fordyce, J. S. 43-Chem Engr

**NSG 3206 Case Western Reserve University 3444**  
 Experiments on jet mixing in compact reverse flow combustor configurations  
*Period Obligations*  
 07/01/78-06/30/81 FY80: TOTAL: \$67,850  
*Prin Invest NASA Tech Officer CASE Category*  
 Greber, I. LERC/Riddlebaugh, S. M. 41-Aero Engr

**NSG 3207 Case Western Reserve University 3445**  
 Shaded computer graphic techniques for visualizing and interpreting analytic fluid flow models  
*Period Obligations*  
 07/01/78-07/01/81 FY80: TOTAL: \$53,000  
*Prin Invest NASA Tech Officer CASE Category*  
 Parke, F. I. LERC/Anderson, B. H. 41-Aero Engr

**NSG 3211 Case Western Reserve University 3446**  
 Experimental investigation of shock-wave-boundary layer interaction  
*Period Obligations*  
 06/01/78-05/30/81 FY80 TOTAL: \$58,690  
*Prin Invest NASA Tech Officer CASE Category*  
 Greber, I. LERC/Hingsl, W. R. 41-Aero Engr

**NSG 3221 Case Western Reserve University 3447**  
 Convection in crystal growth and g-jitter  
*Period Obligations*  
 09/01/78-12/31/80 FY80: TOTAL: \$100,000  
*Prin Invest NASA Tech Officer CASE Category*  
 Ostrach, S. LERC/Cochran, T. H. 13-Physics  
 LERC/Cochran, T. H.

**NSG 3230 Case Western Reserve University 3448**  
 Modeling of transient operations of monolith catalytic combustors  
*Period Obligations*  
 11/01/78-10/31/80 FY80: TOTAL: \$69,000  
*Prin Invest NASA Tech Officer CASE Category*  
 Tlen, J. S. LERC/Anderson, D. N. 46-Mech Engr  
 Reshotko, E.

**NASA'S UNIVERSITY PROGRAM**

**OHIO (Continued)**

**NSG 3241 Case Western Reserve University 3449**  
 Characterization of structure of a polymer with a magnetic resonance spectroscopy  
*Period* *Obligations*  
 12/01/78-12/01/80 **FY80: \$16,244 TOTAL: \$46,244**  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
 Ritchey, W. LERC/Lauver, R. W. 12-Chemistry

**NSG 3276 Case Western Reserve University 3456**  
 Three-dimensional spectra and the mean rate of transfer of energy in turbulence  
*Period* *Obligations*  
 05/15/79-06/14/81 **FY80: \$54,935 TOTAL: \$89,925**  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
 Koenig, J. L. LERC/Hsu, L. C. 12-Chemistry  
 LERC/Philipp, W. H.

**NSG 3246 Case Western Reserve University 3450**  
 Anisotropy of directionally solidified nickel base superalloy monocrystals  
*Period* *Obligations*  
 06/15/79-06/15/82 **FY80: TOTAL: \$49,935**  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
 Erert, L. J. LERC/Scheuermann, C. M. 47-Materials Engr

**NSG 3279 Case Western Reserve University 3457**  
 Thermal fatigue behavior of dies for aluminum die casting after deposition of various ion sputtered coatings  
*Period* *Obligations*  
 06/01/79-02/28/81 **FY80: TOTAL: \$12,000**  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
 Wallace, J. F. LERC/Mirtich, M. J. 19-Phys Sci, NEC

**NSG 3251 Case Western Reserve University 3451**  
 Use of the method of lines in fracture mechanics analyses with application to curved crack fronts  
*Period* *Obligations*  
 03/01/79-03/02/81 **FY80: \$42,307 TOTAL: \$77,097**  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
 Mendelson, A. LERC/Brown, W. F., Jr. 46-Mech Engr

**NSG 3282 Case Western Reserve University 3458**  
 The influence of surface morphology modification by ion beam sputtering on the tissue response to percutaneous implants, of various compositions  
*Period* *Obligations*  
 06/01/79-10/01/80 **FY80: TOTAL: \$19,579**  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
 Gibbons, D. F. LERC/Wiegand, A. J. 56-Medical Sciences

**NSG 3252 Case Western Reserve University 3452**  
 Microstructure and mechanical properties of bulk and plasma sprayed Y2O3 partially stabilized zirconia  
*Period* *Obligations*  
 04/02/79-03/31/81 **FY80: \$50,184 TOTAL: \$80,174**  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
 Ebert, L. J. LERC/Gedwill, M. A. 47-Materials Engr

**NSG 3288 Case Western Reserve University 3459**  
 Optical studies of lubrication and transfer films for prosthetic devices  
*Period* *Obligations*  
 07/01/79-11/01/80 **FY80: TOTAL: \$20,000**  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
 Cahan, B. D. LERC/Jones, W. R. 12-Chemistry

**NSG 3268 Case Western Reserve University 3453**  
 Performance of high temperature annular heat pipes  
*Period* *Obligations*  
 03/30/79-06/30/80 **FY80 TOTAL: \$19,902**  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
 Kamotani, Y. LERC/Gideon, L. 47-Materials Engr

**NSG 3289 Case Western Reserve University 3460**  
 Ion beam texturing of polymers  
*Period* *Obligations*  
 07/17/79-11/14/79 **FY80 TOTAL: \$8,475**  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
 Geil, K. H. LERC/Souey, J. S. 47-Materials Engr  
 Hurwitz, F. I.

**NSG 3271 Case Western Reserve University 3454**  
 Model development for shock wave boundary layer interaction experiments  
*Period* *Obligations*  
 04/24/79-10/23/80 **FY80 TOTAL: \$32,110**  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
 Greber, I. LERC/Hingst, W. R. 41-Aero Engr

**NSG 3291 Case Western Reserve University 3461**  
 Self-diffusion of oxygen and aluminum in doped alumina  
*Period* *Obligations*  
 09/01/79-08/30/81 **FY80: \$34,941 TOTAL: \$67,941**  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
 Halloran, J. W. LERC/Smialek, J. L. 47-Materials Engr  
 Cooper, A. R.

**NSG 3272 Case Western Reserve University 3455**  
 Molecular mechanism of thermal degradation of polyimide resins  
*Period* *Obligations*  
 05/07/79-05/07/80 **FY80 TOTAL: \$14,990**  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
 Ishida, H. LERC/Lauver, R. W. 12-Chemistry  
 Koenig, J. L.

**NSG 5392 Case Western Reserve University 3462**  
 Theoretical determination of structures, bending energies and vibrational frequencies  
*Period* *Obligations*  
 07/01/79-12/31/79 **FY80 TOTAL: \$4,025**  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
 Anderson, A. B. GSFC/Donn, B. D. 12-Chemistry

**NASA'S UNIVERSITY PROGRAM  
OHIO (Continued)**

**NSG 7035** Case Western Reserve University **3463**  
Development of a generalized technology for life prediction in the high-temperature creep and fatigue range

<i>Period</i>	<i>Obligations</i>	
05/01/74-05/01/80	FY80: TOTAL: \$218,269	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Powell, N L.	LERC/Hirschberg, M. H.	47-Materials Engr
	LERC/Halford, G. R.	

**NCC 3-3** Cleveland State University **3459**  
Graduate study program in unsteady heat transfer in turbomachinery

<i>Period</i>	<i>Obligations</i>	
09/29/79-09/30/82	FY80: TOTAL: \$67,512	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Gorla, R. S.	LERC/Simoneau, R. J.	46-Mech Engr
	LERC/Graham, R. W.	

**NAG 3-23** Cleveland State University **3464**  
Theory and design of the tandem junction solar cell with front and back collection

<i>Period</i>	<i>Obligations</i>	
01/15/80-12/15/80	FY80: \$14,087 TOTAL: \$14,087	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Goradia, C.	LERC/Baraona, C. R.	13-Physics

**NCC 3-6** Cleveland State University **3470**  
Power train development/analysis large scale wind turbine supporting research and technology program

<i>Period</i>	<i>Obligations</i>	
02/15/80-02/14/81	FY80: \$113,842 TOTAL: \$113,842	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kasuba, R.	LERC/Savino, J. M.	46-Mech Engr
Penney, D. L.	LERC/Finnegan, D.	

**NAG 3-84** Cleveland State University **3465**  
Development of optimization techniques for control of vehicle stored energy and optimization of hybrid vehicle propulsion section

<i>Period</i>	<i>Obligations</i>	
06/16/80-12/16/81	FY80 \$99,138 TOTAL: \$99,138	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Donoghue, J. F.	ARC/Beach, R. F.	49-Engr, NEC
Burghart, J. H.		

**NGT 36-025-780** Cleveland State University **3471**  
Precooperative engineering education program

<i>Period</i>	<i>Obligations</i>	
10/01/77-07/31/80	FY80: TOTAL: \$6,669	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bennett, W. R.	HD-LU/Pohly, J. G.	49-Engr, NEC
	LERC/Allen, R. P.	

**NAG 3-106** Cleveland State University **3466**  
Effect of stress on ultrasonic pulses in fiber reinforced composites

<i>Period</i>	<i>Obligations</i>	
10/01/80-09/30/81	FY80: \$38,300 TOTAL: \$38,300	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hemann, J. H.	LERC/Nary, A.	47-Materials Engr

**NSG 3155** Cleveland State University **3472**  
Dense silicon-nitride bodies without additives

<i>Period</i>	<i>Obligations</i>	
06/30/77-03/30/81	FY80 TOTAL: \$44,850	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Yeh, H. C.	LERC/Ashbrook, R. L.	43-Chem Engr

**NAG 3-108** Cleveland State University **3467**  
High phase order induction motors

<i>Period</i>	<i>Obligations</i>	
09/29/80-09/28/81	FY80: \$31,570 TOTAL: \$31,570	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Klingshirn, E. A.	LERC/McBrien, E. F.	45-Elec Engr

**NSG 3222** Cleveland State University **3473**  
Investigation of power and energy measuring devices for monitoring non-sinusoidal ac and pulsed dc signals

<i>Period</i>	<i>Obligations</i>	
10/01/78-10/01/79	FY80: TOTAL: \$32,986	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Maisel, J. F.	LERC/Nieberding, W. C.	45-Elec Engr
	LERC/Weikle, D. H.	

**NAS 3-18547** Cleveland State University **3468**  
Synthesis and optimization of spur gear tooth profile shapes for high load capacity

<i>Period</i>	<i>Obligations</i>	
06/04/74-05/31/80	FY80 TOTAL: \$69,980	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kasuba, R.	LERC/Townsend, D. P.	46-Mech Engr

**NSG 3223** Cleveland State University **3474**  
Control of a hybrid system with flywheel energy storage and continuously variable transmission

<i>Period</i>	<i>Obligations</i>	
10/01/78-06/30/80	FY80: TOTAL: \$56,819	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Burghart, J. H.	LERC/Beach, R. F.	49-Engr, NEC
Donoghue, J. F.		

**NSG 3257** Cleveland State University **3475**  
A study of dynamic energy equations

<i>Period</i>	<i>Obligations</i>	
03/15/79-10/30/80	FY80: TOTAL: \$29,868	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Larson, V. H.	LERC/Lorenzo, C. F.	46-Mech Engr
Loparo, J. A.		

**NASA'S UNIVERSITY PROGRAM**

**OHIO (Continued)**

**NSG 3259** Cleveland State University 3476  
 Nitridation kinetics and reaction sintering of silicon nitride  
*Period* *Obligations*  
 03/26/79-03/26/81 FY80: TOTAL: \$51,119  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Yeh, H. C. LERC/Herbell, T. P. 47-Materials Engr

**NAS 9-16049** Miami University 3483  
 Life science flight experiment  
*Period* *Obligations*  
 01/17/80-05/31/81 FY80: \$9,384 TOTAL: \$9,384  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Parker, D. E. JSC/Evans, J. F. 59-Life Sci, NEC

**NSG 3308** Cleveland State University 3477  
 Development of a data system for multi channel spectrometers  
*Period* *Obligations*  
 09/14/79-09/13/80 FY80: TOTAL: \$52,395  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Megargle, R. LERC/Gordon, W. A. 12-Chemistry

**NAS 9-16051** Miami University 3484  
 Motion perceptions evoked by oscillating linear accelerator on Earth and in zero-gravity  
*Period* *Obligations*  
 01/17/80-10/31/80 FY80: \$27,109 TOTAL: \$27,109  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Parker, D. E. JSC/Evans, J. 59-Life Sci, NEC

**NAS 3-21945** Kent State University 3478  
 Identification of new application for ion beam technology  
*Period* *Obligations*  
 06/28/79-11/26/80 FY80: \$17,018 TOTAL: \$36,018  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Gelerinter, E. LERC/Wintucky, E. G.  
 Spielberg, N. 19-Phys Sci, NEC

**NCC 1-12** Miami University 3485  
 Basic research on radiation induced lasers  
*Period* *Obligations*  
 05/15/79-07/31/81 FY80: \$77,820 TOTAL: \$141,356  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Wells, W. E. LARC/Jalufka, N. W. 13-Physics

**NAS 5-26111** Kent State University 3479  
 Automated techniques for mapping urban land cover with remote sensing data  
*Period* *Obligations*  
 03/31/80-11/30/80 FY80: \$8,951 TOTAL: \$8,951  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Craig, K. GSFC/Toll, D. 32-Geological Sci

**NAG 3-79** Muskingum College 3486  
 Chemically modified electrodes  
*Period* *Obligations*  
 06/09/80-06/08/81 FY80: \$15,467 TOTAL: \$15,467  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Wallace, W. J. LERC/Charleston, L. J. 12-Chemistry

**NSG 2013** Kent State University 3480  
 Transport of trace contaminants through porous media  
*Period* *Obligations*  
 03/15/74-12/31/81 FY80: TOTAL: \$97,700  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Madey, R. ARC/Quattrone, P. D. 12-Chemistry

**NSG 3278** Muskingum College 3487  
 Chemically modified electrodes  
*Period* *Obligations*  
 06/11/79-05/31/80 FY80: TOTAL: \$7,100  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Wallace, W. J. LERC/Charleston, L. J. 12-Chemistry

**NSG 3159** Kent State University 3481  
 Evaluation of surface alignment mechanisms for nematic liquid crystals  
*Period* *Obligations*  
 08/01/77-11/01/79 FY80: TOTAL: \$16,013  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Johnson, D. L. LERC/Wintucky, F. G.  
 LERC/Banks, B. A. 47-Materials Engr

**NAG 1-30** Ohio State University 3488  
 Coordination and control of multiple-armed manipulation systems  
*Period* *Obligations*  
 02/01/80-01/31/81 FY80: \$32,545 TOTAL: \$32,545  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Klein, C. A. LARC/Woolley, C. T.  
 LARC/Barker, L. K. 42-Astro Engr

**NAS 9-14538** Miami University 3482  
 Research on a possible mechanism of 0-g sickness  
*Period* *Obligations*  
 02/15/75-03/01/81 FY80: \$31,529 TOTAL: \$159,500  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Brooks, M. JSC/Homick, J. L. 59-Life Sci, NEC  
 JSC/Reschke, M. F.

**NAG 2-32** Ohio State University 3489  
 Subsonic wing/fuselage aerodynamic study  
*Period* *Obligations*  
 04/01/80-03/31/81 FY80: \$48,785 TOTAL: \$48,785  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Gregorek, G. M. ARC/Hicks, R. M. 41-Aero Engr  
 Weislogel, G. S. ARC/Corsiglia, V. R.

**NASA'S UNIVERSITY PROGRAM  
OHIO (Continued)**

**NAG 2-34** Ohio State University **3490**  
Zero modules and inverse system design  
*Period Obligations*  
04/01/80-03/31/81 FY80: \$16,729 TOTAL: \$16,729  
*Prin Invest NASA Tech Officer CASE Category*  
Wyman, B. ARC/Doolin, B. F. 49-Engr, NEC

**NAG 3-28** Ohio State University **3491**  
Effects of ice formation on 2d aerodynamic shapes  
*Period Obligations*  
02/01/80-01/31/81 FY80: \$28,528 TOTAL: \$28,528  
*Prin Invest NASA Tech Officer CASE Category*  
Gregorek, G. M. LERC/Shaw, R. J. 41-Aero Engr

**NAG 3-36** Ohio State University **3492**  
Vibration analysis of turbine engine blades  
*Period Obligations*  
05/01/80-04/30/81 FY80: \$44,410 TOTAL: \$44,410  
*Prin Invest NASA Tech Officer CASE Category*  
Leissa, A. W. LERC/Brown, G. V. 46-Mech Engr  
Lee, J. K. LERC/Kielb, R. E.

**NAG 3-109** Ohio State University **3493**  
Propeller/rotor icing study  
*Period Obligations*  
10/06/80-10/05/81 FY80: \$40,099 TOTAL: \$40,099  
*Prin Invest NASA Tech Officer CASE Category*  
Korkan, K. D. LERC/Shaw, J. 41-Aero Engr

**NAG 5-42** Ohio State University **3494**  
Spectroscopic investigations of bright gaseous nebulae  
*Period Obligations*  
04/15/80-04/14/81 FY80: \$3,877 TOTAL: \$3,877  
*Prin Invest NASA Tech Officer CASE Category*  
Czyzak, S. J. GSFC/Bogges, A. 11-Astronomy

**NAG 5-52** Ohio State University **3495**  
Ultraviolet studies of later type beryllium stars  
*Period Obligations*  
05/15/80-05/14/81 FY80: \$2,866 TOTAL: \$2,866  
*Prin Invest NASA Tech Officer CASE Category*  
Sletteback, A. GSFC/Bogges, A. 11-Astronomy

**NAS 1-14406** Ohio State University **3496**  
General aviation low-speed airfoil design and development service  
*Period Obligations*  
06/30/76-06/30/81 FY80: \$25,000 TOTAL: \$373,107  
*Prin Invest NASA Tech Officer CASE Category*  
Gregorek, G. M. LARC/McGhee, R. J. 41-Aero Engr  
LARC/Barnwell, R. W.

**NAS 1-15680** Ohio State University **3497**  
Flight evaluation of the aeroacoustics of general aviation propellers  
*Period Obligations*  
01/04/79-01/21/81 FY80: \$35,000 TOTAL: \$105,489  
*Prin Invest NASA Tech Officer CASE Category*  
Gregorek, G. M. LARC/Greene, G. C. 41-Aero Engr  
Korkan, K. D. LARC/Raney, J. P.  
Weislogel, G. S.

**NAS 1-15969** Ohio State University **3498**  
Determine the IFR operation profile of the general aviation single pilot  
*Period Obligations*  
09/12/79-06/30/81 FY80: TOTAL: \$61,000  
*Prin Invest NASA Tech Officer CASE Category*  
Weislogel, G. S. LARC/Bergeron, H. P. 41-Aero Engr  
Chapman, G. C. LARC/Shaugnessy, J. D.

**NAS 1-16388** Ohio State University **3499**  
Bellanca skyrocket natural laminar flow flight research  
*Period Obligations*  
08/20/80-09/16/80 FY80: \$33,000 TOTAL: \$33,000  
*Prin Invest NASA Tech Officer CASE Category*  
Gregorek, G. M. LARC/Holmes, B. J. 41-Aero Engr  
Weislogel, G. S.

**NAS 2-10047** Ohio State University **3500**  
An investigation in pilot and system response to critical in-flight events  
*Period Obligations*  
11/01/78-09/30/80 FY80: TOTAL: \$106,017  
*Prin Invest NASA Tech Officer CASE Category*  
Rockwell, T. H. ARC/Lauber, J. K. 69-Psych, NEC  
Giffin, W. C. ARC/Billings, C. E.

**NAS 5-22575** Ohio State University **3501**  
Communications link characterization experiment  
*Period Obligations*  
09/02/75-06/30/80 FY80: \$136,519 TOTAL: \$483,936  
*Prin Invest NASA Tech Officer CASE Category*  
Hodge, D. B. GSFC/Hirschmann, E. 45-Elec Engr

**NAS 5-25888** Ohio State University **3502**  
Utilization of range-difference observation in geodynamics  
*Period Obligations*  
09/19/79-12/18/82 FY80: \$40,000 TOTAL: \$60,000  
*Prin Invest NASA Tech Officer CASE Category*  
Mueller, I. I. GSFC/Stephanides, C. C. 32-Geological Sci

**NASW 3149** Ohio State University **3503**  
Solar terrestrial climatic relationship symposium  
*Period Obligations*  
05/15/78-12/31/79 FY80: TOTAL: \$24,946  
*Prin Invest NASA Tech Officer CASE Category*  
Seliga, T. A. HD-ST/Tilford, S. G. 31-Atmos Sci  
HD-ST/Simon, N. K.

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# NASA'S UNIVERSITY PROGRAM

## OHIO (Continued)

**NASW 3393** **Ohio State University** **3504**  
 Study involving communications link characterizations experiments with the COMSTAR satellite  
*Period* *Obligations*  
 06/14/80-03/14/81 **FY80: \$200,000** **TOTAL: \$200,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Hodge, D. B. HD-EC/Ippolito, L. J. 45-Elec Engr

**NCA 2-565001** **Ohio State University** **3505**  
 An introductory study of the H-force rotor  
*Period* *Obligations*  
 11/01/79-01/31/81 **FY80: \$33,569** **TOTAL: \$33,569**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Velkoff, H. R. ARC/Stroub, R. H. 41-Aero Engr  
 ARC/Lemke, L. G.

**NCA 2-565901** **Ohio State University** **3506**  
 Relaxation algorithms applied to grid generation (ADI)  
*Period* *Obligations*  
 07/01/79-06/30/81 **FY80: \$18,720** **TOTAL: \$36,720**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Nakamura, S. ARC/Holst, T. L. 41-Aero Engr

**NGR 36-008-161** **Ohio State University** **3507**  
 The direct combination of satellite and gravity data  
*Period* *Obligations*  
 05/01/71-02/28/81 **FY80: \$34,144** **TOTAL: \$281,169**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Rapp, R. H. GSFC/Patterson, G. C. 32-Geological Sci  
 GSFC/Lerch, F. J.

**NGT 36-008-007** **Ohio State University** **3508**  
 Training of post graduate medical students in field of aerospace medicine  
*Period* *Obligations*  
 04/02/64-08/31/78 **FY80:** **TOTAL: \$606,066**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Keller, M. D. HD-LU/Nicogossian, A. E.  
 56-Medical Sciences

**NSG 1498** **Ohio State University** **3509**  
 Analysis of airborne antenna patterns  
*Period* *Obligations*  
 01/16/78-01/15/81 **FY80:** **TOTAL: \$119,511**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Burnside, W. D. LARC/Gilreath, M. C. 45-Elec Engr  
 LARC/Croswell, W. F.

**NSG 1613** **Ohio State University** **3510**  
 Radar cross section studies  
*Period* *Obligations*  
 05/01/79-04/30/81 **FY80: \$74,979** **TOTAL: \$124,908**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Peters, L. LARC/Gilreath, M. C. 45-Elec Engr  
 Burnside, W. D.

**NSG 1620** **Ohio State University** **3511**  
 Applications of a kinesthetic tactual display for aircraft control  
*Period* *Obligations*  
 05/16/79-08/15/80 **FY80:** **TOTAL: \$40,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Gilson, R. D. LARC/Holmes, B. J. 41-Aero Engr  
 Shulman, H. G. LARC/Brown, P. W.

**NSG 1622** **Ohio State University** **3512**  
 Viscous interaction effects on airfoil performances  
*Period* *Obligations*  
 07/01/79-06/30/81 **FY80: \$39,876** **TOTAL: \$79,860**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Burggraf, O. R. LARC/Everhart, J. L. 41-Aero Engr  
 LARC/South, J. C.

**NSG 2162** **Ohio State University** **3513**  
 Electronic search technology applicable to the search for extraterrestrial intelligence problem  
*Period* *Obligations*  
 06/01/76-01/31/81 **FY80: \$15,000** **TOTAL: \$50,181**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Dixon, R. S. ARC/Wolfe, J. H. 45-Elec Engr  
 ARC/Billingham, J.

**NSG 2175** **Ohio State University** **3514**  
 Laboratory infrared research relevant to atmospheric and planetary studies  
*Period* *Obligations*  
 10/01/76-10/01/81 **FY80:** **TOTAL: \$156,238**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Rao, K. N. ARC/Boese, R. W. 13-Physics

**NSG 2179** **Ohio State University** **3515**  
 Study of tactual sensing and transmittal of information  
*Period* *Obligations*  
 09/01/76-03/31/81 **FY80: \$36,163** **TOTAL: \$191,846**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Jagacinski, R. J. ARC/Dunn, R. S. 69-Psych. NEC

**NSG 2220** **Ohio State University** **3516**  
 Environmental and genetic effects on gravity receptors: A morphological, physiological and behavioral study  
*Period* *Obligations*  
 05/01/77-10/31/80 **FY80: \$40,000** **TOTAL: \$118,849**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Lim, D. J. ARC/Mehler, W. R. 51-Biological Sci

**NSG 2298** **Ohio State University** **3517**  
 Experimental analyses of trailing edge flows  
*Period* *Obligations*  
 02/01/78-01/31/81 **FY80: \$70,625** **TOTAL: \$211,388**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Petrie, S. L. ARC/Marvin, J. G. 41-Aero Engr  
 Korkan, K. D. ARC/McDevitt, J. B.  
 Hoffmann, M.



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**OHIO (Continued)**

<b>NSG 3164</b>	<b>Ohio State University</b>	<b>3518</b>	<b>NSG 5265</b>	<b>Ohio State University</b>	<b>3524</b>
Deformation structures in metal crystals due to wear and machining at high speed			Basic research for the Earth dynamics program		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
12/01/77-12/31/80	FY80: \$29,643	TOTAL: \$77,810	04/01/78-01/31/82	FY80: \$60,000	TOTAL: \$245,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Black, J. T.	LERC/Bill, R. C.	47-Materials Engr	Mueller, I. I.	GSFC/Holweck, E. C.	32-Geological Sci
	LERC/Ludwig, L. P.		Uotila, U. A.		
<b>NSG 3235</b>	<b>Ohio State University</b>	<b>3519</b>	<b>NSG 5275</b>	<b>Ohio State University</b>	<b>3525</b>
Mechanism of fiber release during pyrolysis of carbon fiber reinforced plastics			Research of altimeter data in order to improve existing gravity models		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
12/01/78-11/30/81	FY80:	TOTAL: \$93,186	05/15/78-09/30/79	FY80:	TOTAL: \$30,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Smith, E. E.	LERC/Bowles, K. J.	49-Engr, NEC	Schmidt, E. G.	GSFC/Smith, D. E.	32-Geological Sci
	LERC/Serafini, T. T.				
<b>NSG 3247</b>	<b>Ohio State University</b>	<b>3520</b>	<b>NSG 5299</b>	<b>Ohio State University</b>	<b>3526</b>
Propeller aero-acoustic methodology			A search for variations in the spectrum		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
01/15/79-01/14/81	FY80: \$100,000	TOTAL: \$197,104	08/15/78-09/14/81	FY80:	TOTAL: \$1,735
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Gregorek, G. M.	LERC/Mitchell, G. A.	41-Aero Engr	Stettebak, A. E.	GSFC/Kupperian, J. E., Jr.	11-Astronomy
Korkan, K. D.					
<b>NSG 3269</b>	<b>Ohio State University</b>	<b>3521</b>	<b>NSG 5368</b>	<b>Ohio State University</b>	<b>3527</b>
In search of a theoretical foundation for quantitative ultrasonic measurement of fracture toughness			Research of binary systems and composite sources involving cool and hot components		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
05/01/79-02/06/81	FY80: \$37,000	TOTAL: \$47,887	06/01/79-05/31/82	FY80: \$10,000	TOTAL: \$17,700
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Fu, L. S.	LERC/Vary, A.	47-Materials Engr	Wing, R. F.	GSFC/Bogges, A.	11-Astronomy
			Kondo, Y.		
			Stencel, R. E.		
<b>NSG 3302</b>	<b>Ohio State University</b>	<b>3522</b>	<b>NSG 7479</b>	<b>Ohio State University</b>	<b>3528</b>
The application of optical computing techniques to test engine controls			Investigation of infrared spectra of atmospheric gases to support stratospheric spectroscopic observations		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
08/01/79-08/01/81	FY80: \$59,967	TOTAL: \$99,931	11/01/78-10/31/80	FY80: \$56,634	TOTAL: \$106,634
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Collins, S. A., Jr.	LERC/Baumbilk, R. J.	45-Elec Engr	Shaw, J. H.	HD-EB/Toth, R. A.	31-Atmos Sci
Fabtei, S.	LERC/Sellers, J. F.		HD-EB/Seals, R. K.		
<b>NSG 5247</b>	<b>Ohio State University</b>	<b>3523</b>	<b>NGR 36-009-017</b>	<b>Ohio University</b>	<b>3529</b>
Exploratory observations of the ultraviolet spectra of late-type stars			Air transportation systems: Emphasis on low frequency navigation		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
03/01/78-06/30/79	FY80:	TOTAL: \$9,187	02/26/71-11/30/82	FY80: \$90,947	TOTAL: \$691,405
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wing, R. F.	GSFC/Bogges, A.	11-Astronomy	McFarland, R. H.	LARC/Bundick, W. T.	45-Elec Engr
	GSFC/West, D. K.		LARC/Downing, D. R.		

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## OHIO (Continued)

<b>NSG 7352</b>	<b>Ohio University</b>	<b>3530</b>
Study of mechanism of thigmomorphogenesis in plants with special reference to role of ethylene and its significance to research with plants in space		
<i>Period</i>	<i>Obligations</i>	
06/05/77-06/14/80	FY80: \$3,650	TOTAL: \$98,650
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Jaffe, M. J.	HD-SB/Halstead, T W	51-Biological Sci
<b>NAG 3-50</b>	<b>University of Akron</b>	<b>3531</b>
NASA LERC/Akron University graduate cooperative fellowship programs		
<i>Period</i>	<i>Obligations</i>	
06/01/80-05/31/81	FY80: \$30,000	TOTAL: \$30,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Simon, A. I	LERC/Chamis, C. C.	41-Aero Engr
Fertis, D. G	LERC/Johns, R. H.	
<b>NAG 3-54</b>	<b>University of Akron</b>	<b>3532</b>
Self adaptive solutions strategies		
<i>Period</i>	<i>Obligations</i>	
08/01/80-07/31/81	FY80: \$30,000	TOTAL: \$30,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Padovan, J	LERC/Chamis, C. C.	46-Mech Engr
<b>NAG 3-55</b>	<b>University of Akron</b>	<b>3533</b>
Helicopter transmission reliability model		
<i>Period</i>	<i>Obligations</i>	
08/01/80-07/31/81	FY80: \$36,288	TOTAL: \$36,288
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Savage, M	LERC/Coy, J. J.	46-Mech Engr
<b>NAS 9-16043</b>	<b>University of Akron</b>	<b>3534</b>
Life science experiment		
<i>Period</i>	<i>Obligations</i>	
01/17/80-05/31/81	FY80: \$14,120	TOTAL: \$14,120
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Herron, D. F.	JSC/French, B. O.	59-Life Sci, NEC
<b>NGT 36-001-800</b>	<b>University of Akron</b>	<b>3535</b>
Optimization structural analysis and dynamics		
<i>Period</i>	<i>Obligations</i>	
09/01/80-08/31/81	FY80: \$11,000	TOTAL: \$11,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Fertis, D. G.	LERC/Chamis, C. C.	44-Civil Engr
<b>NGT 36-001-801</b>	<b>University of Akron</b>	<b>3536</b>
Training grant for algorithms for nonlinear problems		
<i>Period</i>	<i>Obligations</i>	
09/01/80-08/31/81	FY80: \$11,000	TOTAL: \$11,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Simon, A. I.	LERC/Chamis, C. C.	44-Civil Engr
<b>NSG 3283</b>	<b>University of Akron</b>	<b>3537</b>
Finite elements for rotor/stator interactive forces in general engine dynamic simulator		
<i>Period</i>	<i>Obligations</i>	
08/31/79-07/31/81	FY80: \$80,000	TOTAL: \$131,950
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Adams, M. L.	LERC/Chamis, C. C.	41-Aero Engr
Padovan, J.	LERC/Hirschbein, M. S.	
Pertis, D. G.		
<b>NAG 1-8</b>	<b>University of Cincinnati</b>	<b>3538</b>
Spline collocation for viscous flow over-after body configurations		
<i>Period</i>	<i>Obligations</i>	
11/01/79-10/31/80	FY80: \$34,998	TOTAL: \$34,998
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Rubin, S. S.	LARC/Swanson, R. C.	41-Aero Engr
	LARC/Putnam, L. F.	
<b>NAG 2-38</b>	<b>University of Cincinnati</b>	<b>3539</b>
Flap-lag-torsional dynamics of extensional and intensional rotor blades in hover and in forward flight		
<i>Period</i>	<i>Obligations</i>	
07-01/80-06/30/81	FY80: \$31,658	TOTAL: \$31,658
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
CrespoDaSilva, M. R.	ARC/Hodges, D. H.	41-Aero Engr
	ARC/Ormiston, R. A.	
<b>NAG 3-26</b>	<b>University of Cincinnati</b>	<b>3540</b>
Experimental study of radial turbine scrolls		
<i>Period</i>	<i>Obligations</i>	
03/01/80-03/01/81	FY80: \$37,230	TOTAL: \$37,230
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Tabakoff, W.	LERC/Glassman, A. J.	41-Aero Engr
<b>NAG 3-52</b>	<b>University of Cincinnati</b>	<b>3541</b>
Analytical study of the compressible three dimensional flow in turbine scrolls		
<i>Period</i>	<i>Obligations</i>	
03/27/80-03/26/81	FY80: \$41,486	TOTAL: \$41,486
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hamed, A.	LERC/Katsanis, T.	41-Aero Engr
Baskharone, F. A.		
<b>NAS 3-21609</b>	<b>University of Cincinnati</b>	<b>3542</b>
Viscous flow analysis in turbomachine rotors		
<i>Period</i>	<i>Obligations</i>	
02/27/79-12/10/79	FY80	TOTAL: \$25,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Tabakoff, W.	LERC/McFarland, F. R.	41-Aero Engr
Hamed, A.	LERC/Sockol, P. M.	

**NASA'S UNIVERSITY PROGRAM  
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**NCA 2-130801** University of Cincinnati 3543  
Design and analysis of closed loop guidance laws for VTOL  
and STOL vehicles  
*Period* *Obligations*  
08/15/78-11/15/80 FY80: \$19,755 TOTAL: \$34,167  
*Prin Invest* NASA Tech Officer CASE Category  
Slater, G. L. ARC/Erzberger, H. 41-Aero Engr

**NCA 2-130901** University of Cincinnati 3544  
Development of a parabolized Navier-Stokes solver and numerical  
coordinate generator for subsonic and transonic plane flows  
*Period* *Obligations*  
06/01/79-05/31/81 FY80: \$26,839 TOTAL: \$39,216  
*Prin Invest* NASA Tech Officer CASE Category  
Davis, R. T. ARC/Rakich, J. V. 41-Aero Engr

**NGI 36-004-800** University of Cincinnati 3545  
Graduate student training program in computational fluid  
dynamic  
*Period* *Obligations*  
07/01/80-12/31/80 FY80: \$75,000 TOTAL: \$75,000  
*Prin Invest* NASA Tech Officer CASE Category  
Rubin, S. G. HD-RT/Graves, R. A. 41-Aero Engr

**NSG 1185** University of Cincinnati 3546  
Geometric modeling and analysis of rod-like large space  
structures  
*Period* *Obligations*  
05/01/75-10/31/81 FY80: \$89,466 TOTAL: \$182,883  
*Prin Invest* NASA Tech Officer CASE Category  
Nayfeh, A. H. IARC/Walz, J. 49-Engr, NEC  
IARC/Anderson, M.

**NSG 1486** University of Cincinnati 3547  
Investigation of improved modal parameter estimation tech-  
niques  
*Period* *Obligations*  
01/16/78-02/28/81 FY80: \$48,412 TOTAL: \$122,314  
*Prin Invest* NASA Tech Officer CASE Category  
Brown, D. L. IARC/Monteith, J. H. 46-Mech Engr  
IARC/Pappa, R. S.

**NSG 3022** University of Cincinnati 3548  
Investigation of a new family of semiconductor diodes based  
upon bulk effects of deep impurities  
*Period* *Obligations*  
07/01/74-09/29/81 FY80: \$81,063 TOTAL: \$222,412  
*Prin Invest* NASA Tech Officer CASE Category  
Henderson, H. T. LERC/Sundberg, G. R. 45-Elec Engr

**NSG 3024** University of Cincinnati 3549  
Research into the use of silane pyrolytic deposition methods for  
SiO2 growth in the construction of stable high energy density  
capacitors  
*Period* *Obligations*  
07/01/74-09/29/82 FY80: \$40,148 TOTAL: \$135,266  
*Prin Invest* NASA Tech Officer CASE Category  
Nevin, J. H. LERC/Riley, T. J. 45-Elec Engr  
LERC/Myers, I. T.

**NSG 3091** University of Cincinnati 3550  
Study of suitable isomers for gamma ray lasers  
*Period* *Obligations*  
12/15/75-06/01/79 FY80: TOTAL: \$34,268  
*Prin Invest* NASA Tech Officer CASE Category  
Selberg, B. P. LERC/Bluc, J. W. 13-Physics  
Cronin, D. L. LERC/Leonard, R. F.

**NSG 3147** University of Cincinnati 3551  
High-temperature low-cycle fatigue and crack propogation  
*Period* *Obligations*  
06/01/77-05/31/80 FY80: TOTAL: \$80,652  
*Prin Invest* NASA Tech Officer CASE Category  
Antolovich, S. D. LERC/Miner, R. V. 47-Materials Engr

**NSG 3188** University of Cincinnati 3552  
Investigations into the geometry of straight and spiral bevel  
gears  
*Period* *Obligations*  
04/01/78-03/29/81 FY80: \$30,000 TOTAL: \$55,000  
*Prin Invest* NASA Tech Officer CASE Category  
Huston, R. L. LERC/Coy, J. J. 46-Mech Engr

**NSG 3218** University of Cincinnati 3553  
Study of environmental solid particle effects on axial flow  
compressor  
*Period* *Obligations*  
11/15/78-11/15/81 FY80: TOTAL: \$59,667  
*Prin Invest* NASA Tech Officer CASE Category  
Tabakoff, W. LERC/Stubbs, R. M. 46-Mech Engr

**NSG 3263** University of Cincinnati 3554  
A mechanistic evaluation of deformation and fracture in high  
temperature low cycle fatigue  
*Period* *Obligations*  
03/26/79-03/25/81 FY80: \$30,331 TOTAL: \$59,910  
*Prin Invest* NASA Tech Officer CASE Category  
Antolovich, S. D. LERC/Hirschberg, M. H. 47-Materials Engr  
LERC/Halford, G. R.

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<b>NSG 3267</b>	<b>University of Cincinnati</b>	<b>3555</b>	<b>NAS 6-3086</b>	<b>University of Dayton</b>	<b>3561</b>
Analysis of internal viscous flows using theory of spines and implicit numerical methods			Service, materials and personnel necessary to provide correlative data efforts for WFC field measurements office		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
04/02/79-03/31/81	FY80: \$35,000	TOTAL: \$65,600	03/01/80-05/31/81	FY80: \$102,452	TOTAL: \$102,452
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ghia, K. N.	LERC/Kao, H. C.	41-Aero Engr	Luers, J. K.	WFC/Rossi, L. C.	31-Atmos Sci
Ghia, U.			Keller, J.	WFC/Perry, T. W.	
			Jenks, F.		
<b>DEN 3-189</b>	<b>University of Dayton</b>	<b>3556</b>	<b>NAS 8-31294</b>	<b>University of Dayton</b>	<b>3562</b>
Study and review of permanent magnets for electric vehicle propulsion motors			Examination of requirements and methods for reporting atmospheric information		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
01/08/80-04/23/81	FY80: \$57,893	TOTAL: \$57,893	01/16/75-01/31/79	FY80:	TOTAL: \$166,471
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Strnat, K. J.	LERC/Gourash, F.	47-Materials Engr	Leurs, J. K.	MSFC/Camp, D. W.	41-Aero Engr
			Engler, N.	MSFC/Alexander, M. B.	
<b>NAG 3-65</b>	<b>University of Dayton</b>	<b>3557</b>	<b>NAS 8-32111</b>	<b>University of Dayton</b>	<b>3563</b>
Development of an airfoil ice accretion model			Turbulence study		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
04/28/80-04/27/81	FY80: \$41,951	TOTAL: \$41,951	07/21/76-02/29/80	FY80:	TOTAL: \$139,602
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Luers, J. K.	LERC/Shaw, R. J.	41-Aero Engr	Luers, J. K.	MSFC/Camp, D. W.	41-Aero Engr
Dietenberger, M. A.				MSFC/Alexander, M. B.	
Shirley, T. E.					
<b>NAS 3-21370</b>	<b>University of Dayton</b>	<b>3558</b>	<b>NAS 8-33369</b>	<b>University of Dayton</b>	<b>3564</b>
Compilation of ATS-1, 3, 5, 6 and CTS user experiments documentation			Examination of requirements and methods for reporting atmospheric information		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
06/08/78-06/08/80	FY80: \$63,611	TOTAL: \$122,178	02/12/79-12/11/80	FY80: \$45,869	TOTAL: \$85,869
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Engler, N.	LERC/Gentile, L. C.	42-Astro Engr	Luers, J. K.	MSFC/Camp, D. W.	31-Atmos Sci
Nash, J.				MSFC/Torkar, J. E.	
<b>NAS 3-22353</b>	<b>University of Dayton</b>	<b>3559</b>	<b>NSG 6026</b>	<b>University of Dayton</b>	<b>3565</b>
Preliminary static impact testing of boron aluminum composite tip panels			Study of the effects of heavy rains on aircraft aerodynamics		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
01/24/80-01/23/81	FY80: \$49,843	TOTAL: \$49,843	04/01/79-09/30/80	FY80: \$40,011	TOTAL: \$50,929
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bless, S. J.	LERC/McDaniels, D. L.	47-Materials Engr	Luers, J. K.	WFC/Melson, W. E., Jr.	41-Aero Engr
Cross, D. L.				WFC/Parker, L. C.	
<b>NAS 6-2456</b>	<b>University of Dayton</b>	<b>3560</b>	<b>NSG 7444</b>	<b>University of Dayton</b>	<b>3566</b>
Atmospheric phenomena associated with falling spheres			An investigation of the cratering-induced motions occurring during the formation of bowl-shaped craters		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
03/25/74-02/29/80	FY80: \$14,995	TOTAL: \$243,716	06/01/78-06/30/80	FY80:	TOTAL: \$48,004
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Luers, J. K.	WFC/Duke, J. R.	31-Atmos Sci	Piekutowski, A. J.	HD-SL/Quaide, W. L.	32-Geological Sci
	WFC/Schmidlin, F. J.				
<b>NAG 3-42</b>	<b>University of Toledo</b>	<b>3567</b>	<b>NAG 3-42</b>	<b>University of Toledo</b>	<b>3567</b>
Digital television simulation facility			Digital television simulation facility		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
03/31/80-03/30/81	FY80: \$31,328	TOTAL: \$31,328	03/31/80-03/30/81	FY80: \$31,328	TOTAL: \$31,328
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kwatra, S. C.	LERC/Wythe, W.	45-Elec Engr			

**NASA'S UNIVERSITY PROGRAM  
OHIO (Continued)**

<b>NAG 3-72</b>	<b>University of Toledo</b>	<b>3568</b>			
Numerical simulation of heat transfer phenomena occurring during deicing of aircraft components					
<i>Period</i>	<i>Obligations</i>				
06/01/80-09/01/81	FY80: \$43,000	TOTAL: \$43,000			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Dewitt, K. J.	LERC/Shaw, R. J.	41-Aero Engr			
Keith, T. G.					
<b>NAG 5-67</b>	<b>University of Toledo</b>	<b>3509</b>			
Studies of new bright chromospheric action stars					
<i>Period</i>	<i>Obligations</i>				
06/01/80-12/31/81	FY80: \$5,000	TOTAL: \$5,000			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Bopp, B. W.	GSFC/Bogges, A.	11-Astronomy			
<b>NAGW 89</b>	<b>University of Toledo</b>	<b>3570</b>			
Properties of interstellar grains					
<i>Period</i>	<i>Obligations</i>				
09/01/80-08/31/81	FY80: \$16,069	TOTAL: \$16,069			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Witt, A.	HD-SC/Weiler, E. J.	11-Astronomy			
	HD-SC/Bogges, N. W.				
<b>NCC 3-5</b>	<b>University of Toledo</b>	<b>3571</b>			
Evaluation of the performance of wind turbine concepts and operating wind turbines					
<i>Period</i>	<i>Obligations</i>				
09/15/79-01/31/81	FY80: \$99,993	TOTAL: \$99,993			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Keith, T. G.	LERC/Finnegan, P. M.	49-Engr, NEC			
	LERC/Cooksey, D.				
<b>NSG 3084</b>	<b>University of Toledo</b>	<b>3572</b>			
Multi-variable control and sensor evaluation for integrated air breathing propulsion systems					
<i>Period</i>	<i>Obligations</i>				
01/01/76-01/01/80	FY80: \$64,746	TOTAL: \$64,746			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Leininger, G. G.	LERC/Merrill, W. C.	45-Elec Engr			
	LERC/Zeller, J. R.				
<b>NSG 3121</b>	<b>University of Toledo</b>	<b>3573</b>			
Mass transport phenomena between bubbles and dissolved gases in liquids in a zero-g environment					
<i>Period</i>	<i>Obligations</i>				
09/01/76-12/31/80	FY80: \$14,999	TOTAL: \$21,000			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Dewitt, K. J.	LERC/Labus, T. L.	49-Engr, NEC			
<b>NSG 3139</b>	<b>University of Toledo</b>	<b>3574</b>			
Stability analysis of wind turbines with long, flexible blades					
<i>Period</i>	<i>Obligations</i>				
02/22/77-02/04/81	FY80: \$55,001	TOTAL: \$196,944			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Koza, K. R.	LERC/Brown, G. V.	41-Aero Engr			
Keith, T. G.	LERC/Chamis, C. C.				
<b>NSG 3156</b>	<b>University of Toledo</b>	<b>3575</b>			
Analysis of the stirling engine oil pumping ring seal					
<i>Period</i>	<i>Obligations</i>				
07/01/77-06/30/81	FY80: \$32,994	TOTAL: \$69,378			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Keith, T. E.	LERC/Cunningham, R. E.	46-Mech Engr			
Smith, P. J.					
<b>NSG 3171</b>	<b>University of Toledo</b>	<b>3576</b>			
Properties of the multivariable Nyquist array method					
<i>Period</i>	<i>Obligations</i>				
11/01/77-10/31/79	FY80:	TOTAL: \$49,140			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Leininger, G. G.	LERC/Lehtinen, B.	45-Elec Engr			
<b>NSG 3250</b>	<b>University of Toledo</b>	<b>3577</b>			
Thermodynamics of the potassium-sulfur-oxygen and related items					
<i>Period</i>	<i>Obligations</i>				
06/15/79-06/14/81	FY80: \$42,214	TOTAL: \$80,540			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Edwards, J. G.	LERC/Stearns, C. A.	12-Chemistry			
	LERC/Kohl, F. J.				
<b>NSG 3281</b>	<b>University of Toledo</b>	<b>3578</b>			
An investigation of the high frequency performance of series resonant inverters					
<i>Period</i>	<i>Obligations</i>				
06/01/79-05/31/81	FY80:	TOTAL: \$24,962			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Stuart, T. A.	LERC/Gruber, R. P.	45-Elec Engr			
<b>NSG 5207</b>	<b>University of Toledo</b>	<b>3579</b>			
Coordinated Copernicus and ground based observations of the radio binaries					
<i>Period</i>	<i>Obligations</i>				
09/01/77-03/31/79	FY80:	TOTAL: \$2,753			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Bopp, B. W.	GSFC/Kupperian, J. E., Jr.	11-Astronomy			
<b>NSG 5359</b>	<b>University of Toledo</b>	<b>3580</b>			
Ultraviolet observations of various type supergiants					
<i>Period</i>	<i>Obligations</i>				
06/01/79-05/31/81	FY80: \$12,844	TOTAL: \$17,544			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Morrison, N. D.	GSFC/Bogges, A.	11-Astronomy			
<b>NSG 5388</b>	<b>University of Toledo</b>	<b>3581</b>			
Phase function studies in reflection nebulae with the international ultraviolet experiment					
<i>Period</i>	<i>Obligations</i>				
07/01/79-12/31/80	FY80: \$6,372	TOTAL: \$14,400			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Witt, A. N.	GSFC/Bogges, A.	11-Astronomy			
Stecher, T. P.					
Bohlin, R. C.					



**NASA'S UNIVERSITY PROGRAM  
OKLAHOMA (Continued)**

**NAS 6-3103** Oklahoma State University 3595  
Mini-tracker ranging system  
*Period* *Obligations*  
05/12/80-11/11/81 FY80: \$378,200 TOTAL: \$378,200  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Fike, R. M. WFC/Boykin, F. M. 49-Engr, NEC  
WFC/West, W. W.

**NASW 3313** Oklahoma State University 3596  
Spacemobile operation and management of aerospace education services project  
*Period* *Obligations*  
10/01/79-09/30/80 FY80: \$894,918 TOTAL: \$894,918  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Wiggins, K. HD-LF/Nixon, W. D. 99-Multi-Discip

**NSG 2396** Oklahoma State University 3597  
Study of boundary layer transition using transonic-cone preston-tube data  
*Period* *Obligations*  
07/01/79-12/31/80 FY80: TOTAL: \$47,830  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Moretti, P. M. ARC/Steinle, F. W. 41-Aero Engr  
Reed, T. D.

**NSG 4018** Oklahoma State University 3598  
Study of handling qualities of large control configured aircraft  
*Period* *Obligations*  
01/01/79-06/30/80 FY80: TOTAL: \$24,680  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Swain, R. L. DFRC/Gilyard, G. B. 41-Aero Engr

**NSG 6018** Oklahoma State University 3599  
Investigation for improved precision in aerial application equipment  
*Period* *Obligations*  
10/01/77-12/31/80 FY80: \$31,700 TOTAL: \$131,494  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Roth, L. O. WFC/Carr, R. E. 49-Engr, NEC  
Whitney, R. W.

**NSG 7640** Oklahoma State University 3600  
Remote sensing applications to Oklahoma resources and environmental problems  
*Period* *Obligations*  
09/01/79-08/31/83 FY80: \$120,000 TOTAL: \$285,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Walsh, S. HD-ET/Vitale, J. A. 31-Atmos Sci

**NASW 3180** Southeastern Oklahoma State Univ. 3601  
Operation of a NASA industrial application center  
*Period* *Obligations*  
10/01/78-06/30/81 FY80: \$422,578 TOTAL: \$582,850  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Oliver, R. HD-ET/Bivins, R. G. 49-Engr, NEC

**NAS 2-10408** University of Oklahoma - Health Center 3602  
Cosmos 1981 experiment: Carotid arterial flow and pressure measurement of primates  
*Period* *Obligations*  
10/01/79-08/31/82 FY80: \$70,000 TOTAL: \$70,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Stone, H. L. APC/Heinrich, M. 51-Biological Sci

**NAS 2-10526** University of Oklahoma - Health Center 3603  
Mechanism(s) underlying fluid volume shifts in zero-gravity  
*Period* *Obligations*  
01/17/80-12/31/80 FY80: \$37,825 TOTAL: \$37,825  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Stone, H. L. ARC/Ferandin, J. 51-Biological Sci  
ARC/Lee, R. D.

**NAS 2-10529** University of Oklahoma - Health Center 3604  
Cardiovascular deconditioning correlated with biochemical and histological indices of cardiac muscle function following zero-gravity exposure  
*Period* *Obligations*  
01/17/80-12/31/80 FY80: \$2,436 TOTAL: \$2,436  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Dowell, R. T. ARC/Rasmussen, D.N. 51-Biological Sci  
ARC/Neville, E.

**NAS 9-15994** University of Oklahoma - Health Center 3605  
Investigation of inhibition by camp of lymphocyte plasma membrane endogenous phosphorylation  
*Period* *Obligations*  
11/01/79-02/01/81 FY80: \$20,000 TOTAL: \$20,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Nordquist, R. E. JSC/Lucid, S. W. 51-Biological Sci

**NCC 2-24** University of Oklahoma - Health Center 3606  
Central and peripheral mechanisms underlying cardiovascular deconditioning in the unanesthetized primate  
*Period* *Obligations*  
11/01/79-10/31/80 FY80: \$59,211 TOTAL: \$59,211  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Stone, H. L. ARC/Sandler, H. 59-Life Sci, NEC

**NAG 1-14** University of Oklahoma - Norman 3607  
A high temperature silicon-on-sapphire pressure sensor  
*Period* *Obligations*  
12/01/79-11/30/80 FY80: \$56,126 TOTAL: \$56,126  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Kahng, S. K. LARC/Hendricks, H. D. 45-Elec Engr  
LARC/Ocheltree, S. L.

**NAG 8-372** University of Oklahoma - Norman 3608  
Observations of the rapid variable AE Aquarius in the HEAO-B guest investigator program: Observations of selected superclusters  
*Period* *Obligations*  
09/15/80-09/14/81 FY80: \$5,892 TOTAL: \$5,892  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Chincarini, G. MSFC/Stone, J. F. 11-Astronomy

**NASA'S UNIVERSITY PROGRAM  
OKLAHOMA (Continued)**

**NAS 5-25375** University of Oklahoma - Norman **3609**  
Satellite data assimilation in numerical forecast models  
*Period* *Obligations*  
12/05/78-12/04/80 **FY80: \$53,835** **TOTAL: \$109,670**  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
Sasaki, Y. K. GSFC/Greaves, J. R. 31-Atmos Sci

**NGT 37-003-760** University of Oklahoma - Norman **3616**  
Training of undergraduate students in sciences and engineering  
*Period* *Obligations*  
06/01/76-08/31/80 **FY80:** **TOTAL: \$31,500**  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
Thomas, G. HD-LU/Pohly, J. G. 49-Engr, NEC  
HD-U/Jenkins, H. G.

**NAS 8-31377** University of Oklahoma - Norman **3610**  
Integrating upper and lower atmospheric wind profiles and statistics  
*Period* *Obligations*  
03/17/75-04/20/79 **FY80:** **TOTAL: \$82,929**  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
McCarthy, J. MSFC/Camp, D. W. 31-Atmos Sci  
Blick, E. F. MSFC/Fichtl, G. H.

**NSG 5257** University of Oklahoma - Norman **3617**  
Research of the ultraviolet spectrum of a massive triple system OAO  
*Period* *Obligations*  
03/15/78-03/14/79 **FY80:** **TOTAL: \$572**  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
Herczeg, T. GSFC/Kupperian, J. E., Jr. 11-Astronomy

**NAS 8-33330** University of Oklahoma - Norman **3611**  
Observations of the rapid variable AE Aquarius in the HEAO-B guest investigator program: Observations of selected superclusters  
*Period* *Obligations*  
02/05/79-02/04/80 **FY80:** **TOTAL: \$3,886**  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
Chincarini, G. L. MSFC/Jones, J. B., Jr. 11-Astronomy  
Herczeg, T.

**OREGON**

**NAG 1-35** Oregon Graduate Center **3618**  
Automated measurements of calibrated concentrations (CO, CH4, and CO2) at Samoa and Tasmania  
*Period* *Obligations*  
01/25/80-01/24/81 **FY80: \$31,214** **TOTAL: \$31,214**  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
Rasmussen, R. A. LARC/Reichle, H. G. 31-Atmos Sci

**NAS13-122** University of Oklahoma - Norman **3612**  
To provide for a second year of effort in establishing LANDSAT workshop  
*Period* *Obligations*  
06/01/79-05/31/80 **FY80:** **TOTAL: \$15,000**  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
Harrington, J. A. NSTL/Atwell, B. H. 32-Geological Sci

**NAG 2-9** Oregon Graduate Center **3619**  
Measurement of temperature and density fluctuations in turbulence using an ultraviolet laser  
*Period* *Obligations*  
01/01/80-12/31/80 **FY80: \$28,516** **TOTAL: \$28,516**  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
Massey, G. A. ARC/McKenzie, R. L. 13-Physics

**NAS13-156** University of Oklahoma - Norman **3613**  
Developing seminars and short courses in state of the art remote sensing techniques  
*Period* *Obligations*  
07/28/80-07/27/81 **FY80: \$12,000** **TOTAL: \$12,000**  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
Available, U. N. NSTL/Atwell, B. H. 32-Geological Sci

**NSG 2387** Oregon Graduate Center **3620**  
Evaluation of turbulence induced noise in coherent anti-Stokes/Raman scattering  
*Period* *Obligations*  
06/01/79-03/31/81 **FY80: \$23,996** **TOTAL: \$38,966**  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
Elliott, R. A. ARC/McKenzie, R. L. 13-Physics

**NCA 2-580001** University of Oklahoma - Norman **3614**  
Basic studies of a rectangular jet impingement on the surface  
*Period* *Obligations*  
01/01/80-12/31/80 **FY80: \$21,817** **TOTAL: \$21,817**  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
Krothapalli, A. ARC/Koenig, D. G. 41-Aero Engr

**NCA 2-580901** University of Oklahoma - Norman **3615**  
Cardiac function and exercise training  
*Period* *Obligations*  
07/01/79-06/30/81 **FY80: \$23,030** **TOTAL: \$27,030**  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
Stone, H. L. ARC/Sandler, H. 51-Biological Sci

**NSG 7457** Oregon Graduate Center **3621**  
Spatial and temporal variations in atmospheric carbon concentration  
*Period* *Obligations*  
05/01/78-04/30/81 **FY80: \$75,048** **TOTAL: \$224,148**  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
Rasmussen, R. A. HD-EB/Toth, R. A. 31-Atmos Sci  
HD-EB/Tilford, S. G.



**NASA'S UNIVERSITY PROGRAM  
OREGON (Continued)**

<b>NAG 3-87</b>	<b>Oregon State University</b>	<b>3622</b>	<b>NGL 38-002-053</b>	<b>Oregon State University</b>	<b>3629</b>
Wind turbine structural design and analysis			Development and operation of an environmental remote sensing applications laboratory		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
07/15/80-07/14/81	FY80: \$42,732	TOTAL: \$42,732	03/16/72-03/31/82	FY80: \$150,000	TOTAL: \$1,175,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Thresher, R. W.	LERC/Spera, D. A.	46-Mech Engr	Schrumpf, B. J.	HD-ET/Vitale, J. A.	39-F... 'EC
	LERC/Finnegan, P. M.				
<b>NAG 5-51</b>	<b>Oregon State University</b>	<b>3623</b>	<b>NSG 5308</b>	<b>Oregon State University</b>	<b>3630</b>
Investigation of small-scale terrain effects within climate models			Analyses of the surface heat balance over the world ocean		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
05/15/80-05/14/81	FY80: \$63,132	TOTAL: \$63,132	12/01/78-04/30/81	FY80: \$39,313	TOTAL: \$95,747
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Deardorff, J. W.	GSFC/Shukla, J.	31-Atmos Sci	Esbensen, S.	GSFC/Halem, M.	31-Atmos Sci
<b>NAG 9-2</b>	<b>Oregon State University</b>	<b>3624</b>	<b>NSG 5343</b>	<b>Oregon State University</b>	<b>3631</b>
Neotectonics of Pakistan			Techniques for applications of satellite data to the quantitative forecasting of precipitation		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
02/01/80-01/31/81	FY80: \$60,000	TOTAL: \$60,000	05/01/79-12/31/80	FY80:	TOTAL: \$64,660
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lawrence, R. D.	JSC/Phinney, W. C.	32-Geological Sci	Decker, F. W.	GSFC/Adler, R. F.	31-Atmos Sci
<b>NAS 5-23738</b>	<b>Oregon State University</b>	<b>3625</b>	<b>NSG 5353</b>	<b>Oregon State University</b>	<b>3632</b>
Ocean color ground truth support			Numerical simulation of large scale ocean atmosphere coupling and the ocean's role in climate		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
10/21/76-12/31/79	FY80:	TOTAL: \$101,558	05/01/79-05/14/81	FY80: \$196,200	TOTAL: \$390,259
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Zaneveld, R. V.	GSFC/Mueller, J.	39-Env Sci, NEC	Gates, W. L.	GSFC/Halem, M.	31-Atmos Sci
Pak, H.					
<b>NAS 9-14860</b>	<b>Oregon State University</b>	<b>3626</b>	<b>NSG 7178</b>	<b>Oregon State University</b>	<b>3633</b>
Assessment of the impact of increased solar ultraviolet radiation upon marine ecosystems			Examination of the suggested modes of origin of channels found on the Moon and Mars		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
10/08/75-12/07/80	FY80: \$40,000	TOTAL: \$300,000	01/01/76-01/31/81	FY80: \$27,083	TOTAL: \$112,961
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Worrest, R. C.	JSC/Nachtwey, D. S.	54-Env Biology	Komar, P. D.	HD-SL/Boyce, J. M.	32-Geological Sci
				HD-SL/Quaide, W. L.	
<b>NCA 2-586001</b>	<b>Oregon State University</b>	<b>3627</b>	<b>NAG 2-7</b>	<b>University of Oregon - Eugene</b>	<b>3634</b>
Improving convergence to the steady state			Hydrodynamics and turbulence in quantum fluids		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
06/01/80-05/31/81	FY80: \$12,635	TOTAL: \$12,635	11/01/79-10/31/80	FY80: \$62,000	TOTAL: \$62,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Jespersen, D. C.	ARC/Lomax, H.	21-Mathematics	Donnelly, R.	ARC/Brooks, W.	13-Physics
			Lucas, D. G.	ARC/Chapman, G.	
			Roberts, P.		
<b>NGL 38-002-039</b>	<b>Oregon State University</b>	<b>3628</b>	<b>NAGW 7</b>	<b>University of Oregon - Eugene</b>	<b>3635</b>
Lunar sample analysis			Optical monitoring of Cygnus X-1, X Persei, and other X-ray sources		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
01/19/71-01/31/81	FY80: \$80,214	TOTAL: \$617,081	10/01/79-02/28/81	FY80: \$20,054	TOTAL: \$20,054
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Schmitt, R. A.	JSC/Harris, J. W.	13-Physics	Kemp, J. C.	HD-SC/Kaluzienski, L. J.	11-Astronomy
				HD-SC/Holt, S. S.	

**NASA'S UNIVERSITY PROGRAM  
OREGON (Continued)**

**NGL 38-003-022** University of Oregon - Eugene 3636  
Lunar sample analysis  
*Period* *Obligations*  
02/09/71-01/31/81 FY80: \$76,018 TOTAL: \$701,892  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Weill, D. F. JSC/Harris, J. W. 13-Physics

**NGR 38-003-020** University of Oregon - Eugene 3637  
Inspection of petrologically significant physical and chemical properties of the silicate melts  
*Period* *Obligations*  
06/01/70-02/28/81 FY80: TOTAL: \$655,671  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Weill, D. F. HD-SL/Quaide, W. L. 32-Geological Sci  
HD-SL/French, B. E.

**NSG 7360** University of Oregon - Eugene 3638  
Far-infrared measurements of trace constituents  
*Period* *Obligations*  
06/01/77-09/30/80 FY80: \$49,988 TOTAL: \$138,628  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Nolt, I. G. HD-ST/Kakar, R. K. 31-Atmos Sci  
Radosnitz, J. V. HD-ST/Tilford, S. G.  
Donnelly, R. J.

**NSG 7531** University of Oregon - Eugene 3639  
Infrared and visible polarimetry of planetary bodies  
*Period* *Obligations*  
01/01/79-12/31/79 FY80: TOTAL: \$12,333  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Kemp, J. C. HD-SL/Brunk, W. E. 11-Astronomy  
HD-SL/Murphy, R. E.

**NSG 7639** University of Oregon - Eugene 3640  
Spectrum of the continuous gravitational radiation background  
*Period* *Obligations*  
09/30/79-09/30/81 FY80: \$12,201 TOTAL: \$23,246  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Zimmerman, R. L. HD-SC/Weiler, E. J. 11-Astronomy  
HD-SC/Boggs, N. W.

**NAS 8-33575** University of Oregon-Health Sci. Ctr. 3641  
Counter current distribution of biologic cells  
*Period* *Obligations*  
11/16/78-11/15/82 FY80: \$102,000 TOTAL: \$102,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Brooks, D. E. MSFC/Bannister, T. C. 47-Materials Engr  
MSFC/Snyder, R.

**PENNSYLVANIA**

**NSG 3136** Bucknell University 3642  
Development of a predictive model for thermal and thermo-oxidative stability of PMR polyimide graphite fiber composites  
*Period* *Obligations*  
02/01/77-02/01/81 FY80: TOTAL: \$44,999  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Snyder, W. J. LERC/Serafini, T. T. 43-Chem Engr

**NAG 3-5** Carnegie - Mellon University 3643  
Electro-optical system controller and processor  
*Period* *Obligations*  
11/01/79-10/31/82 FY80: \$159,907 TOTAL: \$159,907  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Casasent, D. LERC/Baumbick, R. J. 45-Elec Engr  
LERC/Sellers, J. F.

**NAG 3-21** Carnegie - Mellon University 3644  
Formulate a multi-dimensional, unsteady, turbulent, compressible, reacting flow code for Otto cycle codes and engines  
*Period* *Obligations*  
12/15/79-12/14/80 FY80: \$99,981 TOTAL: \$99,981  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Sirignano, W. A. LERC/Cassidy, J. F. 46-Mech Engr  
Ramos, J. I.  
Artman, J. O.

**NAS 1-16125** Carnegie - Mellon University 3645  
Study to evaluate the use of an optical pattern recognition system  
*Period* *Obligations*  
02/28/80-05/12/81 FY80: \$39,820 TOTAL: \$3  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Casasent, D. LARC/Wilson, R. G. 45-Elec Engr  
LARC/Howell, W. E.

**NGT 39-087-790** Carnegie - Mellon University 3646  
Pre-cooperative engineering education program  
*Period* *Obligations*  
08/01/79-07/31/80 FY80: TOTAL: \$2,239  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Cathie, W. HD-LU/Pohly, J. G. 49-Engr, NEC  
LERC/Allen, R. P.

**NSG 3172** Carnegie - Mellon University 3647  
Evaluation of failure mechanics in composites  
*Period* *Obligations*  
12/01/77-12/02/80 FY80: \$35,000 TOTAL: \$95,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Swedlow, J. L. LERC/Srawley, J. E. 46-Mech Engr  
Baumann, K. J. LERC/Brown, W. F., Jr.

**NASA'S UNIVERSITY PROGRAM  
PENNSYLVANIA (Continued)**

**NSG 3202** Carnegie - Mellon University **3648**  
A preliminary thermal analysis of reciprocating seals for the stirling engine  
*Period* *Obligations*  
07/01/78-11/30/80 **FY80: \$26,520 TOTAL: \$62,867**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Hughes, W. F. LERC/Cunningham, R. E. 46-Mech Engr  
LERC/Ludwig, L. P.

**NAS 1-14393** Drexel University **3655**  
Science support for the limb infrared monitor of the stratosphere experiment  
*Period* *Obligations*  
04/01/76-10/31/80 **FY80: TOTAL: \$106,556**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
House, F. B. LARC/Russell, J. M., III 31-Atmos Sci  
LARC/James, R. L., Jr.

**NSG 7585** Carnegie - Mellon University **3649**  
Iron-60 as a heat source and chronometer in early solar system  
*Period* *Obligations*  
05/01/79-04/30/81 **FY80: \$62,962 TOTAL: \$122,116**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Kohman, T. P. HD-SL/French, B. M. 32-Geological Sci  
HD-SL/Quaide, W. L.

**NAS 1-16428** Drexel University **3656**  
Scientific investigations for the Earth Radiation Budget Experiment (ERBE)  
*Period* *Obligations*  
09/17/80-09/16/85 **FY80: \$38,000 TOTAL: \$38,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
House, F. B. LARC/Hall, J. B. 31-Atmos Sci  
LARC/Barkstrom, B. R.

**NAG 2-8** Drexel University **3650**  
Application of variable structure system theory to aircraft flight control  
*Period* *Obligations*  
01/01/80-10/31/80 **FY80: \$34,200 TOTAL: \$34,200**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Calise, A. J. ARC/Meyer, G. 49-Engr, NEC

**NAS 5-22946** Drexel University **3657**  
Science support for the Earth radiation budget experiment on Nimbus G  
*Period* *Obligations*  
01/12/76-09/30/81 **FY80: \$39,900 TOTAL: \$162,908**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
House, F. B. GSFC/Nelson, E. D. 13-Physics

**NAG 2-10** Drexel University **3651**  
Experiments in the formation of aerosols by photo-oxidation of sulfur dioxide  
*Period* *Obligations*  
01/01/80-12/31/80 **FY80: \$33,900 TOTAL: \$33,900**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Friend, J. P. ARC/Farlow, N. H. 31-Atmos Sci  
Hanson, R. S. ARC/Pollack, J. B.

**NAS 8-33372** Drexel University **3658**  
A critical experiment to support possible space flight  
*Period* *Obligations*  
02/12/79-06/11/80 **FY80: TOTAL: \$29,057**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Lort, A. E. MSFC/Schaefer, D. A. 31-Atmos Sci  
MSFC/Williams, J. R.

**NAG 3-1** Drexel University **3652**  
Pollutant formation in monodisperse fuel spray combustion  
*Period* *Obligations*  
11/01/79-10/30/80 **FY80: \$50,000 TOTAL: \$50,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Cernansky, N. P. LERC/Lyons, V. J. 41-Aero Engr

**NAS 9-15915** Drexel University **3659**  
Bone growth and alteration via endosseous implants  
*Period* *Obligations*  
07/01/79-12/31/80 **FY80: TOTAL: \$50,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Kamel, I. JSC/Altchuler, S. I. 56-Medical Sciences

**NAG 3-14** Drexel University **3653**  
Microstructure and fatigue behavior of Rheocast IN-100  
*Period* *Obligations*  
02/01/80-01/31/81 **FY80: \$41,800 TOTAL: \$41,800**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Apelian, D. LERC/Glasgow, T. K. 47-Materials Engr  
Lawley, A.

**NCC 1-33** Drexel University **3660**  
Infrared heterodyne observation of the stratosphere from balloon based platform  
*Period* *Obligations*  
01/09/80-01/08/81 **FY80: \$40,000 TOTAL: \$40,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Abbas, M. M. LARC/Allario, F. 31-Atmos Sci  
House, F. B. LARC/Alvarez, J. M.

**NAGW 84** Drexel University **3654**  
Rave research on atmospheric volcanic emissions  
*Period* *Obligations*  
05/01/80-04/30/81 **FY80: \$154,500 TOTAL: \$154,500**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Friend, J. P. LARC/McCormick, M. P. 31-Atmos Sci  
HD-EB/Schiffer, R. A.

**NSG 1496** Drexel University **3661**  
Research on singular perturbation techniques for on-line optimal control  
*Period* *Obligations*  
02/01/78-12/31/80 **FY80: \$40,000 TOTAL: \$89,418**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Calise, A. J. LARC/Price, D. B. 41-Aero Engr

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<b>NSG 1545</b>	<b>Drexel University</b>	<b>3662</b>
Development of a climate model using a time dependent energy balance formulation		
<i>Period</i>	<i>Obligations</i>	
07/01/78-10/31/80	FY80: TOTAL: \$44,600	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
House, F. B.	LARC/Smith, G. L.	31-Atmos Sci
Jafolla, J. C.		
<b>NSG 1606</b>	<b>Drexel University</b>	<b>3663</b>
Deformation characteristics and failure modes of notched graphite polyimide composites at room and elevated temperatures		
<i>Period</i>	<i>Obligations</i>	
07/01/79-10/31/80	FY80: \$25,900 TOTAL: \$75,300	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Awerbuch, J.	LARC/Poe, C. C., Jr.	47-Materials Engr
Kamel, I.	LARC/Kennedy, J. M.	
<b>NSG 2357</b>	<b>Drexel University</b>	<b>3664</b>
Feasibility studies for light scattering experiments in space to determine the velocity relaxation of small particles in a fluid		
<i>Period</i>	<i>Obligations</i>	
01/01/79-01/31/81	FY80: \$25,000 TOTAL: \$48,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Acquista, C.	ARC/Brooks, W. F.	13-Physics
Narducci, L.		
<b>NSG 3128</b>	<b>Drexel University</b>	<b>3665</b>
Interface characterization of metal matrix composites		
<i>Period</i>	<i>Obligations</i>	
10/01/76-10/31/80	FY80: \$35,000 TOTAL: \$140,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kozak, M. J.	LERC/Grimes, H. H.	47-Materials Engr
Lawley, A.		
<b>NSG 5162</b>	<b>Drexel University</b>	<b>3666</b>
Utilization of satellite data and regional scale numerical models in short range weather forecasting		
<i>Period</i>	<i>Obligations</i>	
03/01/77-06/30/80	FY80: TOTAL: \$244,900	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kreitzberg, C.	GSFC/Ucellini, L. W.	31-Atmos Sci
<b>NSG 6007</b>	<b>Drexel University</b>	<b>3667</b>
Electrochemical concentration cell ozonesonde performance tests		
<i>Period</i>	<i>Obligations</i>	
05/01/76-09/30/80	FY80: \$7,404 TOTAL: \$110,654	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bandy, A. R.	WFC/Holland, A. C.	31-Atmos Sci
	WFC/Torres, A. L.	
<b>NSG 6019</b>	<b>Drexel University</b>	<b>3668</b>
Theoretical investigations into the scattering of light by real aerosols		
<i>Period</i>	<i>Obligations</i>	
11/01/77-04/30/80	FY80: TOTAL: \$17,750	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Acquista, C.	WFC/Holland, A. C.	13-Physics
<b>NSG 6035</b>	<b>Drexel University</b>	<b>3669</b>
A study of optimal electrode preparation for the electrochemical concentration cell ozonesonde		
<i>Period</i>	<i>Obligations</i>	
07/01/79-09/30/80	FY80: \$67,000 TOTAL: \$72,600	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Thornton, D. C.	WFC/Torres, A. L.	12-Chemistry
<b>NSG 7491</b>	<b>Drexel University</b>	<b>3670</b>
Theory for nonlinear reaction-diffusion phenomena with application to free radical recombination IV		
<i>Period</i>	<i>Obligations</i>	
10/01/78-09/30/80	FY80: \$35,000 TOTAL: \$70,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Rosen, G. H.	HD-RT/Whiting, E. E.	13-Physics
<b>NSG 7494</b>	<b>Drexel University</b>	<b>3671</b>
Vectoroculography: Mathematical and vector improvement for the electroculogram		
<i>Period</i>	<i>Obligations</i>	
11/01/78-04/30/80	FY80: TOTAL: \$40,700	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Dubin, S.	HD-SB/Larson, C.	59-Life Sci, NEC
<b>NAG 1-45</b>	<b>Lafayette College</b>	<b>3672</b>
Ultrasonic ranging for the oculometer		
<i>Period</i>	<i>Obligations</i>	
03/01/80-02/28/81	FY80: \$13,000 TOTAL: \$13,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Guy, W. J.	LARC/Gainer, P. A.	49-Engr, NEC
<b>NAG 8-355</b>	<b>Lehigh University</b>	<b>3673</b>
Interacting close binary systems		
<i>Period</i>	<i>Obligations</i>	
06/27/80-06/26/81	FY80: \$7,300 TOTAL: \$7,300	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
McCluskey, G. E.	MSFC/Swearingen, J. C.	11-Astronomy
Stengle, G. A.		
<b>NAS 8-32951</b>	<b>Lehigh University</b>	<b>3674</b>
Experiment for materials processing in space production of large particle size monodisperse latexes		
<i>Period</i>	<i>Obligations</i>	
02/22/78-02/22/83	FY80: \$96,000 TOTAL: \$361,315	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
VanDerhoff, J. W.	MSFC/Williams, J. R.	13-Physics
	MSFC/Kornfeld, D. M.	
<b>NAS 9-16071</b>	<b>Lehigh University</b>	<b>3675</b>
Apply special coatings to electrophoresis columns and measure anti-electro-osmosis values of coated columns and predict test results		
<i>Period</i>	<i>Obligations</i>	
02/11/80-02/10/81	FY80: \$8,600 TOTAL: \$8,600	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Vanderhoff, J. W.	JSC/Reynolds, M. A.	47-Materials Engr
	JSC/Morrison, D. R.	

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**NCA 2-380901**                      **Lehigh University**                      **3676**  
 The long wavelength infrared absorption by SO<sub>2</sub> and its  
 importance in forming Venus' greenhouse  
*Period*    *Obligations*  
 05/15/79-10/31/80                      **FY80: \$5,604**                      **TOTAL: \$14,484**  
*Prin Invest*                                      *NASA Tech Officer*                      *CASE Category*  
 Lovejoy, R. W.                      ARC/Boese, R. W.                      12-Chemistry

**NSG 5386**                                      **Lehigh University**                      **3683**  
 Mass flow and evolution in close binaries including simultaneous  
 observations of X-ray binaries  
*Period*    *Obligations*  
 07/01/79-06/30/81                      **FY80: \$14,000**                      **TOTAL: \$22,000**  
*Prin Invest*                                      *NASA Tech Officer*                      *CASE Category*  
 McCluskey, G. E.                      GSFC/Bogges, A.                      11-Astronomy  
 Kondo, Y.

**NGR 39-007-011**                      **Lehigh University**                      **3677**  
 Viscoelastic analysis of bonded joints and crack problems in  
 orthotropic plates and shells  
*Period*    *Obligations*  
 11/30/64-10/31/81                      **FY80: \$52,920**                      **TOTAL: \$495,120**  
*Prin Invest*                                      *NASA Tech Officer*                      *CASE Category*  
 Erdogan, F.                      LARC/Fichter, W. B.                      21-Mathematics  
 LARC/Everett, R. A.

**NAS 5-23800**                                      **Lincoln University - Pa.**                      **3684**  
 Medical information management system  
*Period*    *Obligations*  
 11/22/76-01/03/81                      **FY80:**                      **TOTAL: \$128,336**  
*Prin Invest*                                      *NASA Tech Officer*                      *CASE Category*  
 Frankowsky, J. W.                      GSFC/Alterescu, S.                      56-Medical Sciences  
 KSC/Buchanan, P.

**NGR 39-007-043**                      **Lehigh University**                      **3678**  
 Shock and thermal history of unusual iron meteorites  
*Period*    *Obligations*  
 05/24/71-03/31/81                      **FY80: \$77,890**                      **TOTAL: \$371,476**  
*Prin Invest*                                      *NASA Tech Officer*                      *CASE Category*  
 Goldstein, J. I.                      HD-SL/French, B. M.                      32-Geological Sci  
 HD-SL/Quaide, W. L.

**NCA 5-98**                                      **Lincoln University - Pa.**                      **3685**  
 Introduction aerospace engineering  
*Period*    *Obligations*  
 07/01/80-07/31/81                      **FY80: \$30,300**                      **TOTAL: \$30,300**  
*Prin Invest*                                      *NASA Tech Officer*                      *CASE Category*  
 Williams, W.                      GSFC/Mundy, J. R.                      49-Engr, NEC  
 GSFC/Chapman, J. W.

**NGR 39-007-056**                      **Lehigh University**                      **3679**  
 Lunar sample analysis  
*Period*    *Obligations*  
 01/12/71-01/31/81                      **FY80: \$25,000**                      **TOTAL: \$499,096**  
*Prin Invest*                                      *NASA Tech Officer*                      *CASE Category*  
 Goldstein, J. I.                      JSC/Harris, J. W.                      12-Chemistry

**NAS 2-10521**                                      **Pennsylvania State Univ - Hershey Med.**                      **3686**  
 Angiotensin related changes in body hydration  
*Period*    *Obligations*  
 01/17/80-04/30/81                      **FY80: \$15,006**                      **TOTAL: \$15,006**  
*Prin Invest*                                      *NASA Tech Officer*                      *CASE Category*  
 Severs, W. B.                      ARC/Ferandin, J.                      51-Biological Sci  
 ARC/Polson, P.

**NGR 39-007-061**                      **Lehigh University**                      **3680**  
 Investigation of generation of X-rays in close binary stars  
*Period*    *Obligations*  
 03/10/73-06/30/80                      **FY80:**                      **TOTAL: \$45,651**  
*Prin Invest*                                      *NASA Tech Officer*                      *CASE Category*  
 McCluskey, G. E.                      JSC/Potter, A.                      11-Astronomy

**NSG 2122**                                      **Pennsylvania State Univ - Hershey Med.**                      **3687**  
 Subformal organ and salt/water balance  
*Period*    *Obligations*  
 01/01/76-12/31/80                      **FY80: \$30,827**                      **TOTAL: \$125,979**  
*Prin Invest*                                      *NASA Tech Officer*                      *CASE Category*  
 Severs, W. B.                      ARC/Keil, L. C.                      56-Medical Sciences

**NSG 3162**                                      **Lehigh University**                      **3681**  
 Blade flutter in compressors and fans numerical simulation of  
 aerodynamic loading  
*Period*    *Obligations*  
 01/01/78-08/31/82                      **FY80:**                      **TOTAL: \$55,630**  
*Prin Invest*                                      *NASA Tech Officer*                      *CASE Category*  
 Rockwell, D. O.                      LERC/Batterton, P. G.                      41-Aero Engr  
 Johnson, S. H.                      LERC/Kurkov, A. P.

**NAG 1-4**                                      **Pennsylvania State University**                      **3688**  
 Free-field propagation of high intensity noise  
*Period*    *Obligations*  
 12/01/79-02/28/81                      **FY80: \$40,000**                      **TOTAL: \$40,000**  
*Prin Invest*                                      *NASA Tech Officer*                      *CASE Category*  
 Daniel, O. H.                      LARC/Norum, T. D.                      41-Aero Engr  
 LARC/Seiner, J. M.

**NSG 3179**                                      **Lehigh University**                      **3682**  
 Time-dependent response of unidirectional and laminate composites  
 under static and impact loading  
*Period*    *Obligations*  
 02/13/78-02/12/81                      **FY80: \$55,000**                      **TOTAL: \$157,315**  
*Prin Invest*                                      *NASA Tech Officer*                      *CASE Category*  
 Sih, G. C.                      LERC/Chamis, C. C.                      49-Engr, NEC  
 LERC/Smith, G. T.

**NAG 1-73**                                      **Pennsylvania State University**                      **3689**  
 The spinning of light aircraft  
*Period*    *Obligations*  
 06/01/80-05/31/81                      **FY80: \$44,956**                      **TOTAL: \$44,956**  
*Prin Invest*                                      *NASA Tech Officer*                      *CASE Category*  
 McCormick, B. W.                      LARC/Chambers, J. R.                      41-Aero Engr  
 LARC/Johnson, J. L.

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**NAG 3-35**                      Pennsylvania State University                      3690  
Oxidation of liquid lubricants and its relationship to chemical changes during elastohydrodynamic and boundary lubrication

<i>Period</i>	<i>Obligations</i>	
04/01/80-03/31/81	FY80: \$47,566	TOTAL: \$47,566
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Klaus, E. E.	LERC/Loomis, W. R.	43-Chem Engr
Duda, J. L.	LERC/Slaney, H. E.	
Nagarajan, R.		

**NAG 6-7**                      Pennsylvania State University                      3696  
Investigate the influence of auroral energetic and electrodynamic coupling on middle atmosphere parameters

<i>Period</i>	<i>Obligations</i>	
09/01/80-08/31/81	FY80: \$55,000	TOTAL: \$55,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Mitchell, J. D.	WFC/Early, L. J.	19-Phys Sci, NEC
Maynard, N. C.	WFC/Pless, R. H.	
Goldberg, R.		

**NAG 3-68**                      Pennsylvania State University                      3691  
Ceramic materials for high-temperature pressure transducers

<i>Period</i>	<i>Obligations</i>	
05/20/80-02/19/81	FY80: \$30,000	TOTAL: \$30,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bradt, R. C.	LERC/Barranger, J. P.	47-Materials Engr

**NAS 5-23859**                      Pennsylvania State University                      3697  
U-2 and LANDSAT data processing and intralab analysis support

<i>Period</i>	<i>Obligations</i>	
01/21/77-11/15/79	FY80: \$30,240	TOTAL: \$189,717
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
McMurtry, G. J.	GSFC/Alford, W.	39-Env Sci, NEC

**NAG 3-91**                      Pennsylvania State University                      3692  
The utilization of alternate fuels in diesel engines

<i>Period</i>	<i>Obligations</i>	
09/01/80-08/31/81	FY80: \$77,435	TOTAL: \$77,435
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lestz, S. S.	LERC/Skorobatchkyi, M.	46-Mech Engr
	LERC/Migra, R. P.	

**NAS 5-24264**                      Pennsylvania State University                      3698  
Application of satellite data to the study of urban heating patterns

<i>Period</i>	<i>Obligations</i>	
09/23/77-11/30/80	FY80: \$17,416	TOTAL: \$71,871
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Carlson, T. N.	GSFC/Oseroff, H.	31-Atmos Sci

**NAG 5-49**                      Pennsylvania State University                      3693  
Combined use of remote sensing and seismic observations to infer recent crust deformation, active faulting and stress fields

<i>Period</i>	<i>Obligations</i>	
05/01/80-04/31/81	FY80: \$40,000	TOTAL: \$40,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Alexander, S. S.	GSFC/Harper, E. L.	32-Geological Sci
Guld, D. P.	GSFC/Allenby, R. J.	

**NAS 5-25667**                      Pennsylvania State University                      3699  
Development and evaluation of remote sensing techniques for soil surveys

<i>Period</i>	<i>Obligations</i>	
05/21/79-12/05/80	FY80:	TOTAL: \$9,993
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Petersen, G. W.	GSFC/Irons, J.	39-Env Sci, NEC

**NAS 5-25702**                      Pennsylvania State University                      3700  
Office for remote sensing of Earth resources analytical support

<i>Period</i>	<i>Obligations</i>	
06/14/79-09/30/80	FY80: \$41,847	TOTAL: \$85,276
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
McMurtry, G. J.	GSFC/Labovitz, M.	31-Atmos Sci

**NAG 5-60**                      Pennsylvania State University                      3694  
Ultraviolet study of peculiar white dwarfs

<i>Period</i>	<i>Obligations</i>	
06/01/80-05/31/81	FY80: \$4,866	TOTAL: \$4,866
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wegner, G. A.	GSFC/Bogges, A.	11-Astronomy

**NAS 5-25996**                      Pennsylvania State University                      3761  
Chemical analysis of vegetation samples

<i>Period</i>	<i>Obligations</i>	
03/17/80-05/19/80	FY80: \$4,819	TOTAL: \$4,819
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Smith, C. B.	GSFC/Labovitz, M.	39-Env Sci, NEC

**NAG 5-77**                      Pennsylvania State University                      3695  
Synthesis of regional crust and upper mantle structure from seismic and gravity data

<i>Period</i>	<i>Obligations</i>	
06/15/80-06/14/81	FY80: \$40,000	TOTAL: \$40,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Alexander, S. S.	GSFC/Harper, E. L.	32-Geological Sci
Lavin, P. M.	GSFC/Allenby, R. J.	

**NAS 5-26166**                      Pennsylvania State University                      3702  
Development of computer software to analyze entire LANDSAT scenes and to summarize classification results of variable size polygons

<i>Period</i>	<i>Obligations</i>	
06/23/80-01/23/81	FY80: \$39,925	TOTAL: \$39,925
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Turner, B.	GSFC/Dottavio, C. L.	22-Computer Science

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**NAS 5-26215**      **Pennsylvania State University**      **3703**  
**Chemical analysis of vegetation samples**  
*Period*      *Obligations*  
07/11/80-07/11/81      **FY80: \$26,000**      **TOTAL: \$26,000**  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
Smith, C. B.      GSFC/Labovitz, M.      32-Geological Sci  
Baker, D. E.      GSFC/Masuoka, E. J.

**NASW 3256**      **Pennsylvania State University**      **3710**  
**Technology support for targeting the reentry of Skylab**  
*Period*      *Obligations*  
01/29/79-08/29/79      **FY80:**      **TOTAL: \$35,000**  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
Unavailable      HD-ML/Mahon, J. B.      42-Astro Engr

**NAS 5-26323**      **Pennsylvania State University**      **3704**  
**Remote sensing data analysis support**  
*Period*      *Obligations*  
09/16/80-09/15/82      **FY80: \$40,737**      **TOTAL: \$40,737**  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
Turner, B.      GSFC/Irons, J.      99-Multi-Discip

**NCA 2-589001**      **Pennsylvania State University**      **3711**  
**Modeling of African dust**  
*Period*      *Obligations*  
09/01/80-08/31/82      **FY80: \$18,325**      **TOTAL: \$18,325**  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
Anthes, R. A.      ARC/Toon, O. B.      32-Geological Sci

**NAS 6-2726**      **Pennsylvania State University**      **3705**  
**Stratosphere and mesosphere structure and circulation studies**  
*Period*      *Obligations*  
03/04/76-01/31/80      **FY80: \$34,818**      **TOTAL: \$122,233**  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
Olivero, J.      WFC/Duke, J. R.      31-Atmos Sci  
WFC/Schmidlin, F. J.

**NCC 3-9**      **Pennsylvania State University**      **3712**  
**Interdisciplinary collaboration on tribology**  
*Period*      *Obligations*  
05/19/80-05/18/81      **FY80: \$24,259**      **TOTAL: \$24,259**  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
Klaus, E. E.      LERC/Wedeven, L. D.      46-Mech Engr

**NAS 8-33794**      **Pennsylvania State University**      **3706**  
**Utilization of satellite data and dynamics in understanding global weather phenomenon**  
*Period*      *Obligations*  
08/15/80-08/14/81      **FY80: \$80,000**      **TOTAL: \$80,000**  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
Clark, J. H.      MSFC/Kaufman, J. W.      31-Atmos Sci  
Dutton, J. A.      MSFC/Fichtl, G. H.

**NCC 5-12**      **Pennsylvania State University**      **3713**  
**Research of combined use of remote sensing and seismic observations to infer geologically recent crust deformation**  
*Period*      *Obligations*  
05/01/79-04/30/80      **FY80:**      **TOTAL: \$50,000**  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
Alexander, S. S.      GSFC/Allenby, R. J.      32-Geological Sci  
Gold, D. P.

**NAS 8-33797**      **Pennsylvania State University**      **3707**  
**Application of satellite data to study effect of latent heat release on cyclone**  
*Period*      *Obligations*  
07/01/80-06/30/81      **FY80: \$63,899**      **TOTAL: \$63,899**  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
Clark, J. H.      MSFC/Fichtl, G. H.      31-Atmos Sci  
MSFC/Kaufman, J. W.

**NCC 5-19**      **Pennsylvania State University**      **3714**  
**Synthesis of regional crust and upper mantle structure from seismic and gravity data**  
*Period*      *Obligations*  
06/15/79-12/31/80      **FY80:**      **TOTAL: \$52,800**  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
Alexander, S. S.      GSFC/Allenby, R. J.      32-Geological Sci

**NAS 9-15566**      **Pennsylvania State University**      **3708**  
**Purification and cultivation of human pituitary growth hormone secreting cells**  
*Period*      *Obligations*  
05/01/78-06/01/81      **FY80: \$65,000**      **TOTAL: \$235,000**  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
Hymer, W. C.      JSC/Morrison, D. R.      51-Biological Sci

**NGL 39-009-003**      **Pennsylvania State University**      **3715**  
**Research on electron densities in upper ionosphere, including studies of rocket and separating capsule experimental techniques**  
*Period*      *Obligations*  
03/01/61-10/31/81      **FY80: \$180,000**      **TOTAL: \$2,432,661**  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
Nisbet, J. S.      HD-ST/Kaiser, M. L.      13-Physics  
HD-ST/Schmerling, E. R.

**NAS 9-15584**      **Pennsylvania State University**      **3709**  
**Kidney cell electrophoresis**  
*Period*      *Obligations*  
05/01/78-12/01/80      **FY80:**      **TOTAL: \$124,779**  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
Todd, P. W.      JSC/Morrison, D. R.      56-Medical Sciences

**NGL 39-009-007**      **Pennsylvania State University**      **3716**  
**Investigation and analysis of flow phenomena of secondary motions in axial flow inducers**  
*Period*      *Obligations*  
12/15/63-10/01/80      **FY80:**      **TOTAL: \$279,750**  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
Lakshminarayana, B.      LERC/Britsch, W. R.      41-Aero Engr

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<b>NSG 39-009-010</b>	<b>Pennsylvania State University</b>	<b>3717</b>			
	Research to establish criteria for recognition of ancient meteorite impact craters whose characteristic surface forms have been obliterated by erosion				
<i>Period</i>	<i>Obligations</i>				
08/08/63-12/31/80	FY80:	TOTAL:	\$169,563		
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Gold, D. P.	HD-SL/Quarde, W. L.	32-Geological Sci			
<b>NSG 3012</b>	<b>Pennsylvania State University</b>	<b>3724</b>			
	Compressor or fan rotor wake characteristics				
<i>Period</i>	<i>Obligations</i>				
06/28/74-03/27/81	FY80:	TOTAL:	\$39,472	\$308,510	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Lakshminarayana, B.	LERC/Shaw, L. M.	41-Aero Engr			
<b>NSG 3032</b>	<b>Pennsylvania State University</b>	<b>3725</b>			
	Blade end wall flows in compressors				
<i>Period</i>	<i>Obligations</i>				
09/01/74-08/29/81	FY80:	TOTAL:	\$50,801		
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Lakshminarayana, B.	LERC/Sockol, P. M.	41-Aero Engr			
<b>NSG 3166</b>	<b>Pennsylvania State University</b>	<b>3726</b>			
	Mapping of electrical potential distributions with charged particle beams				
<i>Period</i>	<i>Obligations</i>				
11/01/77-08/30/81	FY80:	TOTAL:	\$23,706	\$92,813	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Robinson, J. W.	LERC/Staskus, J. V.	13-Physics			
	LERC/Stevens, N. J.				
<b>NSG 1308</b>	<b>Pennsylvania State University</b>	<b>3720</b>			
	Research in propellers for general aviation aircraft				
<i>Period</i>	<i>Obligations</i>				
07/01/76-04/30/80	FY80:	TOTAL:	\$167,691		
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
McCormick, B. W.	LARC/Fisher, B. D.	41-Aero Engr			
	LARC/Hall, A. W.				
<b>NSG 1387</b>	<b>Pennsylvania State University</b>	<b>3721</b>			
	Growth, perfection and characterization of triglycine-sulfate: A model for zero velocity growth				
<i>Period</i>	<i>Obligations</i>				
01/01/77-08/31/80	FY80:	TOTAL:	\$106,000		
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
White, W. B.	LARC/Fripp, A. I.	47-Materials Engr			
Spear, K. E.	LARC/Crouch, R. K.				
Vedam, K.					
<b>NSG 1580</b>	<b>Pennsylvania State University</b>	<b>3722</b>			
	Broadband jet noise amplification by a pure tone excitation				
<i>Period</i>	<i>Obligations</i>				
12/01/78-11/30/80	FY80:	TOTAL:	\$39,449	\$75,050	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Morris, P. J.	LARC/Gatski, T. B.	41-Aero Engr			
	LARC/Hardin, J. C.				
<b>NSG 2364</b>	<b>Pennsylvania State University</b>	<b>3723</b>			
	High polymers based on phosphazene and other inorganic systems				
<i>Period</i>	<i>Obligations</i>				
01/01/79-12/31/80	FY80:	TOTAL:	\$20,000	\$30,406	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Allec, A. R.	ARC/Fewell, L. L.	12-Chemistry			
<b>NSG 3264</b>	<b>Pennsylvania State University</b>	<b>3728</b>			
	The boundary layer on compressor cascade blades				
<i>Period</i>	<i>Obligations</i>				
06/04/79-11/30/80	FY80:	TOTAL:	\$75,417		
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Kubo, I.	LERC/Sanger, N. I.	41-Aero Engr			
<b>NSG 3265</b>	<b>Pennsylvania State University</b>	<b>3729</b>			
	The large scale structure of turbulence in a rotor wake				
<i>Period</i>	<i>Obligations</i>				
07/01/79-06/29/81	FY80:	TOTAL:	\$47,438	\$112,638	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Morris, P. J.	LERC/Englert, G. W.	41-Aero Engr			
<b>NSG 3266</b>	<b>Pennsylvania State University</b>	<b>3730</b>			
	Three dimensional flow field inside compressor rotor passages, including blade boundary layers				
<i>Period</i>	<i>Obligations</i>				
06/26/79-10/15/80	FY80:	TOTAL:	\$74,556		
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Lakshminarayana, B.	LFRC/Sockol, P. M.	41-Aero Engr			



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**NSG 3301**                      Pennsylvania State University                      3731  
Mass analysis of neutral particles and ions released during electrical breakdowns on spacecraft surfaces

<i>Period</i>	<i>Obligations</i>	
09/04/79-09/02/81	FY80: \$85,204	TOTAL: \$135,187
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kendall, B. R.	LERC/Staskus, J. V.	13-Physics
	LERC/Stevens, N. J.	

**NSG 5347**                      Pennsylvania State University                      3738  
Satellite data and dynamic principles in understanding global weather phenomena

<i>Period</i>	<i>Obligations</i>	
05/01/79-05/31/80	FY80:	TOTAL: \$58,905
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Clark, J. H.	GSFC/Greaves, J. R.	31-Atmos Sci
	Dutton, J. A.	

**NSG 3304**                      Pennsylvania State University                      3732  
A study of interactive aerolastic and aerodynamic problems relating to general aviation propellers

<i>Period</i>	<i>Obligations</i>	
10/01/79-12/31/80	FY80:	TOTAL: \$77,955
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
McCormick, B. W.	LERC/Mitchell, G. A.	41-Aero Engr

**NSG 6004**                      Pennsylvania State University                      3739  
Studies of mesospheric ionization

<i>Period</i>	<i>Obligations</i>	
10/01/75-12/30/80	FY80: \$93,455	TOTAL: \$178,455
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hale, L. C.	WFC/Early, L. J.	19-Phys Sci, NEC
	WFC/Pless, R. H.	

**NSG 3306**                      Pennsylvania State University                      3733  
An investigation of air solubility in jet fuel at high pressure

<i>Period</i>	<i>Obligations</i>	
09/01/79-08/31/81	FY80: \$45,655	TOTAL: \$70,500
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Faeth, G. M.	LERC/Marer, C. J.	46-Mech Engr

**NSG 7465**                      Pennsylvania State University                      3740  
Solubilities of C-O-S volatiles in lunar magmas and vapors

<i>Period</i>	<i>Obligations</i>	
07/01/78-03/31/80	FY80:	TOTAL: \$26,218
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Eggler, D.	HD-SL/Quaide, W. L.	32-Geological Sci

**NSG 5185**                      Pennsylvania State University                      3734  
Research of the nature and subsurface character of lineaments in Pennsylvania

<i>Period</i>	<i>Obligations</i>	
07/01/77-09/30/80	FY80:	TOTAL: \$65,843
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Alexander, S. S.	GSFC/Allenby, R. J.	32-Geological Sci
	Gold, D. P.	

**NSG 7515**                      Pennsylvania State University                      3741  
Structure-function studies on thermophilic glutamine synthetase

<i>Period</i>	<i>Obligations</i>	
10/01/78-09/30/80	FY80: \$60,000	TOTAL: \$93,493
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wedler, F. C.	HD-SB/Devincenzi, D. L.	12-Chemistry

**NSG 5205**                      Pennsylvania State University                      3735  
Utilization of satellite data in mesoscale models

<i>Period</i>	<i>Obligations</i>	
09/01/77-12/31/81	FY80: \$49,332	TOTAL: \$118,832
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Anthes, R. A.	GSFC/Uccellini, L. W.	31-Atmos Sci

**NAS 9-14979**                      Temple University                      3742  
Ultraviolet-radiation induced skin cancer in experimental animals

<i>Period</i>	<i>Obligations</i>	
04/26/76-03/01/81	FY80: \$25,000	TOTAL: \$319,993
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Urbach, F.	JSC/Nachtwey, D. S.	56-Medical Sciences

**NSG 5212**                      Pennsylvania State University                      3736  
Study of high latitude thermospheric densities and flow patterns

<i>Period</i>	<i>Obligations</i>	
10/01/77-12/31/80	FY80:	TOTAL: \$52,012
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Nisbet, J. S.	GSFC/Spencer, N. W.	13-Physics

**NAG 5-92**                      University of Pennsylvania                      3743  
Research relative to synthetic aperture radiometry

<i>Period</i>	<i>Obligations</i>	
01/01/81-12/31/81	FY80: \$11,000	TOTAL: \$11,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kritikos, H. N.	GSFC/Levine, D. M.	45-Elec Engr

**NSG 5276**                      Pennsylvania State University                      3737  
Synthesis of regional crust and upper-mantle structure from seismic and gravity data

<i>Period</i>	<i>Obligations</i>	
06/15/78-06/14/79	FY80:	TOTAL: \$35,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Alexander, S. S.	GSFC/Allenby, R. J.	32-Geological Sci
Lavin, P. M.	GSFC/Mead, G. D.	

**NAG 8-346**                      University of Pennsylvania                      3744  
Stellar envelopes of active close binaries to be observed under High Energy Astronomical Observatory-B guest investigator program

<i>Period</i>	<i>Obligations</i>	
03/01/80-02/28/81	FY80: \$11,799	TOTAL: \$11,799
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Koch, R. H.	MSFC/Jones, J. B.	11-Astronomy
	Plavec, M. J.	

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**NAS 2-10070** University of Pennsylvania 3745  
Development of theoretical models for graphite like atomic structures  
*Period* Obligations  
10/02/78-09/01/80 FY80: TOTAL: \$18,995  
*Prin Invest* NASA Tech Officer CASE Category  
Rabii, S. ARC/Hansen, C. F. 13-Physics

**NAS 8-33336** University of Pennsylvania 3746  
Simultaneous X-ray and radio observation of extragalactic sources  
*Period* Obligations  
02/20/79-02/19/81 FY80: TOTAL: \$6,243  
*Prin Invest* NASA Tech Officer CASE Category  
Shen, B. S. MSFC/Jones, J. B., Jr. 11-Astronomy  
Johnston, K. J.

**NAS 9-15531** University of Pennsylvania 3747  
Development phase for spacelab experiment  
*Period* Obligations  
03/01/78-07/01/81 FY80: \$97,000 TOTAL: \$377,774  
*Prin Invest* NASA Tech Officer CASE Category  
Brown, A. H. JSC/Peck, E. E. 59-Life Sci, NEC

**NAS 9-15789** University of Pennsylvania 3748  
Development of a computer code to determine interactions of cosmic rays with spacecraft and biological materials  
*Period* Obligations  
04/01/79-08/31/80 FY80: TOTAL: \$29,750  
*Prin Invest* NASA Tech Officer CASE Category  
Shen, B. S. JSC/Barnes, C. M. 39-Env Sci, NEC

**NAS 9-16031** University of Pennsylvania 3749  
Life science flight experiment on protein metabolism  
*Period* Obligations  
01/17/80-05/31/81 FY80: \$12,538 TOTAL: \$12,538  
*Prin Invest* NASA Tech Officer CASE Category  
Stein, T. D. JSC/White, T. T. 59-Life Sci, NEC

**NGR 39-010-149** University of Pennsylvania 3750  
Plant morphogenesis under conditions of hypo and hypergravia  
*Period* Obligations  
09/01/73-03/31/81 FY80: \$23,969 TOTAL: \$424,469  
*Prin Invest* NASA Tech Officer CASE Category  
Brown, A. H. HD-SB/Halstead, T. W. 51-Biological Sci

**NSG 3300** University of Pennsylvania 3751  
Development of new intercalated cathode materials in use in sodium batteries  
*Period* Obligations  
10/01/79-12/15/80 FY80: \$69,575 TOTAL: \$69,575  
*Prin Invest* NASA Tech Officer CASE Category  
Worrell, W. L. LERC/Singer, J. 19-Phys Sci, NEC

**NSG 5296** University of Pennsylvania 3752  
Ultraviolet spectroscopy of peculiar eclipsing binary stars  
*Period* Obligations  
08/01/78-06/30/81 FY80: \$9,983 TOTAL: \$22,854  
*Prin Invest* NASA Tech Officer CASE Category  
Koch, R. H. GSFC/Bogges, A. 11-Astronomy  
Pfeiffer, R. J.  
Williams, R. E.

**NAG 2-53** University of Pittsburgh 3753  
A survey of nearby stars for the perturbative effects of extrasolar planetary systems  
*Period* Obligations  
09/01/80-11/30/80 FY80: \$21,060 TOTAL: \$21,060  
*Prin Invest* NASA Tech Officer CASE Category  
Gatewood, G. D. ARC/Black, D. C. 11-Astronomy

**NAG 3-44** University of Pittsburgh 3754  
Investigation into the role of NAC dependency on oxide and metal substrates in the initiation of hot corrosion  
*Period* Obligations  
04/01/80-03/30/83 FY80: \$59,970 TOTAL: \$59,970  
*Prin Invest* NASA Tech Officer CASE Category  
Birks, N. LERC/Kohl, F. J. 47-Materials Engr  
LERC/Fielder, W. L.

**NAG 6-2** University of Pittsburgh 3755  
Studies of the physics and chemistry of the terrestrial atmosphere  
*Period* Obligations  
10/01/79-09/30/80 FY80: \$155,231 TOTAL: \$155,231  
*Prin Invest* NASA Tech Officer CASE Category  
Zipf, E. C. WFC/Early, L. J. 19-Phys Sci, NEC  
WFC/Pless, R. H.

**NAS 3-22662** University of Pittsburgh 3756  
Presentation of symposia and reports in advanced electrical propulsion  
*Period* Obligations  
09/23/80-09/22/81 FY80: \$54,747 TOTAL: \$54,747  
*Prin Invest* NASA Tech Officer CASE Category  
McWilliams, P. A. LERC/Kerslake, W. R. 42-Astro Engr

**NAS 5-25013** University of Pittsburgh 3757  
Study of infrared detection by intracavity upconversion  
*Period* Obligations  
05/09/78-05/31/81 FY80: \$51,864 TOTAL: \$146,504  
*Prin Invest* NASA Tech Officer CASE Category  
Falk, J. GSFC/Kostiuk, T. 13-Physics  
GSFC/Ogilvie, K. W.

**NASW 3042** University of Pittsburgh 3758  
Operation of an industrial application center  
*Period* Obligations  
06/29/77-03/31/80 FY80: \$211,101 TOTAL: \$835,851  
*Prin Invest* NASA Tech Officer CASE Category  
Unavailable HD-ET/Bivins, R. G. 99-Multi-Discip

**NASA'S UNIVERSITY PROGRAM  
PENNSYLVANIA (Continued)**

**NASW 3403** University of Pittsburgh 3759  
Operation of a NASA Industrial Application Center (IAC)  
*Period* *Obligations*  
04/01/80-03/31/81 FY80: \$334,029 TOTAL: \$334,029  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Thompson, J. H. HD-ET/Bivins, R. G.  
Williams, P. A. 22-Computer Science  
Fisher, A.

**NGR 39-011-161** University of Pittsburgh 3765  
Laboratory studies of kinetics of tropospheric and stratospheric aircraft pollutant reactions using atomic and molecular resonance fluorescence detection  
*Period* *Obligations*  
06/03/73-02/28/81 FY80: \$65,038 TOTAL: \$396,038  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Kaufman, F. HD-EB/Toth, R. A. 12-Chemistry  
HD-ST/Seals, R. K., Jr.

**NCA 2-592901** University of Pittsburgh 3760  
Vestibular nuclei neuron activity in freely moving cats  
*Period* *Obligations*  
03/01/79-02/28/81 FY80: \$9,715 TOTAL: \$17,715  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Tomko, D. L. ARC/Daunton, N. G. 51-Biological Sci

**NSG 2407** University of Pittsburgh 3766  
Theoretical studies of the electronic structure of small metal clusters  
*Period* *Obligations*  
10/01/79-03/31/81 FY80: \$14,000 TOTAL: \$38,000  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Jordan, K. D. ARC/Cooper, D. M. 13-Physics

**NGL 39-011-013** University of Pittsburgh 3761  
Investigation of airglow excitation mechanisms using atomic beam techniques  
*Period* *Obligations*  
04/26/65-03/01/81 FY80: \$14,996 TOTAL: \$708,730  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Fite, W. L. HD-SL/Murphy, R. E. 31-Atmos Sci  
HD-SL/Brunk, W. E.

**NSG 3163** University of Pittsburgh 3767  
Determination of efficiencies, loss mechanisms and performance degradation factors in chopper controlled dc vehicle motors  
*Period* *Obligations*  
09/01/77-08/30/80 FY80: TOTAL: \$140,112  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Hamilton, H. B. LERC/McBrien, E. F. 45-Elec Engr

**NGL 39-011-030** University of Pittsburgh 3762  
Studies of excitation and collision deactivation of measurable A3 state of nitrogen in the aurora and day airglow  
*Period* *Obligations*  
05/07/65-04/30/81 FY80: \$26,000 TOTAL: \$1,084,886  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Zipf, E. C. HD-SL/Murphy, R. E. 31-Atmos Sci  
HD-SL/Brunk, W. E.

**NSG 3214** University of Pittsburgh 3768  
Investigation of initiation stage of hot corrosion in NU-base alloys  
*Period* *Obligations*  
09/01/78-09/01/81 FY80: TOTAL: \$59,996  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Meier, G. H. LERC/Kohl, F. J. 47-Materials Engr  
LERC/Stearns, C. A.

**NGL 39-011-085** University of Pittsburgh 3763  
Studies relating to surfaces of Moon and planets  
*Period* *Obligations*  
03/17/69-03/31/80 FY80: TOTAL: \$339,299  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Cassidy, W. A. HD-SL/Quaide, W. L. 32-Geological Sci  
Hapke, B.

**NSG 5270** University of Pittsburgh 3769  
Lithological characterization of crystalline cement rock provinces in the United States  
*Period* *Obligations*  
04/15/78-07/14/81 FY80: TOTAL: \$44,755  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Lidiak, E. G. GSFC/Thomas, H. H. 32-Geological Sci

**NGR 39-011-137** University of Pittsburgh 3764  
Dissociative recombination coefficients for planetary ionospheric ions  
*Period* *Obligations*  
07/28/71-05/31/81 FY80: \$84,915 TOTAL: \$299,251  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Biondi, M. A. HD-SL/Murphy, R. E. 31-Atmos Sci  
HD-SL/Brunk, W. E.

**NSG 5362** University of Pittsburgh 3770  
Measurement of the far ultraviolet spectral reflections of selected lunar areas  
*Period* *Obligations*  
05/09/79-06/08/81 FY80: \$8,000 TOTAL: \$19,000  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
Hapke, B. GSFC/Bogges, A. 11-Astronomy

**NASA'S UNIVERSITY PROGRAM  
PENNSYLVANIA (Continued)**

**NSG 6011** University of Pittsburgh 3771  
Studies of the physics and chemistry of the terrestrial atmosphere

<i>Period</i>	<i>Obligations</i>	
10/01/75-10/31/79	FY80: TOTAL: \$627,022	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Zipf, E. C.	WFC/Gray, J. W.	19-Phys Sci, NEC
Bernstein, W.	WFC/Pless, R. H.	

**NSG 7147** University of Pittsburgh 3772  
Photometric analyses of Mariner 10 images of Venus and Mercury

<i>Period</i>	<i>Obligations</i>	
06/23/75-11/30/80	FY80: \$28,058 TOTAL: \$150,361	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hapke, B.	HD-SL/Boyce, J. M.	11-Astronomy

**NSG 7631** University of Pittsburgh 3773  
Measurement of reflectivities of rocks, minerals and glasses in the vacuum ultraviolet

<i>Period</i>	<i>Obligations</i>	
06/01/79-02/29/81	FY80: \$50,005 TOTAL: \$96,297	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hapke, B.	HD-SL/Quaide, W. L.	32-Geological Sci
	HD-SL/French, B.	

**NAS 1-16095** Villanova University 3774  
Gust response of wide-bodied jet aircraft including autopilot studies

<i>Period</i>	<i>Obligations</i>	
01/29/80-04/12/81	FY80: \$35,563 TOTAL: \$35,563	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Goldberg, J. H.	LARC/Crabill, N. L.	41-Aero Engr
	LARC/Houbolt, J. C.	

**NSC 5375** Villanova University 3775  
Ultraviolet observations of hot white dwarfs in binary systems

<i>Period</i>	<i>Obligations</i>	
07/01/79-06/30/81	FY80: \$3,771 TOTAL: \$9,351	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Guinan, E. F.	GSFC/Bogges, A.	11-Astronomy
Sion, E. M.		

**NAS 6-3096** West Chester State College 3776  
Waterborne organic matter analysis

<i>Period</i>	<i>Obligations</i>	
04/18/80-04/17/81	FY80: \$4,909 TOTAL: \$4,909	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Yungel, J.	WFC/Hoge, F. E.	33-Oceanography
Ugeh, F.	WFC/McGoogan, J. T.	

**RHODE ISLAND**

**NAG 5-50** Brown University 3777  
Study of the effects of continental wakes

<i>Period</i>	<i>Obligations</i>	
06/01/80-05/31/81	FY80: \$40,129 TOTAL: \$40,129	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Parmentier, E. M.	GSFC/Holweck, E. C.	32-Geological Sci
Forsyth, D. W.	GSFC/Mead, G. D.	

**NAGW 28** Brown University 3778  
Remote sensing information applied to geological studies of planets

<i>Period</i>	<i>Obligations</i>	
02/14/80-02/13/81	FY80: \$113,691 TOTAL: \$113,691	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Head, J. W.	HD-SL/Quaide, W. L.	32-Geological Sci
	HD-SL/French, B. M.	

**NAS 5-26138** Brown University 3779  
Electromagnetic deep-probing of the Earth's interior from artificial satellites: Constraints on the regional emplacement of crustal resources

<i>Period</i>	<i>Obligations</i>	
05/05/80-10/05/82	FY80: \$49,000 TOTAL: \$49,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hermance, J. F.	GSFC/Oscorff, H.	31-Atmos Sci

**NASW 3285** Brown University 3780  
Support for a regional planetary image facility

<i>Period</i>	<i>Obligations</i>	
10/01/78-01/31/80	FY80: TOTAL: \$44,081	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Head, J. W.	HD-SL/Dwornik, S. E.	32-Geological Sci
	HD-SL/Boyce, J. M.	

**NGR 40-002-088** Brown University 3781  
Analysis of Martian geologic features of Earth analogs

<i>Period</i>	<i>Obligations</i>	
10/20/69-11/30/80	FY80: \$101,600 TOTAL: \$688,336	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Head, J. W.	HD-SL/Boyce, J. M.	32-Geological Sci
	HD-SL/Quaide, W. L.	

**NGR 40-002-116** Brown University 3782  
Lunar basins processes and structure

<i>Period</i>	<i>Obligations</i>	
02/20/73-01/31/81	FY80: \$80,300 TOTAL: \$597,839	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Head, J. W.	HD-SL/Boyce, J. M.	32-Geological Sci
	HD-SL/Quaide, W. L.	

**NASA'S UNIVERSITY PROGRAM  
RHODE ISLAND (Continued)**

**NGT 40-002-800** **Brown University** **3783**  
 Graduate student researchers program  
*Period Obligations*  
 09/01/80-08/31/81 **FY80: \$10,585 TOTAL: \$10,585**  
*Prin Invest NASA Tech Officer CASE Category*  
 Doepfner, T. W., Jr. LARC/Yates, E. C., Jr. 41-Aero Engr

**NSG 1617** **Brown University** **3784**  
 Analytical and numerical gas dynamics  
*Period Obligations*  
 06/01/79-05/31/81 **FY80: \$36,365 TOTAL: \$61,735**  
*Prin Invest NASA Tech Officer CASE Category*  
 Sirovich, L. LARC/Townsend, J. C. 41-Aero Engr  
 Lewis, T. S. LARC/Miller, D. S.

**NSG 7569** **Brown University** **3785**  
 Analysis of rocks and substrate as revealed in Viking Lander images  
*Period Obligations*  
 04/01/79-09/30/80 **FY80: \$95,700 TOTAL: \$138,700**  
*Prin Invest NASA Tech Officer CASE Category*  
 Head, J. W. HD-SL/Boyce, J. M. 32-Geological Sci  
 HD-SL/Quaide, W. L.

**NSG 7570** **Brown University** **3786**  
 Surface processes on Mars and its satellites with emphasis on cratering, volcanism and the evolution of Valles Marineris  
*Period Obligations*  
 04/01/79-09/30/80 **FY80: \$98,387 TOTAL: \$146,387**  
*Prin Invest NASA Tech Officer CASE Category*  
 Head, J. W. HD-SL/Boyce, J. M. 32-Geological Sci  
 HD-SL/Quaide, W. L.

**NSG 7589** **Brown University** **3787**  
 Experimental investigation of basalt-C-O-H-S gas equilibria and fumarolic alteration on Mars  
*Period Obligations*  
 03/01/79-12/31/80 **FY80: \$42,923 TOTAL: \$65,628**  
*Prin Invest NASA Tech Officer CASE Category*  
 Rutherford, M. J. HD-SL/Quaide, W. L. 32-Geological Sci  
 HD-SL/Boyce, J. M.

**NSG 7605** **Brown University** **3788**  
 Endogenic processes affect in the surfaces of Ganymede and Callisto  
*Period Obligations*  
 05/01/79-03/31/81 **FY80: \$40,014 TOTAL: \$81,736**  
*Prin Invest NASA Tech Officer CASE Category*  
 Parmentier, E. M. HD-SL/Quaide, W. L. 32-Geological Sci  
 HD-SL/French, B. M.

**NSG 1495** **University of Rhode Island** **3789**  
 Use of numerical continental shelf circulation and pollutant transport models for analysis of remotely sensed data  
*Period Obligations*  
 02/01/78-01/31/81 **FY80: \$50,487 TOTAL: \$119,585**  
*Prin Invest NASA Tech Officer CASE Category*  
 Spaulding, M. L. LARC/Campbell, J.W. 33-Oceanography

**NSG 7414** **University of Rhode Island** **3790**  
 Paleoflow processes and formation of Martian channels  
*Period Obligations*  
 10/01/77-12/31/81 **FY80: \$25,363 TOTAL: \$63,344**  
*Prin Invest NASA Tech Officer CASE Category*  
 Boothroyd, J. C. HD-SL/Boyce, J. M. 32-Geological Sci  
 HD-SL/Holt, H. E.

**SOUTH CAROLINA**

**NSG 5420** **Citadel Military College of S C** **3791**  
 Observations of spectrum variability of hot peculiar A stars  
*Period Obligations*  
 11/01/79-06/30/81 **FY80: \$10,590 TOTAL: \$10,590**  
*Prin Invest NASA Tech Officer CASE Category*  
 Adelman, S. J. GSFC/Bogges, A. 11-Astronomy  
 Shore, S. N.

**NAG 1-81** **Clemson University - Clemson** **3792**  
 Integrated controls concepts  
*Period Obligations*  
 10/01/80-09/30/81 **FY80: \$32,259 TOTAL: \$32,259**  
*Prin Invest NASA Tech Officer CASE Category*  
 Fennell, R. E. LARC/Lallman, F. J. 21-Mathematics

**NAG 3-116** **Clemson University - Clemson** **3793**  
 Research and development of an artificial finger joint grommet using ion thruster technology  
*Period Obligations*  
 10/01/80-09/30/81 **FY80: \$51,811 TOTAL: \$51,811**  
*Prin Invest NASA Tech Officer CASE Category*  
 Park, J. B. LERC/Weigand, A. J.  
 LERC/Banks, B.A. 56-Medical Sciences

**NAS 8-33524** **Clemson University - Clemson** **3794**  
 Hot tensile tests of Inconel 718 microfissuring of EB welds in Inconel 718  
*Period Obligations*  
 02/29/80-10/31/80 **FY80: \$14,958 TOTAL: \$14,958**  
*Prin Invest NASA Tech Officer CASE Category*  
 Thompson, R. G. MSFC/Nunes, A. C. 47-Materials Engr  
 MSFC/Strong, J. S.

**NSG 1297** **Clemson University - Clemson** **3795**  
 Crack growth in bonded isotropic and orthotropic elastic half-planes  
*Period Obligations*  
 04/01/76-10/15/81 **FY80: \$107,775 TOTAL: \$205,833**  
*Prin Invest NASA Tech Officer CASE Category*  
 Gorco, J. G. LARC/Poe, C. C., Jr. 46-Mech Engr  
 LARC/Kennedy, J. M.

**NASA'S UNIVERSITY PROGRAM  
SOUTH CAROLINA (Continued)**

**NSG 1411** **Clemson University - Clemson** **3796**  
Optimization of fiber reinforced structures to satisfy aeroelastic requirements  
*Period* *Obligations*  
07/01/77-06/30/81 **FY80:** **TOTAL: \$29,355**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Rudisill, C. S. LARC/Doggett, R. V., Jr. 41-Aero Engr  
Bauld, N. R., Jr.

**NSG 3225** **Clemson University - Clemson** **3797**  
Development of a percutaneous implant using ion-beam sputtering technique  
*Period* *Obligations*  
09/15/78-09/14/80 **FY80:** **TOTAL: \$16,545**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Park, J. B. LERC/Weigand, A. J.  
Vonrecum, A. F. LERC/Banks, B. A. 56-Medical Sciences  
Kenner, G. H.

**NSG 5349** **Clemson University - Clemson** **3798**  
Forecasting tropical cyclone recurvature with upper tropospheric winds  
*Period* *Obligations*  
05/01/79-04/30/81 **FY80: \$28,765** **TOTAL: \$59,602**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Centry, R. C. GSFC/Rodgers, E. B. 31-Atmos Sci

**NSG 5350** **Clemson University - Clemson** **3799**  
Research of the genises of tornadoes associated with hurricanes  
*Period* *Obligations*  
05/01/79-04/30/81 **FY80: \$35,408** **TOTAL: \$67,993**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Gentry, R. C. GSFC/Wexler, R. 31-Atmos Sci

**NAG 5-97** **Furman University** **3800**  
Enhancement of a computer model describing the deposition of auroral electron energy  
*Period* *Obligations*  
08/15/80-11/14/80 **FY80: \$3,338** **TOTAL: \$3,338**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Porter, H. S. GSFC/Mayr, H. G. 31-Atmos Sci

**NAG 3-75** **University of South Carolina** **3801**  
Automated data analysis system in laser speckle interferometry and boundary integral equation methods  
*Period* *Obligations*  
06/06/80-06/05/81 **FY80: \$35,000** **TOTAL: \$35,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Ranson, W. F. LARC/Decker, A. J. 46-Mech Engr

**NAS 8-28660** **University of South Carolina** **3802**  
Study of microwave down-converters operating in KU band  
*Period* *Obligations*  
04/19/72-06/30/79 **FY80: \$2,957** **TOTAL: \$107,955**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Fell, R. G. MSFC/Lowrey, D. O. 45-Elec Engr  
MSFC/Stephens, J. K.

**NAS13-144** **University of South Carolina** **3803**  
Evaluation of domestic information system for state government application  
*Period* *Obligations*  
03/28/80-04/27/81 **FY80: \$35,000** **TOTAL: \$35,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Cowen, D. J. GSFC/Dalton, J. 32-Geological Sci

**NSG 7096** **University of South Carolina** **3804**  
A model for the formation of protocells from glycine-rich proteinoids  
*Period* *Obligations*  
10/08/74-08/31/80 **FY80:** **TOTAL: \$138,037**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Rohlfing, D. L. HD-SB/Devincenzi, D. L. 51-Biological Sci

**NSG 7504** **University of South Carolina** **3805**  
Application of LANDSAT data in South Carolina  
*Period* *Obligations*  
12/01/78-11/30/82 **FY80: \$100,000** **TOTAL: \$300,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Jankowski, M. D. HD-ET/Vitale, J. A. 39-Env Sci, NEC

**SOUTH DAKOTA**

**NAS 9-15522** **South Dakota School of Mines & Tech** **3806**  
Development of microprocessor-controlled Lower Body Negative Pressure (LBNP) system  
*Period* *Obligations*  
05/15/78-08/15/79 **FY80:** **TOTAL: \$23,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Gowen, R. J. JSC/Hull, W. E. 59-Life Sci, NEC

**NAS 9-16028** **South Dakota School of Mines & Tech** **3807**  
Life science flight experiments: Determination of segmented fluid shifts in humans which accompany the onset of weightlessness  
*Period* *Obligations*  
01/17/80-10/31/80 **FY80: \$19,335** **TOTAL: \$19,335**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Gowen, R. J. JSC/French, B. 59-Life Sci, NEC

**NAG 5-37** **South Dakota State University** **3808**  
Irrigation management with remote sensing  
*Period* *Obligations*  
04/01/80-03/31/81 **FY80: \$29,945** **TOTAL: \$29,945**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Heilman, J. L. GSFC/Salomonson, V. V.  
Moore, D. GSFC/Rango, A. 55-Agriculture Sci  
Myers, V. I.

**NASA'S UNIVERSITY PROGRAM  
SOUTH DAKOTA (Continued)**

**NAS 5-24206** South Dakota State University 3809  
Applications of heat capacity mapping mission satellite data to the study of urban heating patterns  
*Period* Obligations  
06/22/77-11/21/80 FY80: \$14,695 TOTAL: \$108,465  
*Prin Invest* NASA Tech Officer CASE Category  
Moore, D. GSFC/Gordon, F. 99-Multi-Discip

**NGL 42-003-007** South Dakota State University 3810  
Remote sensing of soils, land forms, and land use in the northern Great Plains in preparation for ERTS applications  
*Period* Obligations  
07/27/70-06/30/83 FY80: \$150,000 TOTAL: \$1,650,000  
*Prin Invest* NASA Tech Officer CASE Category  
Myers, V. I. HD-ET/Vitale, J. A. 39-Env Sci, NEC

**NSG 5396** South Dakota State University 3811  
Advanced microwave soil moisture studies  
*Period* Obligations  
07/01/79-02/28/81 FY80: \$60,452 TOTAL: \$91,153  
*Prin Invest* NASA Tech Officer CASE Category  
Heilman, J. L. GSFC/Schmugge, T. J. 39-Env Sci, NEC  
GSFC/Wang, J. R.

**NAS 5-23801** Meharry Medical College 3815  
Investigation of medical information management system application in a complex health care facility  
*Period* Obligations  
12/07/76-02/07/81 FY80: \$110,564  
*Prin Invest* NASA Tech Officer CASE Category  
Braun, G. GSFC/Alterescu, S. 56-Medical Sciences  
GSFC/Buchanan, P.

**NGT 43-014-750** Tennessee State University 3816  
Training of undergraduate students in sciences and engineering  
*Period* Obligations  
06/01/75-05/31/81 FY80: \$14,000 TOTAL: \$86,750  
*Prin Invest* NASA Tech Officer CASE Category  
Malkani, M. J. HD-LU/Pohly, J. G. 49-Engr, NEC

**NGT 43-014-790** Tennessee State University 3817  
Pre-cooperative engineering education program  
*Period* Obligations  
08/01/79-07/31/80 FY80: \$2,455 TOTAL: \$2,455  
*Prin Invest* NASA Tech Officer CASE Category  
Malkani, M. J. HD-LU/Pohly, J. G. 49-Engr, NEC  
LERC/Allen, R. P.

**NAG 8-7** Tennessee Technological University 3818  
Evaluation of a wind-wheel electric-power generator  
*Period* Obligations  
06/01/80-05/31/81 FY80: \$10,587 TOTAL: \$10,587  
*Prin Invest* NASA Tech Officer CASE Category  
Swim, W. B. MSFC/Smith, A. D. 46-Mech Engr  
MSFC/Kent, M. I.

**TENNESSEE**

**NSG 5297** Fisk University 3812  
Neutrino interactions at cosmic ray energies  
*Period* Obligations  
09/01/78-08/31/80 FY80: \$1,411 TOTAL: \$58,011  
*Prin Invest* NASA Tech Officer CASE Category  
Mickens, R. E. GSFC/Stecker, F. W. 13-Physics

**NGR 43-003-015** Tennessee Technological University 3819  
Investigation of open-loop amplification of Reynolds number dependent processes  
*Period* Obligations  
09/16/71-10/31/79 FY80: \$170,120 TOTAL: \$170,120  
*Prin Invest* NASA Tech Officer CASE Category  
Ventrice, M. B. LERC/Priem, R. J. 46-Mech Engr

**NSG 8060** Fisk University 3813  
Optical characterization of zero-gravity grown crystals  
*Period* Obligations  
04/17/78-02/16/81 FY80: \$63,876 TOTAL: \$163,999  
*Prin Invest* NASA Tech Officer CASE Category  
Silberman, E. MSFC/Kroes, R. L. 13-Physics  
Springer, J. MSFC/Kent, M. I.

**NAG 1-32** University of Tennessee - Knoxville 3820  
A tensor-product finite element algorithm for Navier-Stokes solutions at large Reynolds number  
*Period* Obligations  
02/01/80-01/31/81 FY80: \$23,180 TOTAL: \$23,180  
*Prin Invest* NASA Tech Officer CASE Category  
Baker, A. J. LARC/Smith, R. E. 21-Mathematics  
LARC/Shoosmith, J. N.

**NSG 1593** Le Moyne-Owen College 3814  
Calibration of the quartz crystal microbalance cascade impactor using the Berglund-Liu monodisperse aerosol generator for aerosol studies in the atmosphere  
*Period* Obligations  
02/01/79-01/31/81 FY80: \$37,553 TOTAL: \$70,585  
*Prin Invest* NASA Tech Officer CASE Category  
Matthews, N. LARC/Woods, D. C. 31-Atmos Sci

**NAG 3-18** University of Tennessee - Knoxville 3821  
A coordinate mapping procedure for the computation of variable duct acoustics  
*Period* Obligations  
01/01/80-12/31/80 FY80: \$20,000 TOTAL: \$20,000  
*Prin Invest* NASA Tech Officer CASE Category  
White, J. W. LERC/Baumeister, K. J. 41-Aero Engr  
LERC/Rice, E. J.

**NASA'S UNIVERSITY PROGRAM  
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<b>NAG 3-83</b>	<b>University of Tennessee - Knoxville</b>	<b>3822</b>			
	Time dependent local heat transfer coefficient variations during the ice accretion process on aircraft surfaces				
	<i>Period</i>	<i>Obligations</i>			
07/14/80-07/13/81	FY80: \$68,972	TOTAL: \$68,972			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Keshock, E. G.	LERC/Shaw, R. J.	41-Aero Engr			
<b>NAG 3-86</b>	<b>University of Tennessee - Knoxville</b>	<b>3823</b>			
	Aerodynamically forced vibration of radial flow components				
	<i>Period</i>	<i>Obligations</i>			
07/14/80-07/13/81	FY80: \$45,000	TOTAL: \$45,000			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Caruthers, J. E.	LERC/Rostafinski, W.	41-Aero Engr			
Kurosaka, M.					
<b>NAG 3-90</b>	<b>University of Tennessee - Knoxville</b>	<b>3824</b>			
	Scaling analysis of the ice accretion process for the purpose of establishing scaling criteria for experimental testing				
	<i>Period</i>	<i>Obligations</i>			
08/04/80-08/03/81	FY80: \$41,860	TOTAL: \$41,860			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Keshock, E. G.	LERC/Shaw, R. J.	41-Aero Engr			
<b>NAS 2-10528</b>	<b>University of Tennessee - Knoxville</b>	<b>3825</b>			
	Regulation of erythropoiesis in mice during spaceflight				
	<i>Period</i>	<i>Obligations</i>			
01/17/80-12/31/80	FY80: \$33,543	TOTAL: \$33,543			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Dunn, C. D.	ARC/Ferandin, J.	51-Biological Sci			
	ARC/Polson, P.				
<b>NAS 5-24250</b>	<b>University of Tennessee - Knoxville</b>	<b>3826</b>			
	A study of modulation and data-transfer techniques applied to satellite data collection				
	<i>Period</i>	<i>Obligations</i>			
08/02/77-12/31/79	FY80: \$12,904	TOTAL: \$70,239			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Rochelle, R. W.	GSFC/Allen, W.	45-Elec Engr			
Smith, S.					
<b>NAS 5-25428</b>	<b>University of Tennessee - Knoxville</b>	<b>3827</b>			
	Development of theoretical molecular models for line positions and strengths of several methane bands				
	<i>Period</i>	<i>Obligations</i>			
12/27/78-12/27/80	FY80: \$10,000	TOTAL: \$30,000			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Fox, K.	GSFC/Maguire, W. C.	13-Physics			
	GSFC/Kunde, V. G.				
<b>NAS 8-29271</b>	<b>University of Tennessee - Knoxville</b>	<b>3828</b>			
	Application of image enhancement techniques to remote manipulation operations				
	<i>Period</i>	<i>Obligations</i>			
01/08/73-02/07/80	FY80: \$2,000	TOTAL: \$255,692			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Gonzalez, R. C.	MSFC/Craig, G. D.	45-Elec Engr			
	MSFC/Bordelon, C.				
<b>NAS 8-32031</b>	<b>University of Tennessee - Knoxville</b>	<b>3829</b>			
	Field study of advection fog				
	<i>Period</i>	<i>Obligations</i>			
09/01/76-01/18/81	FY80: \$36,000	TOTAL: \$114,985			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Connett, J. R.	MSFC/Vaughan, O. H.	31-Atmos Sci			
	MSFC/Anderson, B. J.				
<b>NAS 8-32611</b>	<b>University of Tennessee - Knoxville</b>	<b>3830</b>			
	Ice chambers design and warm fog microphysics applicable to the understanding and interpretation of flight experiments under low gravity conditions				
	<i>Period</i>	<i>Obligations</i>			
07/29/77-06/30/80	FY80:	TOTAL: \$75,708			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Carter, J. M.	MSFC/Anderson, J. J.	39-Env Sci, NEC			
	MSFC/Vev	J. H.			
<b>NAS 8-32692</b>	<b>University of Tennessee - Knoxville</b>	<b>3831</b>			
	Gust gradient analysis				
	<i>Period</i>	<i>Obligations</i>			
07/07/78-04/05/81	FY80: \$89,988	TOTAL: \$254,198			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Frost, W.	MSFC/Camp, D. W.	31-Atmos Sci			
	MSFC/Alexander, M. B.				
<b>NAS 8-33386</b>	<b>University of Tennessee - Knoxville</b>	<b>3832</b>			
	Theoretical analysis of baroclinic flows				
	<i>Period</i>	<i>Obligations</i>			
08/13/79-02/28/81	FY80: \$40,500	TOTAL: \$45,500			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Antar, B. N.	MSFC/Fowles, W. W.	31-Atmos Sci			
	MSFC/Fichtl, G. H.				
<b>NAS 8-33447</b>	<b>University of Tennessee - Knoxville</b>	<b>3833</b>			
	Vehicle motion requirements for scientific experiments in space				
	<i>Period</i>	<i>Obligations</i>			
05/10/79-02/15/81	FY80: \$6,000	TOTAL: \$11,000			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Antar, B.	MSFC/Fichtl, G. H.	13-Physics			
Collins, F.	MSFC/Campbell, W.				
<b>NAS 8-33604</b>	<b>University of Tennessee - Knoxville</b>	<b>3834</b>			
	Study relative to develop a microwave antenna pointing error sensing scheme				
	<i>Period</i>	<i>Obligations</i>			
08/01/79-02/01/80	FY80:	TOTAL: \$19,600			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Hung, J. C.	MSFC/Howell, J. T., Jr.	45-Elec Engr			
Lee, C. W.					
Peebles, P. Z.					



**NASA'S UNIVERSITY PROGRAM  
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**NAS 8-33849** University of Tennessee - Knoxville 3835  
Gravity Probe-B (GP-B) pointing control and error analysis, study

<i>Period</i>	<i>Obligations</i>	
04/24/80-10/24/80	FY80: \$10,000	TOTAL: \$10,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hung, J. C.	MSFC/Parker, J. R.	13-Physics
	MSFC/Nurrc, G. S.	

**NAS 9-15164** University of Tennessee - Knoxville 3836  
Influence of space flight on erythropoietin activity and inhibition

<i>Period</i>	<i>Obligations</i>	
10/21/76-07/31/80	FY80: \$39,517	TOTAL: \$215,117
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Dunn, C. D.	JSC/Leach, C. S.	56-Medical Sciences

**NAS10-9834** University of Tennessee - Knoxville 3837  
Develop the mechanical component of a high precision strain gage accelerometer

<i>Period</i>	<i>Obligations</i>	
04/28/80-04/28/81	FY80: \$20,000	TOTAL: \$20,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Speckhart, F. H.	KSC/Reynolds, E. A.	49-Agr, NEC

**NCA 2-772901** University of Tennessee - Knoxville 3838  
Theoretical analysis on the boundary layer development over a slotted wind tunnel wall

<i>Period</i>	<i>Obligations</i>	
05/01/79-04/30/81	FY80:	TOTAL: \$39,956
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Tirres, C.	ARC/Steinle, F. W., Jr.	41-Aero Engr
Wu, J. M.		

**NGL 43-001-006** University of Tennessee - Knoxville 3839  
Spectroscopic studies of life shape of atmospheric gases and of absorption bands of inorganic solids

<i>Period</i>	<i>Obligations</i>	
01/07/64-09/01/81	FY80:	TOTAL: \$1,318,628
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Gailar, N. M.	HD-SL/Murphy, R. E.	31-Atmos Sci

**NGL 43-001-140** University of Tennessee - Knoxville 3840  
Experimental investigations of opaque minerals and cooling history of lunar rocks

<i>Period</i>	<i>Obligations</i>	
09/01/73-01/31/81	FY80: \$48,652	TOTAL: \$458,757
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Taylor, L. A.	JSC/Harris, J. W.	11-Astronomy

**NGT 43-001-800** University of Tennessee - Knoxville 3841  
Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
06/01/80-05/31/81	FY80: \$11,000	TOTAL: \$11,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Taylor, L. A.	JSC/Williams, R.	32-Geological Sci

**NSG 1224** University of Tennessee - Knoxville 3842  
A study of unsteady transonic flow analysis

<i>Period</i>	<i>Obligations</i>	
08/07/75-12/31/80	FY80: \$30,000	TOTAL: \$130,591
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kimble, K. R.	LARC/Bland, S. R.	41-Aero Engr
	LARC/Whitlon, W.	

**NSG 2379** University of Tennessee - Knoxville 3843  
Transonic slotted wind tunnel wall boundary layer flow study

<i>Period</i>	<i>Obligations</i>	
05/01/79-12/31/80	FY80:	TOTAL: \$36,630
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wu, J. M.	ARC/Steinle, F. W., Jr.	41-Aero Engr
Collins, F.		
Reddy, K. C.		

**NSG 3224** University of Tennessee - Knoxville 3844  
Parametric study of partial early commercial power plants (MHD)

<i>Period</i>	<i>Obligations</i>	
11/01/78-04/30/80	FY80:	TOTAL: \$150,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Dicks, J. B.	LERC/Staiger, P. J.	49-Engr, NEC
Chapman, J. N.		
Markant, H. P.		

**NSG 3287** University of Tennessee - Knoxville 3845  
Internal computational fluid mechanics program for turbomachinery

<i>Period</i>	<i>Obligations</i>	
07/01/79-06/31/81	FY80: \$55,000	TOTAL: \$148,440
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kurosaka, M.	LARC/Siegel, R.	41-Aero Engr
Wu, J. M.		
Caruthers, J. E.		

**NSG 7413** University of Tennessee - Knoxville 3846  
Petrologic studies of meteorite groups

<i>Period</i>	<i>Obligations</i>	
02/01/78-01/31/81	FY80: \$24,197	TOTAL: \$69,383
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
McSween, H. Y.	HD-SL/French, B. M.	32-Geological Sci
	HD-SL/Quaide, W. L.	

**NAS 9-15670** University of Tennessee - Memphis 3847  
Relative toxicity testing of spacecraft materials

<i>Period</i>	<i>Obligations</i>	
11/10/78-11/09/80	FY80:	TOTAL: \$77,823
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Autsan, J.	JSC/Schneider, H. J.	56-Medical Sciences
Lawrence, W. H.		



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<b>NAS 9-16040</b>	<b>Baylor College of Medicine</b>	<b>3861</b>			
Life science flight experiment					
<i>Period</i>	<i>Obligations</i>				
01/17/80-05/31/81	FY80: \$19,250	TOTAL: \$19,250			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Martin, R. R.	JSC/Thirolf, R. G.	59-Life Sci, NEC			
<b>NAS 9-16180</b>	<b>Baylor College of Medicine</b>	<b>3862</b>			
Influence of space flight on erythropoietin activity and inhibition					
<i>Period</i>	<i>Obligations</i>				
08/01/80-04/30/81	FY80: \$30,000	TOTAL: \$30,000			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Dunn, C. D.	JSC/Leach, C. S.	56-Medical Sciences			
<b>NSG 9070</b>	<b>Pan American University</b>	<b>3868</b>			
Laboratory studies of the diffuse reflectance spectra of frosts and minerals occurring on astronomical objects					
<i>Period</i>	<i>Obligations</i>				
06/01/78-05/31/81	FY80: \$33,225	TOTAL: \$112,025			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Glaser, F. M.	JSC/Mendell, W.	11-Astronomy			
<b>NCA 2-598001</b>	<b>Prairie View A&amp;M University</b>	<b>3869</b>			
Joint development of recruiting techniques for minority employment					
<i>Period</i>	<i>Obligations</i>				
09/01/80-08/31/81	FY80: \$2,831	TOTAL: \$2,831			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Jackson, B. N.	ARC/White, W. L.	19-Phys Sci, NEC			
<b>NGR 44-095-001</b>	<b>Hardin - Simmons University</b>	<b>3863</b>			
Study of psychophilic organisms isolated from manufacture and assembly areas of spacecraft to be used in the Viking missions					
<i>Period</i>	<i>Obligations</i>				
08/21/72-12/31/81	FY80: \$53,500	TOTAL: \$497,100			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Foster, T. L. Brewer, J. H.	HD-SB/Young, R. S.	51-Biological Sci			
<b>NSG 5421</b>	<b>Houston Baptist University</b>	<b>3864</b>			
Investigation of mass flow in stellar atmospheres					
<i>Period</i>	<i>Obligations</i>				
10/15/79-10/14/80	FY80: \$4,000	TOTAL: \$4,000			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Modisette, J. L.	GSFC/Kondo, Y.	11-Astronomy			
<b>NSG 9038</b>	<b>Houston Baptist University</b>	<b>3865</b>			
Obtaining high spatial resolution planetary imagery with potential shuttle era instrumentation					
<i>Period</i>	<i>Obligations</i>				
01/01/76-01/31/81	FY80:	TOTAL: \$54,250			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Morgan, T. H.	JSC/Potter, A.	11-Astronomy			
<b>NSG 9076</b>	<b>Houston Baptist University</b>	<b>3866</b>			
Spectroscopic investigation of the species emitting diffuse light in Johnson Space Center solar panel plasma effects simulation					
<i>Period</i>	<i>Obligations</i>				
04/01/79-09/30/80	FY80: \$7,808	TOTAL: \$14,216			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Warren, D. G.	JSC/McCoy, J.	19-Phys Sci, NEC			
<b>NSG 9033</b>	<b>Pan American University</b>	<b>3867</b>			
Experimental tests and model calculations on wheat varieties grown in India/Pakistan and in Texas					
<i>Period</i>	<i>Obligations</i>				
08/28/75-11/30/80	FY80: \$38,000	TOTAL: \$186,000			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Lemaster, E. W. Chance, J. E.	JSC/Heydorn, R. P.	39-Env Sci, NEC			
<b>NSG 9006</b>	<b>Prairie View A&amp;M University</b>	<b>3870</b>			
Measurement of growth morphological and bi-directional scattering parameters of wheat					
<i>Period</i>	<i>Obligations</i>				
06/01/74-08/31/80	FY80:	TOTAL: \$177,019			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Brams, E. A.	JSC/Browne, I. D.	39-Env Sci, NEC			
<b>NAG 3-29</b>	<b>Rice University</b>	<b>3871</b>			
A study of solar energy radio frequency generation devices					
<i>Period</i>	<i>Obligations</i>				
03/01/80-02/28/81	FY80: \$65,175	TOTAL: \$65,175			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Freeman, J. W. Broetzen, F. R.	LERC/Kosmahl, H. G.	19-Phys Sci, NEC			
<b>NAG 6-5</b>	<b>Rice University</b>	<b>3872</b>			
Study of plasma interactions in the auroral ionosphere					
<i>Period</i>	<i>Obligations</i>				
07/01/80-07/31/81	FY80: \$122,332	TOTAL: \$122,332			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Anderson, H. R.	WFC/Early, L. J.	19-Phys Sci, NEC			
	WFC/Pless, R. H.				
<b>NAGW 69</b>	<b>Rice University</b>	<b>3873</b>			
Electron beam-plasma interactions in the laboratory and in the ionosphere					
<i>Period</i>	<i>Obligations</i>				
06/01/80-05/31/81	FY80: \$57,000	TOTAL: \$57,000			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Bernstein, W.	HD-ST/Hedin, A. E.	19-Phys Sci, NEC			
	HD-ST/Schmerling, E. R.				

**NASA'S UNIVERSITY PROGRAM  
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**NAS 2-10519** Rice University 3874  
Life science experiment, ARC 781-288, adaptive characteristics of enzymes of nitrogen metabolism in mammals during space-flight

<i>Period</i>	<i>Obligations</i>	
01/17/80-04/30/81	FY80: \$11,358	TOTAL: \$11,358
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Campbell, J.	ARC/Ferandin, J.	51-Biological Sci
Vorhaben, J. F.	ARC/Sebesta, P. D.	

**NAS 5-23338** Rice University 3875  
Theoretical predictions and data analysis

<i>Period</i>	<i>Obligations</i>	
02/04/74-09/30/81	FY80: \$20,810	TOTAL: \$47,010
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Cloutier, P. A.	GSFC/Taylor, H. A., Jr	13-Physics
	GSFC/Gagnon, B.	

**NAS 5-25032** Rice University 3876  
Data analysis support for Low Energy Gamma-ray Spectrometer (LEGIS) balloon program

<i>Period</i>	<i>Obligations</i>	
05/04/78-07/05/81	FY80: \$4,089	TOTAL: \$16,704
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Haymes, R. C.	GSFC/Teegarden, B.	31-Atmos Sci

**NAS 6-1667** Rice University 3877  
Investigation into relationship between field aligned currents and auroral particle fluxes

<i>Period</i>	<i>Obligations</i>	
07/23/69-12/31/79	FY80	TOTAL: \$2,219,059
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Anderson, H. R.	WFC/Gray, J. W.	11-Astronomy
Cloutier, P. A.	WFC/Pless, R. H.	
Pulliam, D. M.		

**NAS 8-33023** Rice University 3878  
Study for the electrostatic protection of the solar power satellite and rectenna

<i>Period</i>	<i>Obligations</i>	
06/15/78-06/30/80	FY80	TOTAL: \$157,718
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Few, A. A.	MSFC/Guttman, C.	49-Engr, NEC
Freeman, J. W.	MSFC/Johnson, W. G.	

**NAS 8-33199** Rice University 3879  
Measurement of high temperature properties of liquid and solid tungsten

<i>Period</i>	<i>Obligations</i>	
11/27/78-03/31/81	FY80: \$14,000	TOTAL: \$34,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Margrave, J.	MSFC/Berge, R.	47-Materials Engr
	MSFC/Fallon, R. A.	

**NAS 8-33361** Rice University 3880  
Correlative studies of cosmic gamma ray sources under the HEAO-A guest investigator program

<i>Period</i>	<i>Obligations</i>	
07/16/79-07/15/81	FY80:	TOTAL: \$13,651
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Haymes, R. C.	MSFC/Jones, J. B.	11-Astronomy
Meehan, C. A.		

**NAS 8-33715** Rice University 3881  
Science and application team for the lightning observation from space development program

<i>Period</i>	<i>Obligations</i>	
01/24/80-01/23/81	FY80: \$37,734	TOTAL: \$37,734
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Few, A. A.	MSFC/Vaughan, W. W.	31-Atmos Sci
	MSFC/Smith, R. E.	

**NAS 8-33771** Rice University 3882  
Theoretical and experimental study of beam plasma physics

<i>Period</i>	<i>Obligations</i>	
07/25/80-08/24/81	FY80: \$249,910	TOTAL: \$249,910
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Anderson, H. R.	MSFC/Talley, D. H.	13-Physics

**NAS 9-15630** Rice University 3883  
Trace contaminant coadsorption by charcoal

<i>Period</i>	<i>Obligations</i>	
07/01/78-06/15/81	FY80: \$8,538	TOTAL: \$26,038
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Davis, S. H.	JSC/Lin, C. H.	43-Chem Engr

**NAS 9-15940** Rice University 3884  
Spectral analysis of galactic and extragalactic supernova remnants

<i>Period</i>	<i>Obligations</i>	
05/15/79-06/15/81	FY80: \$17,000	TOTAL: \$30,360
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Dufour, R. J.	JSC/Parker, R. A.	11-Astronomy

**NAS 9-16166** Rice University 3885  
Geosynchronous Earth Orbit (GEO) simulation study

<i>Period</i>	<i>Obligations</i>	
05/16/80-01/15/81	FY80: \$10,000	TOTAL: \$10,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Berstein, W.	JSC/McIntyre, B.	19-Phys Sci, NEC

**NAS 9-16206** Rice University 3886  
Supporting calculations for plasma interactions experiments at JSC

<i>Period</i>	<i>Obligations</i>	
08/01/80-01/31/81	FY80: \$12,000	TOTAL: \$12,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Freeman, J. W.	JSC/McCoy, J.	19-Phys Sci, NEC

**NASA'S UNIVERSITY PROGRAM  
TEXAS (Continued)**

**NASW 3164** Rice University **3887**  
Effects of hypogravity on respiration and photosynthesis of higher plants  
*Period* *Obligations*  
05/12/78-05/12/80 FY80: TOTAL: \$20,000  
*Prin Invest* NASA Tech Officer CASE Category  
Ward, C. H. HD-SB/Halstead, T. W. 51-Biological Sci

**NGL 44-006-012** Rice University **3888**  
Laboratory development of solar wind heavy-ion mass spectrometer  
*Period* *Obligations*  
06/27/64-06/30/80 FY80: TOTAL: \$1,453,736  
*Prin Invest* NASA Tech Officer CASE Category  
Michel, F. C. HD-ST/Cauffman, D. P. 13-Physics  
HD-ST/Schmerling, E. R.

**NGL 44-006-127** Rice University **3889**  
Lunar fines, their origin, evolution, and interaction with solar wind and cosmic rays  
*Period* *Obligations*  
02/16/71-01/31/81 FY80: \$30,000 TOTAL: \$592,149  
*Prin Invest* NASA Tech Officer CASE Category  
Ling, A. C. JSC/Harris, J. W. 32-Geological Sci  
Holloway, J. G.

**NGR 44-006-137** Rice University **3890**  
Analysis of data on the magnetotail and solar wind  
*Period* *Obligations*  
12/29/70-12/31/80 FY80: \$89,330 TOTAL: \$397,027  
*Prin Invest* NASA Tech Officer CASE Category  
Dessler, A. J. HD-ST/Schmerling, E. R. 13-Physics

**NGT 44-006-800** Rice University **3891**  
Zonal wind dynamics in the atmospheres of Jupiter and Saturn from Voyager IRIS measurements graduate student researchers program  
*Period* *Obligations*  
09/01/80-08/31/81 FY80: \$10,000 TOTAL: \$10,000  
*Prin Invest* NASA Tech Officer CASE Category  
Chamberlain, J. W. GSFC/Mumma, M. J. 13-Physics

**NSG 5286** Rice University **3892**  
Investigation of low altitude plasma phenomena  
*Period* *Obligations*  
07/01/78-12/31/80 FY80: \$21,000 TOTAL: \$41,000  
*Prin Invest* NASA Tech Officer CASE Category  
Reiff, P. H. GSFC/Spencer, N. W. 31-Atmos Sci

**NSG 5364** Rice University **3893**  
Observations of the ultraviolet spectra of magellanic clouds  
*Period* *Obligations*  
06/01/79-05/31/81 FY80: \$13,874 TOTAL: \$24,874  
*Prin Invest* NASA Tech Officer CASE Category  
Dufour, R. J. GSFC/Boggett, A. 11-Astronomy  
Talbot, R. J.  
Shields, G. A.

**NSG 7032** Rice University **3894**  
Apollo data synthesis: Lunar atmosphere and ionosphere  
*Period* *Obligations*  
04/01/74-02/28/81 FY80: TOTAL: \$90,307  
*Prin Invest* NASA Tech Officer CASE Category  
Michel, F. C. HD-SL/Quaide, W. L. 31-Atmos Sci  
HD-SL/French, B. E.

**NSG 7043** Rice University **3895**  
Research on planetary atmospheres  
*Period* *Obligations*  
03/01/74-02/28/81 FY80: \$72,023 TOTAL: \$312,640  
*Prin Invest* NASA Tech Officer CASE Category  
Chamberlain, J. W. HD-SL/Murphy, R. E. 31-Atmos Sci

**NSG 7157** Rice University **3896**  
Analysis and synthesis of Apollo lunar surface experiments package suprathermal ion  
*Period* *Obligations*  
07/01/75-10/31/79 FY80: TOTAL: \$199,715  
*Prin Invest* NASA Tech Officer CASE Category  
Freeman, J. W. HD-ST/Quaide, W. L. 32-Geological Sci  
HD-SL/French, B. M.

**NSG 7361** Rice University **3897**  
Origin of the solar system: The relationship of isotopic and chemical anomalies in meteorites, Earth, Moon and planets to astrophysical models of their origin  
*Period* *Obligations*  
08/01/77-04/30/81 FY80: TOTAL: \$36,190  
*Prin Invest* NASA Tech Officer CASE Category  
Clayton, D. D. HD-SL/Quaide, W. L. 32-Geological Sci

**NSG 7362** Rice University **3898**  
Thermal history of the inner planets  
*Period* *Obligations*  
07/01/77-12/31/79 FY80: TOTAL: \$60,357  
*Prin Invest* NASA Tech Officer CASE Category  
Debremaecker, J. C. HD-SL/Quaide, W. L. 32-Geological Sci  
HD-SL/French, B. M.

**NSG 7386** Rice University **3899**  
Study of ion-molecule reactions of importance in planetary atmosphere  
*Period* *Obligations*  
09/01/77-12/31/80 FY80: \$46,414 TOTAL: \$103,382  
*Prin Invest* NASA Tech Officer CASE Category  
Chamberlain, J. W. HD-SL/Murphy, R. E. 31-Atmos Sci  
HD-SL/Brunk, W. E.

**NAS 9-16140** Southern Methodist University **3900**  
Proposed work on the OSTA, Rio Grand rift project  
*Period* *Obligations*  
06/24/80-04/30/81 FY80: \$9,994 TOTAL: \$9,994  
*Prin Invest* NASA Tech Officer CASE Category  
Dungan, M. A. JSC/Blanchard, D. P. 32-Geological Sci

**NASA'S UNIVERSITY PROGRAM  
TEXAS (Continued)**

**NGT 44-007-000** Southern Methodist University **3901**  
Graduate student researchers program  
*Period* *Obligations*  
06/01/80-05/31/81 **FY80: \$8,325 TOTAL: \$8,325**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Dungan, M. JSC/Lofgren, G. 32-Geological Sci

**NSG 2354** Southern Methodist University **3902**  
Experimental measurements of unsteady turbulent boundary layers near separation  
*Period* *Obligations*  
12/01/78-06/30/81 **FY80: TOTAL: \$127,397**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Simpson, R. L. ARC/Marvin, J. G. 42-Astro Engr  
Nasburg, R. E.

**NAS 9-15102** Texas A&I University **3903**  
Development of synthetic aperture radar design approach for wide-swath implementation  
*Period* *Obligations*  
04/01/80-06/01/81 **FY80: \$35,000 TOTAL: \$35,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Jean, B. R. JSC/Krishen, K. 31-Atmos Sci

**NAG 2-25** Texas A&M University System Office **3904**  
Airframe/propeller propulsion integration analyses  
*Period* *Obligations*  
05/01/80-04/31/81 **FY80: \$59,363 TOTAL: \$59,363**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Miley, S. J. ARC/Enomoto, F. Y. 41-Aero Engr  
ARC/Williams, L. J.

**NAG 1-11** Texas A&M University **3905**  
Analytical study of jet shielding  
*Period* *Obligations*  
01/01/80-12/31/80 **FY80: \$37,765 TOTAL: \$37,765**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Gerhold, C. H. LARC/Zorumski, W. E. 41-Aero Engr

**NAG 3-31** Texas A&M University **3906**  
Constitutive models for cyclic plasticity and creep behavior of super alloys at high temperature  
*Period* *Obligations*  
04/01/80-03/31/81 **FY80: \$45,000 TOTAL: \$45,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Haisler, W. E. LERC/Thompson, R. L.  
Bradley, W. L. 47-Materials Engr

**NAG 5-31** Texas A&M University **3907**  
Investigation of remote sensing techniques for measuring soil moisture  
*Period* *Obligations*  
03/01/80-12/31/80 **FY80: \$145,000 TOTAL: \$145,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Newton, R. W. GSFC/Schmugge, T. J. 32-Geological Sci

**NAG 5-94** Texas A&M University **3908**  
Research of altimetry data over trenches and island arcs and convection  
*Period* *Obligations*  
09/01/80-08/31/81 **FY80: \$12,645 TOTAL: \$ 2,645**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Jones, G. M. GSFC/Harper, E. L. 32-Geological Sci  
GSFC/Smith, D. E.

**NAS 2-10272** Texas A&M University **3909**  
Modification of a Swearingen metro wind tunnel model  
*Period* *Obligations*  
06/19/79-02/28/81 **FY80: \$177,825 TOTAL: \$264,225**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Brusse, J. C. ARC/Morgan, D. 41-Aero Engr

**NAS 5-22966** Texas A&M University **3910**  
Nimbus-G experiment team for coastal zone color scanner  
*Period* *Obligations*  
02/10/76-01/31/81 **FY80: \$20,000 TOTAL: \$343,226**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
El-sayed, S. Z. GSFC/Nelsen, E. D. 41-Aero Engr

**NAS 5-24383** Texas A&M University **3911**  
Applications of heat capacity mapping mission satellite data to the study of urban heating patterns  
*Period* *Obligations*  
01/16/78-02/01/81 **FY80: \$28,294 TOTAL: \$115,384**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Harlan, J. C. GSFC/Stonesifer, G. R. 19-Phys Sci, NEC

**NAS 5-25846** Texas A&M University **3912**  
Resolving the agricultural residential image classification conflict  
*Period* *Obligations*  
09/04/79-09/03/80 **FY80: TOTAL: \$4,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Miller, L. GSFC/Toll, D. 32-Geological Sci

**NAS 5-25941** Texas A&M University **3913**  
Documentation of LANDSAT assessment of forest land cover in northern Thailand  
*Period* *Obligations*  
11/19/79-09/19/80 **FY80: \$3,960 TOTAL: \$3,960**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Miller, L. GSFC/Williams, D. L. 39-Env Sci, NEC

**NAS 6-2884** Texas A&M University **3914**  
Study of the dynamics of ocean surface current and Kuroshio circulation  
*Period* *Obligations*  
02/01/78-03/31/81 **FY80: TOTAL: \$34,199**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Ichiye, T. WFC/Huang, N. E. 33-Oceanography  
WFC/Long, S.

**NASA'S UNIVERSITY PROGRAM  
TEXAS (Continued)**

**NAS 6-3072** Texas A&M University **3915**  
Development of a unified thermal and trajectory model for the prediction of high-altitude balloon performance

<i>Period</i>	<i>Obligations</i>	
02/01/80-12/31/80	FY80: \$49,451	TOTAL: \$49,451
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Carlson, L. A.	WFC/Needleman, H. C.	41-Aero Engr
Horn, W. J.	WFC/Early, L. J.	

**NAS 9-13894** Texas A&M University **3921**  
Classification techniques evaluation and yield modeling for a large crop inventory project

<i>Period</i>	<i>Obligations</i>	
01/15/74-11/17/80	FY80: \$38,470	TOTAL: \$510,312
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sielken, R. L.	JSC/Broune, I. D.	22-Computer Science
Jenkins, O. C.		
Freund, R. J.		

**NAS 8-31773** Texas A&M University **3916**  
The relationship between severe storms and their environment

<i>Period</i>	<i>Obligations</i>	
01/02/76-01/31/81	FY80: \$125,000	TOTAL: \$351,981
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Scoggins, J. R.	MSFC/Hill, C. K.	31-Atmos Sci
	MSFC/Vaughn, W. W.	

**NAS 9-14689** Texas A&M University **3922**  
Application of feature selection

<i>Period</i>	<i>Obligations</i>	
06/01/75-10/31/80	FY80: \$135,018	TOTAL: \$401,218
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Guseman, L. F.	JSC/Browne, I. D.	22-Computer Science

**NAS 8-32527** Texas A&M University **3917**  
Bent crystal X-ray topography

<i>Period</i>	<i>Obligations</i>	
07/13/77-09/30/78	FY80:	TOTAL: \$39,954
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Parker, D. L.	MSFC/Nowakowski, M.	13-Physics
	MSFC/Holladay, A. M.	

**NAS 9-14828** Texas A&M University **3923**  
Lunar sample irradiation services

<i>Period</i>	<i>Obligations</i>	
11/01/75-08/31/80	FY80:	TOTAL: \$60,000
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Randall, J. D.	JSC/Blanchard, D. P.	39-Env Sci, NEC

**NAS 8-33519** Texas A&M University **3918**  
X-ray topography study of complex silicone microcircuits

<i>Period</i>	<i>Obligations</i>	
02/12/80-02/11/81	FY80: \$29,912	TOTAL: \$29,912
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Parker, P. L.	MSFC/Nowakowski, M.	45-Elec Engr
	MSFC/Holladay, A. M.	

**NAS 9-15311** Texas A&M University **3924**  
Investigation of microprocessor systems to be used in the development of a 4.75 GHz scatterometer real-time processor

<i>Period</i>	<i>Obligations</i>	
05/11/77-07/16/80	FY80:	TOTAL: \$119,253
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Jean, B. R.	JSC/Farris, G. W.	45-Elec Engr

**NAS 8-33716** Texas A&M University **3919**  
Space shuttle main engine fuel turbopump interstage seal test program

<i>Period</i>	<i>Obligations</i>	
02/29/80-02/28/81	FY80: \$268,447	TOTAL: \$268,447
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Childs, D. W.	MSFC/Garcia, F. F.	46-Mech Engr
	MSFC/Gross, L. P.	

**NAS 9-15451** Texas A&M University **3925**  
Microwave remote sensing symposium workshop

<i>Period</i>	<i>Obligations</i>	
10/12/77-10/31/78	FY80:	TOTAL: \$64,721
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Rouse, J. W.	JSC/Matthews, R. E.	13-Physics

**NAS 8-33776** Texas A&M University **3920**  
Diagnostic analysis of the environment of severe storms using atmospheric variability

<i>Period</i>	<i>Obligations</i>	
02/12/80-02/11/81	FY80: \$39,398	TOTAL: \$39,398
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Scoggins, J. R.	MSFC/Hill, C. K.	31-Atmos Sci

**NAS 9-15468** Texas A&M University **3926**  
Development of map products on state of rangelands

<i>Period</i>	<i>Obligations</i>	
12/05/77-01/15/81	FY80: \$49,350	TOTAL: \$114,098
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Harlan, J. C.	JSC/Hancock, K. J.	99-Multi-Discip

**NAS 9-15964** Texas A&M University **3927**  
Basic research planning in pattern recognition image processing

<i>Period</i>	<i>Obligations</i>	
09/06/79-01/15/81	FY80: \$57,140	TOTAL: \$57,140
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Guseman, L. F.	JSC/MacDonald, R. B.	32-Geological Sci
Bryant, J.		

**NASA'S UNIVERSITY PROGRAM  
TEXAS (Continued)**

**NAS 9-16059** Texas A&M University 3928  
Administrative support for the Solar Power Satellite Concept Evaluation Resource Analysis Workshop  
*Period* *Obligations*  
01/30/80-04/30/80 FY80: \$77,298 TOTAL: \$77,298  
*Pnn Invest* *NASA Tech Officer* *CASF Category*  
Thomas, R. E. JSC/Kennedy, R. 13-Physics

**NAS 9-16073** Texas A&M University 3929  
Study to develop a factor analysis statistical capability for the design performance laboratory  
*Period* *Obligations*  
04/01/80-01/15/81 FY80: \$5,000 TOTAL \$5,000  
*Pnn Invest* *NASA Tech Officer* *CASF Category*  
Stramler, J. H. JSC/Lewis, J. L. 51-Biological Sci

**NAS 9-16088** Texas A&M University 3930  
Application of ray-tracing techniques for evaluating effects of ionospheric disturbances and spacenna structural distortions and/or tilts on the solar power satellite pilot beam signal  
*Period* *Obligations*  
04/16/80-01/15/81 FY80: \$5,230 TOTAL: \$5,230  
*Pnn Invest* *NASA Tech Officer* *CASF Category*  
Marouf, A. JSC/Arndt, G. D. 45-Elec Engr

**NAS 9-16185** Texas A&M University 3931  
Chemical analysis of Martian analog samples  
*Period* *Obligations*  
08/01/80-07/31/81 FY80 \$2,000 TOTAL \$2,000  
*Pnn Invest* *NASA Tech Officer* *CASF Category*  
Young, V. JSC/Gibson, E. K. 12-Chemistry

**NCC 2-78** Texas A&M University 3932  
Studies of advanced wing configurations  
*Period* *Obligations*  
06/01/80-05/30/81 FY80 \$77,810 TOTAL: \$77,810  
*Pnn Invest* *NASA Tech Officer* *CASF Category*  
Chevalier, H. ARC/Corsiglia, V. R. 41-Aero Engr

**NCC 5-11** Texas A&M University 3933  
Altimeter data over trenches and island arcs and convection in the mantle  
*Period* *Obligations*  
05/01/79-08/31/80 FY80 TOTAL \$25,000  
*Pnn Invest* *NASA Tech Officer* *CASF Category*  
Jones, G. M. GSFC/Taylor, P. T. 32-Geological Sci

**NCC 5-15** Texas A&M University 3934  
Determination of the spatial variability in localized precipitation patterns  
*Period* *Obligations*  
06/01/79-11/30/80 FY80 TOTAL: \$25,478  
*Pnn Invest* *NASA Tech Officer* *CASF Category*  
Miller, L. GSFC/Schmugge, T. J. 39-Env Sci, NEC  
Blanchard, B. J.

**NGL 44-001-001** Texas A&M University 3935  
Interdisciplinary space oriented research in physical, life and engineering sciences  
*Period* *Obligations*  
02/01/62-01/31/81 FY80: TOTAL: \$1,915,564  
*Pnn Invest* *NASA Tech Officer* *CASF Category*  
Blanchard, B. J. HD-ET/Vitale, J. A. 39-Env Sci, NEC

**NGR 44-001-117** Texas A&M University 3936  
Radiative transfer in realistic planetary atmospheres  
*Period* *Obligations*  
07/19/71-09/30/80 FY80: \$25,435 TOTAL: \$333,955  
*Pnn Invest* *NASA Tech Officer* *CASF Category*  
Kattawar, G. W. HD-SL/Murphy, R. E. 31-Atmos Sci  
HD-SL/Brunk, W. E.

**NGT 44-001-800** Texas A&M University 3937  
Summer faculty fellowship program in engineering systems design  
*Period* *Obligations*  
01/01/80-03/31/81 FY80: \$182,963 TOTAL \$182,963  
*Pnn Invest* *NASA Tech Officer* *CASF Category*  
Norton, D. J. HD-LU/Carter, C. H. 49-Engr, NEC

**NGT 44-001-801** Texas A&M University 3938  
Shearing of atmospherically driven nearshore dynamics  
*Period* *Obligations*  
09/01/80-08/31/81 FY80: \$9,325 TOTAL \$9,325  
*Pnn Invest* *NASA Tech Officer* *CASF Category*  
McGrail, D. W. JPL/Chahine, M. 32-Geological Sci

**NSG 1174** Texas A&M University 3939  
Development of inverse transonic airfoil design methods including boundary layer and viscous interaction effects  
*Period* *Obligations*  
05/01/75-01/31/81 FY80: \$33,962 TOTAL \$103,789  
*Pnn Invest* *NASA Tech Officer* *CASF Category*  
Carlson, L. A. LARC/Everhart, J. L. 41-Aero Engr  
LARC/South, J. C.

**NSG 1374** Texas A&M University 3940  
Low cost avionics for the global positioning system  
*Period* *Obligations*  
01/15/77-10/14/79 FY80 TOTAL \$46,504  
*Pnn Invest* *NASA Tech Officer* *CASF Category*  
Painter, J. H. LARC/Lytle, C. D. 45-Elec Engr  
Noe, P. S. LARC/Hearn, C. P.  
Rhyn, V. T.

**NSG 1407** Texas A&M University 3941  
Investigation of the aerodynamics for preventing aircraft stall and the development of technology for stall proof general aviation aircraft  
*Period* *Obligations*  
04/01/77-04/30/80 FY80 TOTAL \$96,033  
*Pnn Invest* *NASA Tech Officer* *CASF Category*  
Chevalier, H. LARC/Chambers, J. R. 41-Aero Engr  
LARC/Johnson, J. L.



**NASA'S UNIVERSITY PROGRAM  
TEXAS (Continued)**

<b>NSG 1639</b>	<b>Texas A&amp;M University</b>	<b>3942</b>			
Design studies for a technology assessment receiver for the global positioning system					
<i>Period</i>		<i>Obligations</i>			
09/01/79-05/31/81	<b>FY80:</b>	<b>TOTAL: \$39,991</b>			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Painter, J. H.	LARC/Hearn, C. P.	45-Elec Engr			
Noe, P. S.	LARC/Lytle, C. D.				
Rhyne, V. T.					
<b>NSG 2226</b>	<b>Texas A&amp;M University</b>	<b>3943</b>			
Applicability of reliability and survivability program-version I to model reliability and survivability characteristics of aircraft weapon systems					
<i>Period</i>		<i>Obligations</i>			
05/01/77-01/01/81	<b>FY80: \$20,428</b>	<b>TOTAL: \$59,768</b>			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Phillips, D. T.	ARC/Andre, W. L.	41-Aero Engr			
Foster, J. W.	ARC/Wong, J. T.				
<b>NSG 3201</b>	<b>Texas A&amp;M University</b>	<b>3944</b>			
Theoretical calculations relevant to hydrogen storage					
<i>Period</i>		<i>Obligations</i>			
06/15/78-02/15/80	<b>FY80:</b>	<b>TOTAL: \$4,000</b>			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Ford, A. L.	LERC/Brown, G. V.	13-Physics			
<b>NSG 5134</b>	<b>Texas A&amp;M University</b>	<b>3945</b>			
Measurement of soil moisture trends with airborne scatterometers					
<i>Period</i>		<i>Obligations</i>			
10/11/76-03/31/81	<b>FY80: \$102,036</b>	<b>TOTAL: \$227,036</b>			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Blanchard, B. J.	GSFC/Chang, A. T.	32-Geological Sci			
<b>NSG 5156</b>	<b>Texas A&amp;M University</b>	<b>3946</b>			
Measurement of the hydrologic soil-cover complex with airborne scatterometers					
<i>Period</i>		<i>Obligations</i>			
02/01/77-09/30/79	<b>FY80:</b>	<b>TOTAL: \$79,085</b>			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Blanchard, B. J.	GSFC/Chang, A. T.	32-Geological Sci			
<b>NSG 5193</b>	<b>Texas A&amp;M University</b>	<b>3947</b>			
Temporal correlations of antecedent precipitation with Nimbus-5 electrically scanning microwave radiometer brightness temperatures					
<i>Period</i>		<i>Obligations</i>			
08/01/77-11/30/80	<b>FY80:</b>	<b>TOTAL: \$88,259</b>			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
McFarland, M. J.	GSFC/Schmugge, T. J.	31-Atmos Sci			
Blanchard, B. J.					
<b>NSG 5266</b>	<b>Texas A&amp;M University</b>	<b>3948</b>			
Research of mathematical model of an orbiting microwave radiometer					
<i>Period</i>		<i>Obligations</i>			
04/01/78-12/31/79	<b>FY80:</b>	<b>TOTAL: \$60,302</b>			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Newton, R. W.	GSFC/Wang, J. R.	39-Env Sci, NEC			
Rouse, J. W.					
<b>NSG 7037</b>	<b>Texas A&amp;M University</b>	<b>3949</b>			
The origin of the genetic code: A physical chemical model of Codon assignment					
<i>Period</i>		<i>Obligations</i>			
05/07/74-07/31/80	<b>FY80: \$4,221</b>	<b>TOTAL: \$264,196</b>			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Nagvary, J.	HD-SB/Devincenzi, D. L.	12-Chemistry			
<b>NSG 7417</b>	<b>Texas A&amp;M University</b>	<b>3950</b>			
Velocity model of the shallow lunar crust					
<i>Period</i>		<i>Obligations</i>			
03/01/78-12/31/79	<b>FY80:</b>	<b>TOTAL: \$21,550</b>			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Gangi, A. F.	HD-SL/Quaide, W. L.	32-Geological Sci			
	HD-SL/French, B. E.				
<b>NAG 1-22</b>	<b>Texas Christian University</b>	<b>3951</b>			
Effects of aircraft noise on human activities					
<i>Period</i>		<i>Obligations</i>			
01/01/80-05/31/81	<b>FY80: \$35,480</b>	<b>TOTAL: \$35,480</b>			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Arnoult, M. D.	LARC/Powell, C. A.	69-Psych, NEC			
	LARC/Key, K. F.				
<b>NAG 9-6</b>	<b>Texas Southern University</b>	<b>3952</b>			
Space flight design and developmental studies					
<i>Period</i>		<i>Obligations</i>			
12/01/79-12/31/80	<b>FY80: \$175,549</b>	<b>TOTAL: \$175,549</b>			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Blackwell, H. E.	JSC/Davis, E. L.	49-Engr, NEC			
<b>NAG 1-28</b>	<b>Texas Tech University</b>	<b>3953</b>			
Lightning sensors and data interpretation					
<i>Period</i>		<i>Obligations</i>			
01/15/80-01/14/81	<b>FY80: \$50,000</b>	<b>TOTAL: \$50,000</b>			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Trost, T. F.	LARC/Zaepfel, K. P.	45-Elec Engr			
	LARC/Pitts, F. L.				
<b>NAS 9-11162</b>	<b>Texas Tech University</b>	<b>3954</b>			
Insulated ECG electrodes					
<i>Period</i>		<i>Obligations</i>			
06/29/70-02/01/81	<b>FY80:</b>	<b>TOTAL: \$134,892</b>			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Portnoy, W. M.	JSC/Day, J. L.	45-Elec Engr			

**NASA'S UNIVERSITY PROGRAM  
TEXAS (Continued)**

**NAS 9-16155**      **Texas Tech University**      **3955**  
Support for static and dynamic anthropometry for computer stimulation of man in a zero-G environment

<i>Period</i>	<i>Obligations</i>	
06/01/80-10/30/80	FY80: \$1,380	TOTAL: \$1,380
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ayoub, M. M.	JSC/Jackson, J. T.	59-Life Sci, NEC

**NAS 9-15882**      **University of Houston - Houston**      **3962**  
Analysis of volatile metabolites in biological fluids as indicators of prodromal disease conditions

<i>Period</i>	<i>Obligations</i>	
06/01/79-09/30/81	FY80: \$30,000	TOTAL: \$79,948
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Zlatkis, A.	JSC/Schneider, H. J.	51-Biological Sci

**NGT 44-011-800**      **Texas Tech University**      **3956**  
Equilibrium deprivation and its effects on the nervous system

<i>Period</i>	<i>Obligations</i>	
06/15/80-06/14/81	FY80: \$10,445	TOTAL: \$10,445
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hartman, H. B.	ARC/Holton, E. M.	51-Biological Sci

**NAS 9-15944**      **University of Houston - Houston**      **3963**  
Design of a food service habitat for a large scale space station

<i>Period</i>	<i>Obligations</i>	
08/23/79-09/20/81	FY80:	TOTAL: \$15,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bell, L.	JSC/Smith, M. C.	99-Multi-Discip

**NSG 2137**      **Texas Tech University**      **3957**  
Pharmacological prevention of calcium and bone loss

<i>Period</i>	<i>Obligations</i>	
05/01/76-04/30/81	FY80: \$10,000	TOTAL: \$48,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kenny, A. D.	ARC/Holton, E. M.	56-Medical Sciences

**NGR 44-005-002**      **University of Houston - Houston**      **3964**  
Studies in organic cosmochemistry, including consideration of compound formation under primitive Earth conditions and of organic material in selected meteorites

<i>Period</i>	<i>Obligations</i>	
06/18/62-08/31/81	FY80: \$115,000	TOTAL: \$1,144,905
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Oro, J.	HD-SB/Devincenzi, D. L.	32-Geological Sci

**NSG 7435**      **Texas Tech University**      **3958**  
Application of laser ranging and very long base interferometry data to a study of plate tectonic driving forces

<i>Period</i>	<i>Obligations</i>	
05/01/78-04/30/81	FY80: \$32,852	TOTAL: \$70,488
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hartman, H. B.	HD-SB/Halstead, T. W.	32-Geological Sci

**NGT 44-005-115**      **University of Houston - Houston**      **3965**  
Summer faculty fellowship program in research

<i>Period</i>	<i>Obligations</i>	
05/06/74-03/31/81	FY80:	TOTAL: \$1,265,089
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Huang, C. J.	HD-LU/Carter, C. H.	49-Engr, NEC

**NAGW 39**      **University of Houston - Houston**      **3959**  
Granule armor on sand dunes

<i>Period</i>	<i>Obligations</i>	
03/01/80-02/28/81	FY80: \$11,268	TOTAL: \$11,268
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Smith, R. S.	HD-SL/Murphy, R. E. HD-SL/Brunk, W. E.	31-Atmos Sci

**NGT 44-005-800**      **University of Houston - Houston**      **3966**  
Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
09/01/80-08/31/81	FY80: \$11,000	TOTAL: \$11,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Middleditch, B. S.	JSC/Schneider, H. J.	19-Phys Sci, NEC

**NAS 2-10087**      **University of Houston - Houston**      **3960**  
Influence of weightlessness on lignification in developing plant seedlings

<i>Period</i>	<i>Obligations</i>	
11/01/78-12/31/80	FY80: \$73,450	TOTAL: \$122,030
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Cowles, J. R. Scheld, H. W.	ARC/Tremor, J. W.	59-Life Sci, NEC

**NSG 1475**      **University of Houston - Houston**      **3967**  
The large-scale coherent structure in the circular jet

<i>Period</i>	<i>Obligations</i>	
12/01/77-11/30/81	FY80: \$40,000	TOTAL: \$110,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Nadkarni, A. A.	LARC/Maestrello, L.	41-Aero Engr

**NAS 9-11676**      **University of Houston - Houston**      **3961**  
Characterization of heat transfer in nutrient materials

<i>Period</i>	<i>Obligations</i>	
04/28/71 03/01/81	FY80:	TOTAL: \$99,948
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Cox, J. E.	JSC/Sauer, R. L.	59-Life Sci, NEC

**NSG 1603**      **University of Houston - Houston**      **3968**  
Research on the application of a decoupling algorithm for structural analysis

<i>Period</i>	<i>Obligations</i>	
03/15/79-03/14/81	FY80: \$36,404	TOTAL: \$56,204
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Denman, E. D.	LARC/Horner, G. C.	45-Elec Engr

**NASA'S UNIVERSITY PROGRAM  
TEXAS (Continued)**

<b>NSG 2337</b>	<b>University of Houston - Houston</b>	<b>3969</b>
The high Reynolds number free shear layer (behind a backward facing step)		
<i>Period</i>	<i>Obligations</i>	
09/01/78-07/31/81	FY80: \$78,089	TOTAL: \$221,801
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hussain, A. K.	ARC/Viegas, J. R.	47-Materials Engr
Kleis, S. J.		
<b>NSG 7300</b>	<b>University of Houston - Houston</b>	<b>3970</b>
The role cell membranes in the regulation of lignification in pine cells		
<i>Period</i>	<i>Obligations</i>	
10/01/76-04/30/80	FY80: \$89,986	TOTAL: \$89,986
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hendrix, D. H.	HD-SB/Halstead, T.W.	51-Biological Sci
	HD-SB/Geib, D. S.	
<b>NSG 7410</b>	<b>University of Houston - Houston</b>	<b>3971</b>
Wind regime of various dune types in the southeastern California desert		
<i>Period</i>	<i>Obligations</i>	
11/01/77-04/30/80	FY80: \$38,714	TOTAL: \$38,714
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Smith, R. S.	HD-SL/Dwornik, S. E.	32-Geological Sci
	HD-SL/Boyce, J. M.	
<b>NSG 7440</b>	<b>University of Houston - Houston</b>	<b>3972</b>
Evolutionary relationships in the microbial world		
<i>Period</i>	<i>Obligations</i>	
06/01/78-05/31/81	FY80: \$48,000	TOTAL: \$138,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Fox, G. E.	HD-SB/Devincenzi, D. L.	51-Biological Sci
<b>NSG 7551</b>	<b>University of Houston - Houston</b>	<b>3973</b>
Mars. Significance of large open spaces within the north polar dune fields		
<i>Period</i>	<i>Obligations</i>	
04/01/79-03/31/81	FY80: \$19,338	TOTAL: \$24,338
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Smith, R.	HD-SL/Boyce, J. M.	32-Geological Sci
<b>NSG 7609</b>	<b>University of Houston - Houston</b>	<b>3974</b>
Measure electron precipitation induced by barium injections in the magnetosphere: Flight of parachute deployed payloads during the barium GEOS experiment		
<i>Period</i>	<i>Obligations</i>	
08/01/79-07/31/81	FY80: \$42,000	TOTAL: \$42,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sheldon, W. R.	HD-ST/Schmerling, E. R.	19-Phys Sci, NEC
<b>NSG 7617</b>	<b>University of Houston - Houston</b>	<b>3975</b>
Investigation of multizoned chondrules and dark rim materials in ordinary and carbonaceous chondrites		
<i>Period</i>	<i>Obligations</i>	
07/01/79-08/31/80	FY80: \$24,959	TOTAL: \$24,959
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
King, E. A.	HD-SL/French, B. M.	32-Geological Sci
	HD-SL/Quaide, W. L.	
<b>NSG 9042</b>	<b>University of Houston - Houston</b>	<b>3976</b>
Aromatic biosynthesis in pine tissues		
<i>Period</i>	<i>Obligations</i>	
04/01/76-05/31/81	FY80: \$30,000	TOTAL: \$149,800
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Coules, J. R.	HD-SB/Halstead, T.W.	51-Biological Sci
<b>DEN 8-1</b>	<b>University of Houston - Clear Lake</b>	<b>3977</b>
Installation of a solar energy system		
<i>Period</i>	<i>Obligations</i>	
06/14/78-12/31/80	FY80: \$31,532	TOTAL: \$233,174
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Samfield, E.	MSFC/Clark, J.	31-Atmos Sci
<b>NAS 9-15642</b>	<b>University of Houston - Clear Lake</b>	<b>3978</b>
Development of quantitative exercise program for use in space flight		
<i>Period</i>	<i>Obligations</i>	
07/17/78-08/31/80	FY80: \$30,000	TOTAL: \$30,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Coleman, A. E.	JSC/Sawin, C. F.	56-Medical Sciences
<b>NAS 9-16136</b>	<b>University of Houston - Clear Lake</b>	<b>3979</b>
Analysis of physical exercise and exercise protocols for space transportation system operation		
<i>Period</i>	<i>Obligations</i>	
09/01/80-12/31/82	FY80: \$45,000	TOTAL: \$45,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Coleman, A. E.	JSC/Sawin, C. F.	56-Medical Sciences
<b>NSG 3255</b>	<b>University of Texas - Arlington</b>	<b>3980</b>
Generator (MHD) off-design performance with NoX chemical kinetics analysis		
<i>Period</i>	<i>Obligations</i>	
03/01/79-01/14/81	FY80: \$34,593	TOTAL: \$58,744
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wilson, D. R.	LERC/Smith, J. M.	49-Engr, NEC
<b>NAG I-79</b>	<b>University of Texas - Austin</b>	<b>3981</b>
A theoretic study of splines under tension		
<i>Period</i>	<i>Obligations</i>	
06/10/80-06/09/82	FY80: \$43,972	TOTAL: \$43,972
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Cline, A. K.	LARC/Schiess, J. R.	22-Computer Science

**NASA'S UNIVERSITY PROGRAM  
TEXAS (Continued)**

**NAG 2-5** University of Texas - Austin **3982**  
Finite elements and Navier-Stokes problems  
*Period Obligations*  
10/01/79-09/30/80 FY80: \$5,992 TOTAL: \$5,992  
*Prin Invest NASA Tech Officer CASE Category*  
Carey, G. F. ARC/Lasinski, T. A. 41-Aero Engr

**NAG 5-80** University of Texas - Austin **3983**  
Abundance effects on mass loss in selected stars  
*Period Obligations*  
07/01/80-10/31/81 FY80: \$9,300 TOTAL: \$9,300  
*Prin Invest NASA Tech Officer CASE Category*  
Parsons, S. B. GSFC/Bogges, A. 11-Astronomy  
Wray, J. D.  
Bruhweiler, F. C.

**NAG 8-350** University of Texas - Austin **3984**  
High Energy Astronomical Observatory-B guest investigation search for X-rays associated with the variable far-infrared sources in NGC 6334  
*Period Obligations*  
06/23/80-06/22/81 FY80: \$2,390 TOTAL: \$2,390  
*Prin Invest NASA Tech Officer CASE Category*  
Wheeler, J. C. MSFC/Swearingen, J. C. 11-Astronomy

**NAG 9-11** University of Texas - Austin **3985**  
Tectonic analysis of the San Luis Basin segment of the Rio Grande rift  
*Period Obligations*  
06/01/80-05/31/81 FY80: \$35,700 TOTAL: \$35,700  
*Prin Invest NASA Tech Officer CASE Category*  
Muehlberger, W. R. JSC/Blanchard, D. P. 32-Geological Sci

**NAS 5-22576** University of Texas - Austin **3986**  
Communications link characterization experiment  
*Period Obligations*  
09/08/75-04/13/80 FY80: \$81,700 TOTAL: \$289,400  
*Prin Invest NASA Tech Officer CASE Category*  
Vogel, W. GSFC/Hirschmann, E. 45-Elec Engr  
Staighon, A. W.

**NAS 5-25656** University of Texas - Austin **3987**  
Space telescope/high resolution spectrograph  
*Period Obligations*  
05/09/79-01/31/82 FY80: \$6,000 TOTAL: \$10,000  
*Prin Invest NASA Tech Officer CASE Category*  
Trafton, L. M. GSFC/Liberatore, F. J. 11-Astronomy

**NAS 5-25756** University of Texas - Austin **3988**  
Autonomous satellite navigation methods using the global positioning satellite system  
*Period Obligations*  
07/18/79-07/17/80 FY80: \$564 TOTAL: \$40,064  
*Prin Invest NASA Tech Officer CASE Category*  
Tapley, B. D. GSFC/Fuchs, A. J. 42-Astro Engr  
Schutz, B. E.

**NAS 5-25898** University of Texas - Austin **3989**  
Satellite ranging data analysis Lageos geodynamics experiment 2  
*Period Obligations*  
11/21/79-06/21/81 FY80: \$50,000 TOTAL: \$50,000  
*Prin Invest NASA Tech Officer CASE Category*  
Shelus, P. J. GSFC/Stephanides, C. C. 32-Geological Sci

**NAS 5-25948** University of Texas - Austin **3990**  
Operation and management of the lunar and satellite laser ranging ground station equipment at McDonald Observatory, Texas  
*Period Obligations*  
11/15/79-09/30/81 FY80: \$973,784 TOTAL: \$973,784  
*Prin Invest NASA Tech Officer CASE Category*  
Silverberg, E. C. GSFC/White, W. W. 11-Astronomy  
Shelus, P. J.

**NAS 5-25991** University of Texas - Austin **3991**  
Solid Earth dynamics using laser geodynamics satellite range observations  
*Period Obligations*  
12/27/79-03/26/83 FY80: \$269,000 TOTAL: \$269,000  
*Prin Invest NASA Tech Officer CASE Category*  
Tapley, B. D. GSFC/Stephananides, C. C. 19-Phys Sci, NEC

**NAS 8-31459** University of Texas - Austin **3992**  
Analysis of ultraviolet stellar spectra obtained with Skylab experiment S-019  
*Period Obligations*  
06/30/75-08/31/80 FY80: TOTAL: \$391,821  
*Prin Invest NASA Tech Officer CASE Category*  
Henize, K. G. MSFC/Snoddy, W. C. 11-Astronomy  
Wray, J. D.

**NAS 8-32905** University of Texas - Austin **3993**  
Scientific investigation in support of the space telescope project  
*Period Obligations*  
02/15/78-02/15/84 FY80: TOTAL: \$285,400  
*Prin Invest NASA Tech Officer CASE Category*  
Lambert, D. L. MSFC/ODell, C. R. 11-Astronomy

**NAS 8-32906** University of Texas - Austin **3994**  
Scientific investigations in support of the space telescope project, to assure that the space telescope will perform astrometric functions  
*Period Obligations*  
02/01/78-02/23/84 FY80: \$300,000 TOTAL: \$700,000  
*Prin Invest NASA Tech Officer CASE Category*  
Jefferys, W. H. MSFC/ODell, C. R. 11-Astronomy

**NAS 8-33980** University of Texas - Austin **3995**  
Multishaker model testing  
*Period Obligations*  
09/15/80-09/14/81 FY80: \$50,000 TOTAL: \$50,000  
*Prin Invest NASA Tech Officer CASE Category*  
Craig, R. C. MSFC/Kiefling, L. A. 49-Engr, NEC  
MSFC/Ivey, E. W.

**NASA'S UNIVERSITY PROGRAM  
TEXAS (Continued)**

<b>NAS 9-13680</b>	<b>University of Texas - Austin</b>	<b>3996</b>	<b>NAS 9-16221</b>	<b>University of Texas - Austin</b>	<b>4003</b>
Assessment of real gas effects on the extrapolation of shuttle flow field phenomena to flight conditions			Study numerical methods for ground simulation of satellite motion stability		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
09/27/73-06/01/81	FY80: \$35,000	TOTAL: \$216,985	09/17/80-07/31/81	FY80: \$5,000	TOTAL: \$5,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bertin, J. J.	JSC/Goodrich, W. D.	41-Aero Engr	Broucke, R.	JSC/Bond, V.	21-Mathematics
<b>NAS 9-14491</b>	<b>University of Texas - Austin</b>	<b>3997</b>	<b>NASW 2974</b>	<b>University of Texas - Austin</b>	<b>4004</b>
Adsorption pumping cryogenic refrigeration study			Design, development, construction and operational testing of a completely operational transportable lunar laser tracking station capable of attaining a three century range accuracy		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
02/10/75-08/31/80	FY80: \$454	TOTAL: \$377,056	07/16/76-04/30/80	FY80:	TOTAL: \$1,351,631
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hartwig, W. H.	JSC/Richard, R. R.	49-Engr, NEC	Silverberg, E. C.	HD-SM/Shirey, W. H.	19-Phys Sci, NEC
	JSC/Nuss, R. W.				
<b>NAS 9-15217</b>	<b>University of Texas - Austin</b>	<b>3998</b>	<b>NASW 3296</b>	<b>University of Texas - Austin</b>	<b>4005</b>
Imaging radar math model and airborne imaging radar data collecting system			The contractor shall design, develop, construct and test a fully operational lunar laser ranging station		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
12/15/76-10/31/80	FY80:	TOTAL: \$230,969	12/01/79-08/01/81	FY80: \$571,990	TOTAL: \$571,990
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Tucker, A. J.	JSC/Pels, G. F.	49-Engr, NEC	Silverberg, E. C.	HD-ER/Finley, C. J.	42-Astro Engr
				HD-ER/Fischetti, T. L.	
<b>NAS 9-15567</b>	<b>University of Texas - Austin</b>	<b>3999</b>	<b>NASW 3388</b>	<b>University of Texas - Austin</b>	<b>4006</b>
Interaction of numerical and dynamical stability			Study involving satellite and terrestrial propagation measurements and analysis		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
04/26/78-12/31/80	FY80:	TOTAL: \$22,200	07/15/80-07/14/81	FY80: \$80,000	TOTAL: \$80,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Szebekely, V. G.	JSC/Bond, V.	12-Chemistry	Vogel, W.	HD-EC/Ippolito, L. J.	45-Elec Engr
<b>NAS 9-16096</b>	<b>University of Texas - Austin</b>	<b>4000</b>	<b>NGL 44-012-006</b>	<b>University of Texas - Austin</b>	<b>4007</b>
Solar power satellite microwave/ionosphere interaction study			Research on millimeter wavelength radiation from solar bodies		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
03/01/80-12/01/80	FY80: \$39,611	TOTAL: \$39,611	04/29/63-03/31/80	FY80:	TOTAL: \$1,466,333
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Clynch, J.	JSC/Scyl, J. W.	31-Atmos Sci	Wilson, W. J.	HD-SL/Brunk, W. E.	11-Astronomy
				HD-SL/Quaide, W. L.	
<b>NAS 9-16104</b>	<b>University of Texas - Austin</b>	<b>4001</b>	<b>NGL 44-012-055</b>	<b>University of Texas - Austin</b>	<b>4008</b>
Development of software for Synthetic Aperture Radar (SAR) digital data processing			Polarization and time structure of Jovian decametric radiation and the structure of interplanetary plasma		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
05/01/80-12/31/80	FY80: \$17,832	TOTAL: \$17,832	05/25/66-04/30/81	FY80:	TOTAL: \$1,041,980
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Griffin, C. R.	JSC/Pels, G. F.	22-Computer Science	Douglas, J. N.	HD-SL/Brunk, W. E.	11-Astronomy
				HD-SL/Murphy, R. E.	
<b>NAS 9-16171</b>	<b>University of Texas - Austin</b>	<b>4002</b>	<b>NGR 44-012-152</b>	<b>University of Texas - Austin</b>	<b>4009</b>
Mathematical modeling and simulation of the Advanced Synthetic Aperture Radar (ASAR) project			A program of planetary studies		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
08/01/80-08/01/81	FY80: \$35,000	TOTAL: \$35,000	06/25/69-02/01/81	FY80: \$676,500	TOTAL: \$4,365,698
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Griffin, C. R.	JSC/Krishen, K.	21-Mathematics	Smith, H. J.	HD-SL/Brunk, W. E.	11-Astronomy
				HD-SL/Murphy, R. E.	

**NASA'S UNIVERSITY PROGRAM  
TEXAS (Continued)**

**NGR 44-012-165** University of Texas - Austin **4010**  
Continuation of lunar laser ranging experiments at McDonald  
Observatory  
*Period* *Obligations*  
10/11/69-02/29/80 **FY80: \$90,685 TOTAL: \$3,368,884**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Silverberg, E. C. GSFC/White, W. 32-Geological Sci  
HD-ER/Flinn, E. A.

**NGR 44-012-282** University of Texas - Austin **4011**  
Outer planet satellite studies  
*Period* *Obligations*  
09/01/73-10/31/81 **FY80: \$21,686 TOTAL: \$306,193**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Mulholland, J. D. HD-SL/Brunk, W. E. 11-Astronomy  
HD-SL/Murphy, R. E.

**NGR 44-012-283** University of Texas - Austin **4012**  
Precision orbit determination for near-earth satellites  
*Period* *Obligations*  
01/14/74-12/31/79 **FY80: TOTAL: \$143,686**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Tapley, B. D. GSFC/Kolenkiewicz, R.  
Schutz, B. E. GSFC/Smith, D. F. 32-Geological Sci

**NSG 1446** University of Texas - Austin **4013**  
Research into a data management system for scientific/engineering  
applications  
*Period* *Obligations*  
09/01/77-08/31/81 **FY80: \$64,095 TOTAL: \$161,985**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Browne, J. C. LARC/Shipman, F. S.  
22-Computer Science

**NSG 1479** University of Texas - Austin **4014**  
Verification/validation of space shuttle flight computer program-  
ing language (HAL/S)  
*Period* *Obligations*  
01/01/78-12/31/79 **FY80: TOTAL: \$51,747**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Browne, J. C. LARC/Will, R. W. 22-Computer Science  
Good, D. I. LARC/Foudriat, E. C.

**NSG 1544** University of Texas - Austin **4015**  
Surface smoothing  
*Period* *Obligations*  
06/01/78-06/30/80 **FY80: TOTAL: \$29,046**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Cline, A. K. LARC/Schuess, J. R.  
22-Computer Science

**NSG 2065** University of Texas - Austin **4016**  
Antecedents of achievement and creativity  
*Period* *Obligations*  
02/01/75-11/30/80 **FY80: \$82,700 TOTAL: \$378,217**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Helmreich, R. L. ARC/Patton, R. M. 69-Psych, NEC  
Wilhelm, J. ARC/Tanner, T. A.

**NSG 2345** University of Texas - Austin **4017**  
A program of far-infrared observations of star formation regions  
in molecular clouds  
*Period* *Obligations*  
10/01/78-09/30/80 **FY80: TOTAL: \$9,745**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Evans, N. J., II ARC/Haughney, L. C. 11-Astronomy  
ARC/Cameron, R. M.

**NSG 3190** University of Texas - Austin **4018**  
Preparation, characterization, physical testing and performance  
of fluorocarbon membranes and separators  
*Period* *Obligations*  
06/01/78-05/31/80 **FY80: TOTAL: \$75,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Lagow, R. J. LERC/Sheibley, D. W.  
Dumitru, E. T. LERC/Hsu, L. C. 56-Medical Sciences

**NSG 3198** University of Texas - Austin **4019**  
Acoustic properties of duct lining materials  
*Period* *Obligations*  
07/01/78-06/30/81 **FY80: \$736 TOTAL: \$60,736**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Blackstock, D. T. LERC/Rice, E. J. 13-Physics  
Panton, R. L.  
Perreira, N. D.

**NSG 5154** University of Texas - Austin **4020**  
Research of autonomous satellite navigational methods using  
global positioning satellite system  
*Period* *Obligations*  
03/01/77-05/31/79 **FY80: TOTAL: \$76,091**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Tapley, B. D. GSFC/Fuchs, A. J. 21-Mathematics  
Schutz, B. E. GSFC/Wooden, W. H., II

**NSG 5233** University of Texas - Austin **4021**  
Ultraviolet spectroscopy of X-ray emitting binary systems and  
ultraviolet observations of interstellar molecules  
*Period* *Obligations*  
02/19/78-08/31/79 **FY80: TOTAL: \$12,903**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
VandenBout, P. A. GSFC/Bogges, A. 11-Astronomy  
GSFC/West, D. K.

**NASA'S UNIVERSITY PROGRAM  
TEXAS (Continued)**

<b>NSG 5309</b>	University of Texas - Austin	<b>4022</b>	<b>NSG 7232</b>	University of Texas - Austin	<b>4029</b>
Coppernicus ultraviolet spectroscopic observations			Astrophysics of supermassive accretion disks		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
12/15/78-12/14/79	FY80: TOTAL: \$3,111		05/01/76-08/31/81	FY80: \$20,000 TOTAL: \$93,088	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Smith, M. A.	GSFC/Kupperian, J. E., Jr.	11-Astronomy	Shields, G. A.	HD-SC/Weiller, E. J.	11-Astronomy
			Wheeler, J. C.	HD-SC/Bogges, N. W.	
<b>NSG 5328</b>	University of Texas - Austin	<b>4023</b>	<b>NSG 7363</b>	University of Texas - Austin	<b>4030</b>
Ultraviolet spectroscopy of giant and supergiant stars			Lunar tectonics through space and time		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
02/01/79-12/31/80	FY80: TOTAL: \$11,720		07/01/77-07/31/80	FY80: TOTAL: \$50,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Parsons, S. B.	GSFC/Bogges, A.	11-Astronomy	Muehlerberger, W. R.	HD-SL/Dwormik, S. E.	32-Geological Sci
				HD-SL/Quaide, W. L.	
<b>NSG 5337</b>	University of Texas - Austin	<b>4024</b>	<b>NSG 7371</b>	University of Texas - Austin	<b>4031</b>
Spectrophotometry of selected early type stars			Analysis of ultraviolet stellar spectra obtained with Skylab experiment S-019		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
12/15/78-12/31/80	FY80: TOTAL: \$9,455		08/01/77-12/31/80	FY80: \$17,945 TOTAL: \$134,945	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wray, J. D.	GSFC/Bogges, A.	11-Astronomy	Henize, K. G.	HD-SC/Weiler, E. J.	11-Astronomy
Henize, K. G.				HD-SC/Roman, N. W.	
<b>NSG 5379</b>	University of Texas - Austin	<b>4025</b>	<b>NSG 7381</b>	University of Texas - Austin	<b>4032</b>
Ultraviolet spectroscopy of symbiotic stars, recurrent and old novae			Program of 1-5 micron photometry of infrared sources embedded in molecular clouds		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
06/25/79-07/31/81	FY80: \$18,100 TOTAL: \$23,100		09/01/77-08/31/81	FY80: \$13,852 TOTAL: \$39,797	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lambert, D. L.	GSFC/Bogges, A.	11-Astronomy	Evans, N. J., II	HD-SC/Bogges, N. W.	11-Astronomy
Shelus, G. A.					
Slovack, M. H.					
<b>NSG 5387</b>	University of Texas - Austin	<b>4026</b>	<b>NSG 7480</b>	University of Texas - Austin	<b>4033</b>
Ultraviolet-optical spectrophotometry of interesting quasi-stellar objects			The cellular bases of gravity-and light-induced geotropism		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
07/01/79-06/30/81	FY80: TOTAL: \$1,670		08/15/78-08/14/81	FY80: \$40,000 TOTAL: \$110,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wills, B. J.	GSFC/Bogges, A.	11-Astronomy	Roux, S. J.	HD-SB/Halsstead, T. W.	51-Biological Sci
Wills, D.					
<b>NSG 7159</b>	University of Texas - Austin	<b>4027</b>	<b>NSG 7505</b>	University of Texas - Austin	<b>4034</b>
Preliminary geophysical and geological site survey of the region of the McDonald Observatory			Solid state problems in the solar systems		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
09/08/75-01/01/81	FY80: \$60,000 TOTAL: \$349,057		09/01/78-08/31/80	FY80: \$82,436 TOTAL: \$149,974	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Dorman, J. H.	HD-ER/Finley, C. J.	19-Phys Sci, NEC	Smoluchowski, R.	HD-SL/Quaide, W. L.	32-Geological Sci
Latham, G. V.	HD-ER/Flinn, E. A.			HD-SL/Dwormik, S. L.	
<b>NSG 7162</b>	University of Texas - Austin	<b>4028</b>	<b>NSG 7557</b>	University of Texas - Austin	<b>4035</b>
Lunar laser data identification and management			Morphogenetic studies of Martian channels		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
09/01/75-02/29/80	FY80: TOTAL: \$302,916		04/01/79-07/31/81	FY80: \$46,000 TOTAL: \$66,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Shelus, P. J.	GSFC/White, W.	19-Phys Sci, NEC	Baker, V.	HD-SL/Boyce, J. M.	32-Geological Sci
	HD-ER/Flinn, E. A.				

**NASA'S UNIVERSITY PROGRAM  
TEXAS (Continued)**

**NSG 9021** University of Texas - Austin **4036**  
Origin of magnetization in lunar breccias and its bearing on their formation  
*Period* *Obligations*  
02/01/75-02/29/80 **FY80:** **TOTAL: \$117,125**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Gosc, W. A. JSC/Harris, J. W. 32-Geological Sci

**NGT 44-089-980** Univ of Texas-Grad School of Biomed Sci. **4037**  
Aerospace medicine residency program  
*Period* *Obligations*  
01/01/80-12/31/80 **FY80: \$28,097** **TOTAL: \$28,097**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Key, M. M. HD-SB/Nicogossian, A. E. 56-Medical Sciences

**NAGW 53** University of Texas - Dallas **4038**  
Studies of impulsive penetration and viscous interactions  
*Period* *Obligations*  
02/01/80-01/31/81 **FY80: \$27,000** **TOTAL: \$27,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Heikkila, W. J. HD-ST/Hedin, A. E. 19-Phys Sci, NEC  
HD-ST/Schmerling, E. R.

**NAGW 64** University of Texas - Dallas **4039**  
Analysis of data from the Pioneer Venus sounder probe mass spectrometer  
*Period* *Obligations*  
04/01/80-03/31/81 **FY80: \$63,313** **TOTAL: \$63,313**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Hoffman, J. H. HD-SL/Murphy, R. E. 31-Atmos Sci  
HD-SL/Brunk, W. E.

**NAS 5-11406** University of Texas - Dallas **4040**  
Atmosphere Explorer magnetic ion mass spectrometer  
*Period* *Obligations*  
04/06/71-09/30/81 **FY80: \$150,000** **TOTAL: \$1,748,866**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Hoffman, J. H. GSFC/Bullock, G. D. 31-Atmos Sci

**NAS 5-11407** University of Texas - Dallas **4041**  
Planar ion trap experiment  
*Period* *Obligations*  
04/06/71-01/15/81 **FY80: \$184,000** **TOTAL: \$2,032,079**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Hanson, W. B. GSFC/Bullock, G. D. 31-Atmos Sci

**NAS 5-24297** University of Texas - Dallas **4042**  
Ion drift meter for the dynamic Explorer  
*Period* *Obligations*  
07/25/77-08/31/81 **FY80: \$115,000** **TOTAL: \$476,277**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Heelis, R. A. GSFC/Hoffman, R. A. 13-Physics

**NAS 5-24298** University of Texas - Dallas **4043**  
Retarding potential analyzer for the dynamic Explorer  
*Period* *Obligations*  
07/26/77-08/31/81 **FY80: \$122,000** **TOTAL: \$494,704**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Hanson, W. B. GSFC/Hoffman, R. A. 13-Physics

**NAS 5-24299** University of Texas - Dallas **4044**  
Low altitude plasma instrument for Dynamics Explorer (DE)  
*Period* *Obligations*  
11/21/77-07/31/83 **FY80: \$302,000** **TOTAL: \$901,334**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Winningham, J. D. GSFC/Fellerman, K. D. 13-Physics  
Klumpar, D. M.

**NAS 5-25310** University of Texas - Dallas **4045**  
Design, development, fabrication, test and calibration of the ion velocity instrument for the San Marco spacecraft  
*Period* *Obligations*  
09/18/78-04/30/83 **FY80: \$33,000** **TOTAL: \$143,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Hanson, W. B. GSFC/Caporale, A. J. 13-Physics

**NAS 5-26068** University of Texas - Dallas **4046**  
Ion drift meter instrument data analysis for dynamics Explorer  
*Period* *Obligations*  
02/04/80-07/31/83 **FY80: \$18,000** **TOTAL: \$18,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Heelis, R. A. GSFC/Hoffman, R. A. 41-Aero Engr

**NAS 5-26070** University of Texas - Dallas **4047**  
Low altitude plasma investigation data analysis for dynamics Explorer  
*Period* *Obligations*  
02/10/80-07/31/84 **FY80: \$12,000** **TOTAL: \$12,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Winningham, J. D. GSFC/Hoffman, R. A. 41-Aero Engr

**NAS 5-26071** University of Texas - Dallas **4048**  
Retarding potential analyzer instrument for dynamics Explorer  
*Period* *Obligations*  
02/10/80-07/31/84 **FY80: \$18,000** **TOTAL: \$18,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Hanson, W. B. GSFC/Hoffman, R. A. 41-Aero Engr

**NAS 5-26309** University of Texas - Dallas **4049**  
Magsat science investigation: Investigation of the effects of external current systems on the Magsat data utilizing grid cell modeling techniques techniques  
*Period* *Obligations*  
09/15/80-07/14/82 **FY80: \$30,000** **TOTAL: \$30,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Klumpar, D. M. GSFC/Oseroff, H. 32-Geological Sci  
Kisabeth, J. L.



**NASA'S UNIVERSITY PROGRAM  
TEXAS (Continued)**

<b>NAS 8-31775</b>	<b>University of Texas - Dallas</b>	<b>4050</b>	<b>NGR 44-004-120</b>	<b>University of Texas - Dallas</b>	<b>4057</b>
Study of ATS 6 and OGO 5 data analysis			Rocket probes for the upper F-region		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
03/18/76-11/27/80	FY80: TOTAL: \$76,933		02/09/71-09/30/80	FY80: TOTAL: \$1,130,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hanson, W. B.	MSFC/Chappell, C. R.	19-Phys Sci, NEC	Hanson, W. B.	HD-ST/Wiskerchen, M. J.	31-Atmos Sci
	MSFC/Fields, S. A.			HD-ST/Schmerling, E. R.	
<b>NAS 8-32689</b>	<b>University of Texas - Dallas</b>	<b>4051</b>	<b>NGR 44-004-124</b>	<b>University of Texas - Dallas</b>	<b>4058</b>
Technology demonstration measurement for the molecular wake shield			Rocket investigation of auroral zone disturbances		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
05/19/78-02/18/80	FY80: \$176 TOTAL: \$30,145		08/10/71-09/30/80	FY80: TOTAL: \$1,201,616	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hoffman, J. H.	MSFC/Moore, W. W.	31-Atmos Sci	Winningham, J. D.	GSFC/Guidotti, J.	13-Physics
Hodges, R. R.	MSFC/Oran, W. A.		Heikkila, W. J.		
			Eaker, N.		
<b>NAS 8-32831</b>	<b>University of Texas - Dallas</b>	<b>4052</b>	<b>NSG 5085</b>	<b>University of Texas - Dallas</b>	<b>4059</b>
Retarding ion mass spectrometer for dynamics Explorer			Particle spectrometer on board ISIS-2		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
01/17/78-05/30/83	FY80: \$78,001 TOTAL: \$661,613		11/01/75-12/31/80	FY80: \$30,000 TOTAL: \$185,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hanson, W. B.	MSFC/Chappell, C. R.	13-Physics	Heikkila, W. J.	GSFC/Brace, L. H.	31-Atmos Sci
Hoffman, J. H.	MSFC/Fields, S. A.		Winningham, J. D.		
<b>NAS 8-33827</b>	<b>University of Texas - Dallas</b>	<b>4053</b>	<b>NSG 5087</b>	<b>University of Texas - Dallas</b>	<b>4060</b>
Measurement of visible and UV emissions from energetic neutral atom precipitation definition phase study			Ion composition research on ISIS-2		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
08/12/80-08/11/81	FY80: \$60,000 TOTAL: \$60,000		12/01/75-02/28/81	FY80: \$25,000 TOTAL: \$140,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Tinney, B. A.	MSFC/Jones, C. T.	31-Atmos Sci	Hoffman, J. H.	GSFC/Brace, L. H.	31-Atmos Sci
<b>NAS 9-16044</b>	<b>University of Texas - Dallas</b>	<b>4054</b>	<b>NSG 5280</b>	<b>University of Texas - Dallas</b>	<b>4061</b>
Cardiovascular adaption to zero gravity			Electrodynamic coupling in the ionosphere magnetosphere system		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
01/17/80-05/31/81	FY80: \$30,121 TOTAL: \$30,121		07/01/78-12/31/80	FY80: TOTAL: \$49,178	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Blomquist, C. G.	JSC/Lintott, J.	59-Life Sci, NEC	Klumpar, D. M.	GSFC/Spencer, N. W.	31-Atmos Sci
			Burrows, J. R.		
			Wallis, D. D.		
<b>NGL 44-004-026</b>	<b>University of Texas - Dallas</b>	<b>4055</b>	<b>NSG 7034</b>	<b>University of Texas - Dallas</b>	<b>4062</b>
Investigations into the mechanism and rates of atmospheric mixing in the lower thermosphere			Investigation of the daytime lunar atmosphere for lunar synthesis program		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
05/05/65-03/31/81	FY80: \$113,333 TOTAL: \$2,478,084		04/01/74-03/31/81	FY80: \$58,117 TOTAL: \$341,133	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hanson, W. B.	HD-SL/Murphy, R. E.	31-Atmos Sci	Hodges, R. R.	HD-SL/Quaide, W. L.	31-Atmos Sci
	HD-SL/Brunk, W. E.			HD-SL/French, B. E.	
<b>NGL 44-004-130</b>	<b>University of Texas - Dallas</b>	<b>4056</b>			
Selected studies in the space sciences					
<i>Period</i>	<i>Obligations</i>				
03/17/72-03/31/82	FY80: \$150,000 TOTAL: \$1,950,000				
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Hanson, W. B.	HD-SP/Heninger, L. W.	99-Multi-Discip			
Hoffman, J. H.	HD-SP/Taylor, T. C.				
McClure, J. P.					

**NASA'S UNIVERSITY PROGRAM  
TEXAS (Continued)**

**NSG 7599** University of Texas - Dallas 4063  
Continued analysis of data from the Viking retarding potential analyzer (RPA's)

<i>Period</i>	<i>Obligations</i>	
03/01/79-12/31/81	FY80: \$30,000	TOTAL: \$50,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hanson, W. B.	HD-SL/Murphy, R. E.	31-Atmos Sci
	HD-SL/Brunk, W. E.	

**NAS 5-2117** Univ of Texas Medical Branch - Galveston 4070  
Laser ranging system: Field techniques and planning laser geodynamics

<i>Period</i>	<i>Obligations</i>	
12/14/79-03/31/81	FY80: \$55,000	TOTAL: \$55,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Dorman, H. J.	GSFC/Stephanides, C. C.	32-Geological Sci

**NAS 9-16142** University of Texas - El Paso 4064  
Geophysical studies of the Rio Grande rift

<i>Period</i>	<i>Obligations</i>	
06/24/80-12/31/80	FY80: \$10,000	TOTAL: \$10,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Keller, G. R.	JSC/Blanchard, D. P.	32-Geological Sci

**NAS 9-14641** Univ of Texas Medical Branch - Galveston 4071  
Analysis of spontaneous vestibular primary afferent discharge following application of drugs

<i>Period</i>	<i>Obligations</i>	
05/01/75-03/31/81	FY80: \$45,377	TOTAL: \$200,350
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Correia, M. J.	JSC/Reschke, M. F.	69-Psych, NEC

**NSG 3146** University of Texas - El Paso 4065  
Size effect studies of thin metal films

<i>Period</i>	<i>Obligations</i>	
05/02/77-06/30/80	FY80:	TOTAL: \$54,993
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Brent, S. J.	LERC/Brandhorst, H. W., Jr.	
Roser, W. R.		47-Materials Engr

**NAS 9-15565** Univ of Texas Medical Branch - Galveston 4072  
Micro assay for catecholamine concentration in body fluids

<i>Period</i>	<i>Obligations</i>	
03/27/78-09/30/80	FY80: \$33	TOTAL: \$15,033
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ziegler, M. G.	JSC/Leach, C. S.	59-Life Sci, NEC

**NSG 7418** Univ of Texas Medical Branch - Galveston 4073  
Lunar seismic data analysis

<i>Period</i>	<i>Obligations</i>	
02/01/78-01/31/81	FY80: \$150,000	TOTAL: \$639,378
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Makamura, Y.	HD-SL/Quaide, W. L.	32-Geological Sci
	HD-SL/French, B. F.	

**NSG 9062** University of Texas - El Paso 4066  
Occurrence and mineral chemistry of high pressure phases

<i>Period</i>	<i>Obligations</i>	
06/01/78-05/31/81	FY80: \$22,000	TOTAL: \$47,374
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hoffer, J. M.	JSC/Duke, M.	12-Chemistry

**NSG 9026** University of Texas Health Center - Dallas 4074  
Cardiovascular effect of variations in habitual levels of physical activity

<i>Period</i>	<i>Obligations</i>	
03/01/75-03/31/81	FY80: \$40,650	TOTAL: \$308,350
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Blomquist, C. G.	JSC/Hull, W. E.	56-Medical Sciences
Mitchell, J. H.		

**NAG 2-26** Univ of Texas Medical Branch - Galveston 4067  
Central otolithic mechanisms in non-human primates

<i>Period</i>	<i>Obligations</i>	
01/01/80-12/31/80	FY80: \$30,100	TOTAL: \$30,100
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Perachio, A. A.	ARC/Daunton, N. G.	51-Biological Sci

**NAS 2-10502** Univ of Texas Medical Branch - Galveston 4068  
Anatomical and electrophysiological studies of the effects of weightlessness on the vestibular apparatus of the gerbil

<i>Period</i>	<i>Obligations</i>	
01/17/80-04/30/81	FY80: \$38,503	TOTAL: \$38,503
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Correia, M. J.	ARC/Ferandin, J.	51-Biological Sci
Eden, A. R.	ARC/Donaldson, R.	

**NAG 9-5** Univ of Texas Health Sci Ctr-San Antonio 4075  
The effect of stress on human blood platelets

<i>Period</i>	<i>Obligations</i>	
03/01/80-02/28/81	FY80: \$50,000	TOTAL: \$50,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
George, J. N.	JSC/Leach, C. S.	56-Medical Sciences
Levine, S. P.		
Lyons, R. M.		

**NAS 2-10513** Univ of Texas Medical Branch - Galveston 4069  
Influence of spaceflight on cytogenetics and mutagenicity

<i>Period</i>	<i>Obligations</i>	
01/17/80-04/30/81	FY80: \$12,090	TOTAL: \$12,090
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Fabricant, J. D.	ARC/Ferandin, J.	51-Biological Sci
	ARC/Sebesta, P.	

**NAS 2-10500** Univ of Texas Health Science Center 4076  
Etiology of deconditioning of antigravity muscle in rats during weightlessness

<i>Period</i>	<i>Obligations</i>	
01/17/80-12/30/80	FY80: \$8,432	TOTAL: \$8,432
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Booth, F.	ARC/Rasmussen, D.	51-Biological Sci
	ARC/Sebesta, P.	

**NASA'S UNIVERSITY PROGRAM  
TEXAS (Continued)**

**NAS 9-15388** Univ of Texas-Health Science Center **4077**  
 Biochemical adaptation of antigravity muscle fibers to disuse atrophy  
*Period* *Obligations*  
 08/01/77-10/31/80 **FY80:** **TOTAL: \$86,350**  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
 Booth, F. JSC/Smith, M. 51-Biological Sci

**NAGW 11** University of Utah **4083**  
 Irregular satellites and trojan asteroids study  
*Period* *Obligations*  
 11/01/79-10/31/80 **FY80: \$7,492** **TOTAL: \$7,492**  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
 Shorthill, R. W. HD-SL/Brunk, W. E. 1-Astronomy  
 HD-SL/Murphy, R. E.

**NSG 5214** University of Texas - San Antonio **4078**  
 Research of solar wind and magnetospheric electric fields and plasmas  
*Period* *Obligations*  
 10/01/77-11/30/78 **FY80:** **TOTAL: \$33,570**  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
 Burch, J. L. GSFC/Spencer, N. W. 13-Physics

**NAGW 82** University of Utah **4084**  
 An experimental investigation of the angular scattering and backscattering behavior of the simulated clouds of the outer planets  
*Period* *Obligations*  
 06/01/80-05/31/81 **FY80: \$49,687** **TOTAL: \$49,687**  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
 Sassen, K. HD-SL/Murphy, R. E. 31-Atmos Sci  
 HD-SL/Brunk, W. E.

**NSG 5418** University of Texas - San Antonio **4079**  
 Solar-wind and magnetospheric electric fields and plasmas  
*Period* *Obligations*  
 10/01/79-12/31/80 **FY80:** **TOTAL: \$19,744**  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
 Burch, J. L. GSFC/Spencer, N. W. 31-Atmos Sci

**NAGW 95** University of Utah **4085**  
 Identifying environmental features for land management decisions  
*Period* *Obligations*  
 08/01/80-07/31/83 **FY80: \$100,000** **TOTAL: \$100,000**  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
 Ursenbach, W. O. HD-ET/Vitale, J. A. 39-Env Sci, NEC  
 Ridd, M. K.

**UTAH**

**NAG 5-62** Brigham Young University **4080**  
 Ultraviolet studies of the components of cepheid variables  
*Period* *Obligations*  
 06/01/80-05/31/81 **FY80: \$8,092** **TOTAL: \$8,092**  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
 McNamara, D. H. G. C/Bogges, A. 11-Astronomy  
 Feltz, K.

**NAS 2-10308** University of Utah **4086**  
 Growth rate and histology of long bones and vertebrae  
*Period* *Obligations*  
 09/01/79-08/31/80 **FY80: \$31,000** **TOTAL: \$32,000**  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
 Jec, W. S. ARC/Souza, K. A. 51-Biological Sci  
 Kimmel, D. B.

**NAS 2-7358** Brigham Young University **4081**  
 Pioneer F/G data analysis of the solar terrestrial relations portion of the magnetic field experiment  
*Period* *Obligations*  
 00/00/00-11/30/80 **FY80: \$5,000** **TOTAL: \$78,900**  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
 Jones, D. E. ARC/Fimmel, R. O. 13-Physics  
 ARC/Dyer, J.

**NAS 5-25373** University of Utah **4087**  
 Linear and nonlinear interactions of the large scale atmospheric waves  
*Period* *Obligations*  
 11/27/78-12/26/80 **FY80: \$38,398** **TOTAL: \$76,396**  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
 Kao, S. K. GSFC/Greaves, J. R. 31-Atmos Sci  
 GSFC/Stetina, F. L.

**NAG 3-27** University of Utah **4082**  
 Carbon-13 NMR analysis of shale oils and shale oil derived jet fuels  
*Period* *Obligations*  
 03/01/80-02/28/81 **FY80: \$62,000** **TOTAL: \$62,000**  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
 Ursenbach, W. O. LERC/Seng, G. T. 12-Chemistry  
 Pugmire, R. J.

**NAS 5-26171** University of Utah **4088**  
 Study of the imaging stratospheric ultraviolet spectrometer for the Upper Atmosphere Research Satellite (UARS)  
*Period* *Obligations*  
 09/24/80-06/30/81 **FY80: \$255,582** **TOTAL: \$255,582**  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
 Torr, D. G. GSFC/Donley, J. L. 31-Atmos Sci

**NASA'S UNIVERSITY PROGRAM  
UTAH (Continued)**

<b>NAS 6-2627</b>	<b>University of Utah</b>	<b>4089</b>
Rocketsonde data processing and participation in the meteorological rocket/Nimbus satellite data comparison project		
<i>Period</i>	<i>Obligations</i>	
03/21/75-10/06/79	FY80: \$230,431	TOTAL: \$230,431
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Staffanson, F. L.	WFC/Duke, J. R.	31-Atmos Sci
	WFC/Schmidlin, F. J.	
<b>NAS 8-33992</b>	<b>University of Utah</b>	<b>4090</b>
Development, integration, mission support and data analysis of the imaging spectrometric observatory experiment for spacelab mission I		
<i>Period</i>	<i>Obligations</i>	
07/25/80-09/30/83	FY80 \$80,000	TOTAL \$80,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Torr, M. R.	MSFC/Jones, C. T.	31-Atmos Sci
	MSFC/Isac, R.	
<b>NCA 2-821001</b>	<b>University of Utah</b>	<b>4091</b>
Light scattering by nonspherical particles		
<i>Period</i>	<i>Obligations</i>	
03/15/80-12/31/80	FY80 \$18,187	TOTAL \$18,187
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Liou, K.	ARC/Pollack, J. B.	31-Atmos Sci
Coleman, R. F.	ARC/Cuzzi, J. N.	
<b>NSG 1534</b>	<b>University of Utah</b>	<b>4092</b>
Fluid dynamics of crystallization from vapors		
<i>Period</i>	<i>Obligations</i>	
06/01/78-09/30/80	FY80 \$91,553	TOTAL \$192,503
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Rosenberger, F. F.	LARC/Fripp, A. L.	47-Materials Engr
	LARC/Crouch, R. K.	
<b>NSG 2350</b>	<b>University of Utah</b>	<b>4093</b>
Develop behavioral tests of vestibular functioning in the wistar rat		
<i>Period</i>	<i>Obligations</i>	
12/01/78-11/30/80	FY80 \$15,136	TOTAL \$33,169
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Nielson, H. C.	ARC/Sharp, J. C.	61-Biol Aspects
<b>NSG 7226</b>	<b>University of Utah</b>	<b>4094</b>
Identifying environmental features for land management decisions		
<i>Period</i>	<i>Obligations</i>	
08/01/76-07/31/82	FY80 \$100,000	TOTAL \$500,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ridd, M. K.	HD-ET/Vitale, J. A.	39-Env Sci, NFC
<b>NSG 7516</b>	<b>University of Utah</b>	<b>4095</b>
Mechanistic studies of prebiotic chemistry		
<i>Period</i>	<i>Obligations</i>	
10/01/78-06/30/81	FY80 \$68,900	TOTAL \$108,900
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Guillory, W. A.	HD-SB/Devincenzi, D. I.	12-Chemistry
Smith, G. R.	HD-LU/Lawson, J. R.	
<b>NAG 5-121</b>	<b>Utah State University</b>	<b>4096</b>
A study of atmosphere-ionosphere-magnetosphere coupling		
<i>Period</i>	<i>Obligations</i>	
10/01/80-09/30/81	FY80: \$25,000	TOTAL: \$25,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Raitt, W. J.	GSFC/Corrigan, J. P.	11-Astronomy
<b>NAGW 77</b>	<b>Utah State University</b>	<b>4097</b>
The flow of plasma in the solar terrestrial environment		
<i>Period</i>	<i>Obligations</i>	
07/01/80-06/30/81	FY80: \$148,000	TOTAL \$148,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Schunk, R. W.	HD-ST/Birmingham, T. J.	13-Physics
	HD-ST/Newton, G. P.	
<b>NAS 5-24455</b>	<b>Utah State University</b>	<b>4098</b>
Investigations of Vehicle Charging and Potential (VCAP) on orbital flight test four experiment		
<i>Period</i>	<i>Obligations</i>	
03/01/78-10/31/81	FY80	TOTAL \$1,005,729
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Banks, P. M.	GSFC/Liband, A. M.	13-Physics
Raitt, W. J.		
<b>NAS 8-32636</b>	<b>Utah State University</b>	<b>4099</b>
Large spacecraft interaction with ambient environment at geosynchronous Earth orbit charging		
<i>Period</i>	<i>Obligations</i>	
09/20/77-09/30/81	FY80 \$36,713	TOTAL \$116,577
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Raitt, W. J.	MSFC/Chappell, C. R.	31-Atmos Sci
<b>NAS 8-33381</b>	<b>Utah State University</b>	<b>4100</b>
Studies related to electro dynamics of the tethered subsatellite system		
<i>Period</i>	<i>Obligations</i>	
04/16/79-06/11/80	FY80 \$16,417	TOTAL \$51,417
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Williamson, P. R.	MSFC/Johnson, W. G.	31-Atmos Sci
	MSFC/Lundquist, C. A.	
<b>NAS 8-33383</b>	<b>Utah State University</b>	<b>4101</b>
Establish a tethered subsatellite facility definition team		
<i>Period</i>	<i>Obligations</i>	
05/07/79-07/31/80	FY80: \$13,375	TOTAL \$48,375
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Banks, P. M.	MSFC/Johnson, W. G.	31-Atmos Sci
	MSFC/Stone, N. H.	
<b>NAS 8-34003</b>	<b>Utah State University</b>	<b>4102</b>
Research study Interactive experiments study		
<i>Period</i>	<i>Obligations</i>	
08/01/80-07/31/81	FY80 \$72,500	TOTAL \$72,500
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Banks, P. M.	MSFC/Chappell, C. R.	13-Physics
	MSFC/Fields, S. A.	

NASA'S UNIVERSITY PROGRAM

UTAH (Continued)

NAS 9-14871 Utah State University 4103  
Higher plant response to elevated ultraviolet irradiance  
*Period* *Obligations*  
10/08/75-12/31/80 FY80: \$99,841 TOTAL: \$459,841  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Caldwell, M. M. JSC/Nachtwey, D. S. 54-Env Biology

NSG 5215 Utah State University 4104  
Studies of high latitude ion dynamics  
*Period* *Obligations*  
10/01/77-12/31/80 FY80: TOTAL: \$42,380  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
St. Maurice, J. P. GSFC/Spencer, N. W. 13-Physics  
Sojka, J.  
Raitt, W. J.

NSG 5216 Utah State University 4105  
Investigation of electric fields in the vicinity of plasmopause mid-latitude trough and polar cleft  
*Period* *Obligations*  
10/01/77-12/31/80 FY80: TOTAL: \$40,300  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Foster, J. C. GSFC/Spencer, N. W. 13-Physics  
Doupnik, J. R.

NSG 6027 Utah State University 4106  
An investigation of current collection processes in the ionospheric plasma at high potential  
*Period* *Obligations*  
03/01/79-02/28/81 FY80: \$58,500 TOTAL: \$116,400  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Williamson, P. R. WFC/Early, L. J. 19-Phys Sci, NEC  
WFC/Pless, R. H.

NSG 7038 Utah State University 4107  
The diagenesis of geologically important organic matter and amino acids under simulated natural conditions  
*Period* *Obligations*  
06/01/74-05/30/81 FY80: \$53,000 TOTAL: \$395,213  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Smith, G. G. HD-SB/Young, R. S. 32-Geological Sci

NSG 7210 Utah State University 4108  
Stratospheric monitoring with longterm balloon flights  
*Period* *Obligations*  
03/01/76-02/28/79 FY80: TOTAL: \$480,061  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Baker, K. D. HD-ST/Tilford, S. G. 31-Atmos Sci  
Williamson, P. R.

NSG 7289 Utah State University 4109  
Study of the dynamics of atmosphere-ionosphere magnetosphere interactions  
*Period* *Obligations*  
07/01/76-09/30/80 FY80: TOTAL: \$368,686  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Banks, P. M. HD-ST/Hedin, A. E. 31-Atmos Sci  
HD-ST/Schmerling, E. R.

NSG 7567 Utah State University 4110  
An examination of the clinostat problem using leafy plants  
*Period* *Obligations*  
07/01/71-06/30/81 FY80: \$29,982 TOTAL: \$51,442  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Salisbury, F. B. HD-SB/Halstead, T.W. 51-Biological Sci

NAGW 19 Weber State College 4111  
Mass flow velocity distributions in the solar chromosphere  
*Period* *Obligations*  
01/01/80-12/31/80 FY80: \$19,521 TOTAL: \$19,521  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Tripp, D. A. HD-ST/Chipman, E. 13-Physics

NAS 8-33113 Weber State College 4112  
Spectrum synthesis of extreme ultraviolet solar flare profiles  
*Period* *Obligations*  
01/24/79-07/23/80 FY80: TOTAL: \$17,991  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Tripp, D. A. MSFC/DeLoach, A. C. 31-Atmos Sci  
MSFC/Snoddy, W. C.

VERMONT

NAGW 54 Middlebury College 4113  
Structure of field rotating disturbances in warm plasma  
*Period* *Obligations*  
03/01/80-08/31/81 FY80: \$10,000 TOTAL: \$10,000  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Wolfson, L. T. HD-ST/Hedin, A. E. 19-Phys Sci, NEC  
HD-ST/Schmerling, E. R.

NSG 7453 Univ of Vermont & St Agricultural Col. 4114  
Development of a remote sensing applications program in Vermont  
*Period* *Obligations*  
06/01/78-05/31/83 FY80: \$100,000 TOTAL: \$400,000  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
John, H. H. HD-ET/Vitale, J. A. 32-Geological Sci

VIRGINIA

NSG 1514 Christopher Newport College 4115  
An investigation of semiconductor electrodes  
*Period* *Obligations*  
09/01/78-12/31/80 FY80: \$28,480 TOTAL: \$56,737  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Buoncristiani, A. M. LARC/Byvik, C. E. 13-Physics  
LARC/Conway, E. J.

**NASA'S UNIVERSITY PROGRAM  
VIRGINIA (Continued)**

**NSG 1614** Christopher Newport College 4116  
Theoretical study of radiation effects in composite materials for space use  
*Period* *Obligations*  
07/01/79-08/31/81 FY80: \$38,950 TOTAL: \$70,950  
*Prn Invest* NASA Tech Officer CASE Category  
Chang, C. K. LARC/Wilson, J. W. 19-Phys Sci, NEC

**NAG 1-33** College of William And Mary 4117  
Silicon superlattices: Theory and application to semiconductor devices  
*Period* *Obligations*  
01/16/80-07/15/81 FY80: \$20,675 TOTAL: \$20,675  
*Prn Invest* NASA Tech Officer CASE Category  
Moriarty, J. A. LARC/Stermer, R. L. 13-Physics  
LARC/Hayes, P. J.

**NAG 1-62** College of William And Mary 4118  
Definition of the operational semantics of ADA  
*Period* *Obligations*  
05/01/80-08/31/81 FY80: \$23,608 TOTAL: \$23,608  
*Prn Invest* NASA Tech Officer CASE Category  
Feyock, S. LARC/Harris, J.L. 22-Computer Science

**NAS 1-9990** College of William And Mary 4119  
Management, operation and maintenance of the space radiation effects laboratory  
*Period* *Obligations*  
07/01/70-09/30/80 FY80: \$139,844 TOTAL: \$3,626,058  
*Prn Invest* NASA Tech Officer CASE Category  
Aceto, H., Jr. LARC/Kepley, B. M. 19-Phys Sci, NEC

**NAS 1-14972** College of William And Mary 4120  
Research in the area of physical sciences  
*Period* *Obligations*  
05/31/77-05/30/80 FY80: TOTAL: \$298,618  
*Prn Invest* NASA Tech Officer CASE Category  
Aceto, H., Jr. LARC/Anderson, A. F. 99-Multi-Discip

**NAS 1-15899** College of William And Mary 4121  
Lecture series, 'Our Future in the Cosmos'  
*Period* *Obligations*  
07/31/79-10/30/80 FY80: TOTAL: \$32,119  
*Prn Invest* NASA Tech Officer CASE Category  
Barnes, C. H. LARC/Greene, R. F., Jr. 99-Multi-Discip  
LARC/Long, S. A

**NAS 1-15965** College of William And Mary 4122  
Tire nonlinear model  
*Period* *Obligations*  
09/07/79-06/06/80 FY80 TOTAL: \$31,000  
*Prn Invest* NASA Tech Officer CASE Category  
Anderson, C. M. LARC/Tanner, J. A. 46 Mech Engr

**NAS 1-16042** College of William And Mary 4123  
Research in the area of physical sciences  
*Period* *Obligations*  
11/16/79-11/15/82 FY80: \$95,186 TOTAL: \$95,186  
*Prn Invest* NASA Tech Officer CASE Category  
Aceto, H., Jr. LARC/Duberg, J. E. 99-Multi-Discip  
LARC/Erickson, W. D.

**NAS 1-16375** College of William And Mary 4124  
Lecture series entitled 'Our Future in the Cosmos'  
*Period* *Obligations*  
08/28/80-11/27/81 FY80: \$34,840 TOTAL: \$34,840  
*Prn Invest* NASA Tech Officer CASE Category  
Barnes, C. H. LARC/Morris, S. J. 99-Multi-Discip  
LARC/Long, E. R.

**NCC 1-3** College of William And Mary 4125  
Atmosphere Spacelab science investigation  
*Period* *Obligations*  
05/01/79-12/31/81 FY80: \$43,000 TOTAL: \$78,000  
*Prn Invest* NASA Tech Officer CASE Category  
Schone, H. LARC/Sullivan, F. M. 31-Atmos Sci  
LARC/Russell, J. M., III

**NCC 1-16** College of William And Mary 4126  
Analysis of remote sensors for pollution  
*Period* *Obligations*  
08/01/79-07/31/81 FY80: TOTAL: \$48,361  
*Prn Invest* NASA Tech Officer CASE Category  
Schone, H. LARC/Sullivan, F. M. 31-Atmos Sci  
LARC/Russell, J. M., III

**NCC 1-40** College of William And Mary 4127  
Tire nonlinear model  
*Period* *Obligations*  
04/16/80-08/31/81 FY80: \$55,800 TOTAL: \$55,800  
*Prn Invest* NASA Tech Officer CASE Category  
Anderson, C. M. LARC/Tanner, J. A. 46-Mech Engr

**NCC 1-43** College of William And Mary 4128  
Halogen Occultation Experiment (HALOE) science investigation  
*Period* *Obligations*  
08/01/80-07/31/81 FY80: \$28,600 TOTAL: \$28,600  
*Prn Invest* NASA Tech Officer CASE Category  
Schone, H. LARC/Sullivan, E. M. 31-Atmos Sci  
LARC/Russell, J. M.

**NASA'S UNIVERSITY PROGRAM**  
**VIRGINIA (Continued)**

**NSG 1095** College of William And Mary 4129  
Molecular weight-property relationships of high performance polymers used for adhesives and composites

<i>Period</i>	<i>Obligations</i>	
09/01/74-05/31/81	FY80: \$49,214	TOTAL: \$100,482
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kranbuehl, D. E.	LARC/Burks, H. D	12-Chemistry
	LARC/Johnston, N. J	

**NSG 7416** College of William And Mary 4135  
Research on turbulence in plasmas

<i>Period</i>	<i>Obligations</i>	
12/01/77-11/30/80	FY80:	TOTAL: \$70,900
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Montgomery, D. C.	HD-ST/Cauffman, D. P.	19-Phys Sci, NEC
	HD-ST/Schmerling, E. R.	

**NSG 1435** College of William And Mary 4130  
Development of a multi-target compiler writing system

<i>Period</i>	<i>Obligations</i>	
07/11/77-09/30/81	FY80: \$103,868	TOTAL: \$310,828
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Donegan, M. K.	LARC/Harris, J. L	21-Mathematics
Noonan, R. F.		

**NAS 6-2964** Eastern Shore Community College 4136  
Provide a public information program

<i>Period</i>	<i>Obligations</i>	
01/01/79-12/31/80	FY80: \$14,958	TOTAL: \$29,716
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Layman, P	WFC/Millner, J. B.	99-Multi-Discip
	WFC/Gladding, M. T.	

**NSG 1564** College of William And Mary 4131  
Dynamics of collisionless systems

<i>Period</i>	<i>Obligations</i>	
10/15/78-08/31/80	FY80: \$700	TOTAL: \$12,766
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Zang, T. A	LARC/Meador, W. F	13-Physics

**NAG 5-124** George Mason University 4137  
Data analysis of soft X-ray observations with high energy astronomical observations-2 of late type stars

<i>Period</i>	<i>Obligations</i>	
10/01/80-09/30/81	FY80: \$9,966	TOTAL: \$9,966
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kafatos, M	GSFC/Michalitsianos I, A. G.	
	GSFC/Hobbs, R. W.	11-Astronomy

**NSG 1625** College of William And Mary 4132  
Methodologies for optimizing maintenance models for advanced avionics control systems

<i>Period</i>	<i>Obligations</i>	
09/01/79-08/31/81	FY80: \$31,057	TOTAL: \$59,476
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Schaefer, M. K	LARC/Finelli, G. B.	49-Engr, NEC

**NSG 5305** George Mason University 4138  
Calculations of forbidden line emission from hot, interstellar gas regions

<i>Period</i>	<i>Obligations</i>	
11/01/78-12/31/79	FY80:	TOTAL: \$4,494
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kafatos, M.	GSFC/Hobbs, R. W	11-Astronomy

**NSG 1626** College of William And Mary 4133  
Investigation of portability techniques for a large flight-oriented programming language

<i>Period</i>	<i>Obligations</i>	
06/01/79-08/31/81	FY80: \$44,938	TOTAL: \$85,075
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Feyock, S	LARC/Foudriat, F. C	
	LARC/Will, R. W	22-Computer Science

**NSG 5371** George Mason University 4139  
Observation of circumstellar shells around cool giants and supergiants

<i>Period</i>	<i>Obligations</i>	
06/01/79-08/31/81	FY80: \$18,088	TOTAL: \$23,586
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Michalitsianos, A. G.	GSFC/Boggett, A.	11-Astronomy
Hobbs, R. W.		

**NSG 1653** College of William And Mary 4134  
Insulators for plumbum-stannum-tellurium metal-insulator-semiconductor devices

<i>Period</i>	<i>Obligations</i>	
10/01/79-12/31/80	FY80:	TOTAL: \$26,560
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sher, A	LARC/Fripp, A. L	13-Physics
Tsuo, Y. N	LARC/Crouch, R. K.	

**NSG 5403** George Mason University 4140  
Interpretation of survey work of supernova shocks, bubbles and studying variability of active galaxies

<i>Period</i>	<i>Obligations</i>	
07/01/79-10/31/80	FY80: \$6,307	TOTAL: \$14, 1
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kafatos, M.	GSFC/Gull, T. R.	11-Astronomy
	GSFC/Boggett, A	

**NASA'S UNIVERSITY PROGRAM  
VIRGINIA (Continued)**

**NAG 1-69 Hampton Institute 4141**  
 Generation of cost and fuel optimal vertical flight profiles  
*Period Obligations*  
 06/01/80-02/28/81 FY80: \$9,613 TOTAL: \$9,613  
*Prin Invest NASA Tech Officer CASE Category*  
 Wiggs, J. F. LARC/Shanks, R. E. 41-Aero Engr  
 LARC/Morello, S. A.

**NCC 1-7 Hampton Institute 4147**  
 Complex vector operations on star computer with applications to linear algebra problems linear systems of linear equations  
*Period Obligations*  
 04/15/79-01/18/81 FY80: \$24,484 TOTAL: \$56,481  
*Prin Invest NASA Tech Officer CASE Category*  
 Shan, S. N. LARC/Haigler, G. W. 21-Mathematics  
 LARC/Lambiotte, J. J.

**NAG 1-87 Hampton Institute 4142**  
 Local effects of partly cloudy skies on solar and emitted radiation  
*Period Obligations*  
 08/01/80-07/31/81 FY80: \$127,394 TOTAL: \$127,394  
*Prin Invest NASA Tech Officer CASE Category*  
 Venable, D. D. LARC/Young, G. R. 31-Atmos Sci  
 Whitney, D. A. LARC/Raper, J. L.

**NCC 1-11 Hampton Institute 4148**  
 Radiative transfer model for remote sensing of laser-induced fluorescence of phytoplankton in non-homogeneous turbid waters  
*Period Obligations*  
 05/01/79-04/30/81 FY80: \$6,764 TOTAL: \$49,412  
*Prin Invest NASA Tech Officer CASE Category*  
 Venable, D. D. LARC/Poole, L. R. 39-Env Sci, NEC

**NAS 1-14832 Hampton Institute 4143**  
 Summer research fellowship program  
*Period Obligations*  
 02/04/77-01/31/81 FY80: \$62,147 TOTAL: \$209,272  
*Prin Invest NASA Tech Officer CASE Category*  
 Darden, G. C. LARC/Erickson, W. D. 19-Phys Sci, NEC

**NSG 1294 Hampton Institute 4149**  
 A study of digital techniques for high-speed processing of detector array data  
*Period Obligations*  
 04/01/76-09/30/80 FY80 \$9,935 TOTAL \$159,641  
*Prin Invest NASA Tech Officer CASE Category*  
 Trehan, A. K. LARC/Jobson, D. J. 45-Elec Engr  
 LARC/Katzberg, S. J.

**NAS 1-15445 Hampton Institute 4144**  
 Minimization of differences between simulated and actual flight data for area navigation (R-NAV) on high speed aircraft  
*Period Obligations*  
 07/06/78-07/05/79 FY80 TOTAL \$14,592  
*Prin Invest NASA Tech Officer CASE Category*  
 Hargrove, A. LARC/Knox, C. F. 41-Aero Engr  
 LARC/Taylor, R. T.

**NSG 1552 Hampton Institute 4150**  
 Investigation of microprocessors for use as controllers for tunable diode lasers  
*Period Obligations*  
 07/24/78-09/23/80 FY80 TOTAL \$71,485  
*Prin Invest NASA Tech Officer CASE Category*  
 Trehan, A. K. LARC/Katzberg, S. J. 45-Elec Engr  
 Davenport, J. E. LARC/Kowitz, H. R.

**NAS 1-15877 Hampton Institute 4145**  
 Experimental and theoretical investigations of freestream noise in supersonic nozzles and its effects on boundary layer stability and transition  
*Period Obligations*  
 07/11/79-10/01/80 FY80 TOTAL \$44,409  
*Prin Invest NASA Tech Officer CASE Category*  
 Anyiwo, J. C. LARC/Beckwith, I. F. 41-Aero Engr  
 Schopper, M. R. LARC/Bushnell, D. M.

**NSG 1595 Hampton Institute 4151**  
 Studies of new media for radiation induced lasers  
*Period Obligations*  
 02/01/79-01/31/81 FY80 \$41,113 TOTAL \$80,536  
*Prin Invest NASA Tech Officer CASE Category*  
 Han, K. S. LARC/Jalufka, N. W. 13-Physics

**NAS 1-16005 Hampton Institute 4146**  
 Conversion of flight records  
*Period Obligations*  
 10/01/79-09/30/80 FY80 \$39,396 TOTAL: \$39,396  
*Prin Invest NASA Tech Officer CASE Category*  
 Unavailable LARC/Jewel, J. W. 41-Aero Engr  
 LARC/Hall, A. W.

**NAS 1-16361 Norfolk State University 4152**  
 Documentation and Research support in the use of MACSYMA  
*Period Obligations*  
 08/12/80-08/11/81 FY80 \$16,746 TOTAL \$16,746  
*Prin Invest NASA Tech Officer CASE Category*  
 Deloatch, S. J. LARC/Shoosmith, J. N. 22-Computer Science



**NASA'S UNIVERSITY PROGRAM  
VIRGINIA (Continued)**

**NAG 1-1** **Old Dominion University** **4153**  
Performance improvement of lead-tin-selenium (Pb sub 1x Sn sub x Se) semiconductor lasers through use of frequency selective optical feedback  
*Period* *Obligations*  
10/25/79-10/24/80 **FY80: \$56,769** **TOTAL: \$56,769**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Copeland, G. E. LARC/Hoell, J. M. 13-Physics  
Harward, C. N.

**NAG 1-15** **Old Dominion University** **4154**  
Propagation of sound through the Earth's atmosphere  
*Period* *Obligations*  
01/01/80-12/31/80 **FY80: \$59,245** **TOTAL: \$59,245**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Zuckerwar, A. J. LARC/Holmes, H. K. 13-Physics  
Becher, J.

**NAG 1-21** **Old Dominion University** **4155**  
Radiative transfer models for the Earth radiation budget studies  
*Period* *Obligations*  
01/01/80-12/31/80 **FY80: \$45,588** **TOTAL: \$45,588**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Tiwari, S. N. LARC/Sutiles, J. T. 31-Atmos Sci  
LARC/Young, G. R.

**NAG 1-25** **Old Dominion University** **4156**  
Spectral multigrid methods for the two dimensional compressible Navier-Stokes equations with nonperiodic boundary conditions  
*Period* *Obligations*  
06/01/80-05/31/81 **FY80 \$38,695** **TOTAL: \$38,695**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Lakin, W. D. LARC/Harris, J. F. 21-Mathematics  
Lustman, L. LARC/Bushnell, D. M.

**NAG 1-47** **Old Dominion University** **4157**  
A retargetable path pascal system for implementation on concurrent programs on 16-bit microcomputers  
*Period* *Obligations*  
03/05/80-05/19/81 **FY80: \$48,805** **TOTAL: \$48,805**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Knapper, R. J. LARC/Foudriat, E. C.  
LARC/Will, R. W. 22-Computer Science

**NAG 1-63** **Old Dominion University** **4158**  
Development of computer models for the prediction of large distorted reflector antenna characteristics  
*Period* *Obligations*  
05/16/80-05/15/81 **FY80: \$34,981** **TOTAL: \$34,981**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Moskowitz, S. M. LARC/Bailey, M. C. 45-Elec Engr

**NAG 1-66** **Old Dominion University** **4159**  
Energy environment study  
*Period* *Obligations*  
05/16/80-11/15/80 **FY80: \$22,294** **TOTAL: \$22,294**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Strangways, R. S. LARC/Batten, B. G. 72-Economics  
Qureshi, U. A.

**NAG 1-96** **Old Dominion University** **4160**  
Boundary layer receptivity  
*Period* *Obligations*  
08/01/80-07/31/81 **FY80: \$49,585** **TOTAL: \$49,585**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Grosch, C. E. LARC/Bushnell, D. M. 41-Aero Engr  
LARC/Hefner, J. N.

**NAG 1-102** **Old Dominion University** **4161**  
Control of precision-pointed structures mounted on flexible space platforms  
*Period* *Obligations*  
02/15/81-02/14/82 **FY80: \$54,989** **TOTAL: \$54,989**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Goglia, G. L. LARC/Hamer, H. A. 49-Engr, NEC  
Joshi, S. M.

**NAS 1-14193** **Old Dominion University** **4162**  
Research in physical and life sciences  
*Period* *Obligations*  
10/01/75-09/30/78 **FY80: TOTAL: \$632,791**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Maygarden, E. M. LARC/Anderson, A. F. 99-Multi-Discip

**NAS 1-15648** **Old Dominion University** **4163**  
Research in aerodynamics and related fields  
*Period* *Obligations*  
12/13/78 12/12/81 **FY80: \$212,684** **TOTAL: \$380,372**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Unavailable LARC/Erickson, W. D. 41-Aero Engr  
LARC/Duberg, J. E.

**NAS 1-15930** **Old Dominion University** **4164**  
Scramjet inlet analysis  
*Period* *Obligations*  
11/01/79-01/15/82 **FY80: \$93,797** **TOTAL: \$93,797**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Tiwari, S. N. LARC/Drummond, J. P. 41-Aero Engr  
Kumar, A. LARC/Beach, H. L.

**NCC 1-2** **Old Dominion University** **4165**  
Measurements of the global distribution of carbon monoxide in the troposphere  
*Period* *Obligations*  
04/01/79-12/31/81 **FY80: \$94,259** **TOTAL: \$171,184**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Kindle, E. C. LARC/Reichle, H. G., Jr. 31-Atmos Sci  
Condon, E. P. LARC/Beck, S. M.

**NASA'S UNIVERSITY PROGRAM  
VIRGINIA (Continued)**

**NCC 1-9** **Old Dominion University** **4166**  
Wind tunnel studies of advanced cargo aircraft concepts  
*Period* *Obligations*  
06/22/79-06/21/80 **FY80:** **TOTAL: \$60,538**  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Goglia, G. L. LARC/Peterson, J. B. 41-Aero Engr  
Rao, D. M.

**NCC 1-26** **Old Dominion University** **4167**  
Application of photo-orthotropic elasticity to to plane problems in composites  
*Period* *Obligations*  
11/01/79-08/31/81 **FY80: \$30,622** **TOTAL: \$30,622**  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Prabhakaran, R. LARC/Cooper, P. A. 42-Astro Engr

**NCC 1-28** **Old Dominion University** **4168**  
Application of advanced lidar techniques for atmospheric remote sensing  
*Period* *Obligations*  
12/15/79-12/14/80 **FY80: \$92,763** **TOTAL: \$92,763**  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Kindle, E. C. LARC/Browell, E. V. 31-Atmos Sci  
LARC/Carter, A. F.

**NCC 1-30** **Old Dominion University** **4169**  
Coupled radiative-chemical studies of the Earth's troposphere  
*Period* *Obligations*  
12/01/79-11/30/80 **FY80: \$17,942** **TOTAL: \$17,942**  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Tiwari, S. N. LARC/Levine, J. S. 31-Atmos Sci

**NCC 1-32** **Old Dominion University** **4170**  
Multicolor lidar system research  
*Period* *Obligations*  
12/15/79-12/14/80 **FY80: \$73,015** **TOTAL: \$73,015**  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Copeland, G. E. LARC/Browell, E. V. 13-Physics  
LARC/Carter, A. F.

**NCC 1-34** **Old Dominion University** **4171**  
Development of data processing  
*Period* *Obligations*  
01/22/80-01/21/81 **FY80: \$164,163** **TOTAL: \$164,163**  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Kindle, F. C. LARC/Reichle, H. G. 39-Env Sci, NEC  
Casas, J. C. LARC/Wallio, H. A.

**NCC 1-42** **Old Dominion University** **4172**  
A study of physical processes for space-radiation protection  
*Period* *Obligations*  
06/04/80-06/18/81 **FY80: \$38,163** **TOTAL: \$38,163**  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Khandelwal, G. S. LARC/Wilson, J. W. 19-Phys Sci, NEC

**NGR 47-003-052** **Old Dominion University** **4173**  
Graduate research program in aeronautics and air transportation  
*Period* *Obligations*  
05/12/71-08/31/82 **FY80: \$50,000** **TOTAL: \$683,922**  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Roberts, A. S. LARC/Erickson, W. D. 41-Aero Engr

**NGT 47-003-028** **Old Dominion University** **4174**  
Summer faculty fellowship program in engineering systems design  
*Period* *Obligations*  
11/14/69-03/31/80 **FY80:** **TOTAL: \$1,021,937**  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
McRee, G. J. HD-LU/Carter, C. H. 49-Engr, NEC

**NGT 47-003-029** **Old Dominion University** **4175**  
Summer faculty fellowship program in research  
*Period* *Obligations*  
11/14/69-03/31/80 **FY80:** **TOTAL: \$1,154,656**  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Goglia, G. L. HD-LU/Carter, C. H. 49-Engr, NEC

**NSG 1079** **Old Dominion University** **4176**  
Optimal adaptive wind tunnel control  
*Period* *Obligations*  
09/01/74-11/30/79 **FY80:** **TOTAL: \$121,786**  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Tcheng, P. L. LARC/Trupp, J. S. 45-Elec Engr

**NSG 1167** **Old Dominion University** **4177**  
The structural behavior of advanced composite materials  
*Period* *Obligations*  
06/01/75-08/15/81 **FY80:** **TOTAL: \$135,490**  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Thornton, E. A. LARC/Dixon, S. C. 41-Aero Engr  
Fallon, D. J.

**NSG 1177** **Old Dominion University** **4178**  
Experimental and analytical studies in fluidics  
*Period* *Obligations*  
05/01/75-02/28/82 **FY80:** **TOTAL: \$106,733**  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Rogerson, A. C. LARC/Hellbaum, R. F. 45-Elec Engr  
Brown, N. B., Jr

**NSG 1271** **Old Dominion University** **4179**  
Space shuttle experiments studies  
*Period* *Obligations*  
03/01/76-02/28/81 **FY80: \$174,969** **TOTAL: \$718,530**  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Brock, F. J. LARC/Melli, L. T. 13-Physics  
Hueser, J. E.



**NASA'S UNIVERSITY PROGRAM  
VIRGINIA (Continued)**

**NSG 1503** Old Dominion University 4192  
Cryogenic transonic tunnel modeling and flow control

<i>Period</i>	<i>Obligations</i>	
03/15/78-03/14/81	FY80: \$47,175	TOTAL: \$122,711
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Goglia, G. L.	LARC/Kilgore, R. A.	41-Aero Engr
Balakrishna, S.	LARC/Adcock, J. B.	

**NSG 1568** Old Dominion University 4199  
Theoretical study of solar pumped lasers

<i>Period</i>	<i>Obligations</i>	
12/15/78-10/31/80	FY80: \$26,061	TOTAL: \$46,059
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Harries, W. L.	LARC/Wilson, J. W.	13-Physics

**NSG 1517** Old Dominion University 4193  
A numerical investigation of viscous slot flow

<i>Period</i>	<i>Obligations</i>	
04/15/78-11/30/80	FY80: \$26,143	TOTAL: \$57,353
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Cooke, C. H.	LARC/Dwoyer, D. L.	41-Aero Engr
	LARC/South, J. C.	

**NSG 1618** Old Dominion University 4200  
Free stream disturbances, continuous eigenfunction boundary layer in stability and transition

<i>Period</i>	<i>Obligations</i>	
05/16/79-09/15/80	FY80:	TOTAL: \$24,904
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Grosch, C. E.	LARC/Bushnell, D. M.	41-Aero Engr
	LARC/Hefner, J. N.	

**NSG 1521** Old Dominion University 4194  
Development of high strength and toughness 7000 series aluminum alloys

<i>Period</i>	<i>Obligations</i>	
05/01/78-11/15/79	FY80:	TOTAL: \$34,000
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Cupchalk, S. G.	LARC/Lisagor, W. B.	47-Materials Engr

**NSG 1634** Old Dominion University 4201  
Investigation of the effect of standing pressure waves on laminated transitional boundary layer flow

<i>Period</i>	<i>Obligations</i>	
09/01/79-08/31/80	FY80:	TOTAL: \$20,071
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Ash, R. L.	LARC/Hefner, J. N.	41-Aero Engr
	LARC/Bushnell, D. M.	

**NSG 1522** Old Dominion University 4195  
Radiative transfer models for the Earth radiation budget and climatic studies

<i>Period</i>	<i>Obligations</i>	
04/01/78-06/30/80	FY80:	TOTAL: \$59,739
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Tiwari, S. N.	LARC/Suttles, J. T.	31-Atmos Sci
	LARC/Young, G. R.	

**NSG 1645** Old Dominion University 4202  
Application of stability theory to laminar flow control

<i>Period</i>	<i>Obligations</i>	
09/01/79-08/31/81	FY80: \$53,395	TOTAL: \$98,037
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Goglia, G. L.	LARC/Harvey, W. D.	41-Aero Engr
Elhady, N. M.		

**NSG 1560** Old Dominion University 4196  
Development of a nonlinear vortex method

<i>Period</i>	<i>Obligations</i>	
09/01/78-09/30/80	FY80:	TOTAL: \$58,230
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Kandil, O. A.	LARC/Yates, E. C., Jr.	41-Aero Engr
	LARC/Young, W. H.	

**NSG 1649** Old Dominion University 4203  
Dynamic identification for control of large space structures

<i>Period</i>	<i>Obligations</i>	
10/01/79-10/31/80	FY80:	TOTAL: \$36,807
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Ibrahim, S. R.	LARC/Card, M. F.	46-Mech Engr

**NSG 1561** Old Dominion University 4197  
Investigation of aerodynamic characteristics of wings having vortex flow using different numerical codes

<i>Period</i>	<i>Obligations</i>	
09/01/78-08/31/81	FY80:	TOTAL: \$93,079
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Goglia, G. L.	LARC/Lamar, J. E.	41-Aero Engr
Reddy, C. S.	LARC/Polhamus, E. C.	

**NSG 1650** Old Dominion University 4204  
Design of multi-variable feedback control systems via spectral assignment

<i>Period</i>	<i>Obligations</i>	
09/01/79-07/31/81	FY80: \$48,464	TOTAL: \$88,548
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Liberty, S. R.	LARC/Armstrong, E. S.	41-Aero Engr
Mielke, R. R.	LARC/Price, D. B.	
Tung, L. J.		

**NSG 1563** Old Dominion University 4198  
Scale models for the improvement of flow patterns of a low speed tunnel

<i>Period</i>	<i>Obligations</i>	
09/15/78-04/30/81	FY80 \$28,708	TOTAL \$79,832
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Barna, P. S.	LARC/Margason, R. J.	41-Aero Engr

**NSG 1655** Old Dominion University 4205  
Airborne antenna pattern calculations

<i>Period</i>	<i>Obligations</i>	
11/01/79-10/31/81	FY80: \$21,473	TOTAL: \$41,574
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Mielke, R. R.	LARC/Gilreath, M. C.	45-Elec Engr

**NASA'S UNIVERSITY PROGRAM  
VIRGINIA (Continued)**

**NSG 5053** Old Dominion University 4206  
Radiation investigations of optical and electronic components used  
in astronomical satellite studies  
*Period* *Obligations*  
02/17/75-07/31/80 FY80: TOTAL: \$177,747  
*Prin Invest* NASA Tech Officer CASE Category  
Becher, J. GSFC/Fowler, W. 19-Phys Sci, NEC  
Kernell, R. L.

**NSG 5289** Old Dominion University 4207  
Radiation effects studies for the high resolution spectrograph  
*Period* *Obligations*  
07/10/78-01/09/81 FY80: \$51,796 TOTAL: \$156,796  
*Prin Invest* NASA Tech Officer CASE Category  
Becher, J. GSFC/Fowler, W. 13-Physics  
Kernell, R. L.

**NAG 1-43** University of Virginia 4208  
The development of the minicomputer/global bus interface for  
the finite element machine  
*Period* *Obligations*  
03/01/80-11/30/80 FY80: \$13,158 TOTAL: \$13,158  
*Prin Invest* NASA Tech Officer CASE Category  
Aylor, J. H. LARC/Loendorf, D. D. 45-Elec Engr  
LARC/Sawyer, F. L.

**NAG 1-46** University of Virginia 4209  
Numerical algorithms for finite element computations on arrays  
of microprocessors  
*Period* *Obligations*  
03/01/80-02/28/81 FY80: \$20,555 TOTAL: \$20,555  
*Prin Invest* NASA Tech Officer CASE Category  
Ortega, J. M. LARC/Loendorf, D. D. 49-Engr, NEC  
LARC/Sawyer, P. L.

**NAG 5-61** University of Virginia 4210  
Star formation in blue compact dwarf galaxies  
*Period* *Obligations*  
06/01/80-05/31/81 FY80: \$4,170 TOTAL: \$4,170  
*Prin Invest* NASA Tech Officer CASE Category  
Thuan, T. X. GSFC/Bogges, A. 11-Astronomy

**NAG 5-102** University of Virginia 4211  
Kinematic analysis of tropical cyclones using satellite wind  
measurements  
*Period* *Obligations*  
09/01/80-11/30/80 FY80: \$4,833 TOTAL: \$4,833  
*Prin Invest* NASA Tech Officer CASE Category  
Frank, W. M. GSFC/Rodgers, L. B. 31-Atmos Sci

**NAG 8-308** University of Virginia 4212  
X-ray observations of southern high-redshift clusters  
*Period* *Obligations*  
02/18/80-02/17/81 FY80: \$3,398 TOTAL: \$3,398  
*Prin Invest* NASA Tech Officer CASE Category  
Sarazin, C. L. MSFC/White, R. 11-Astronomy

**NAG 8-375** University of Virginia 4213  
Observe time in guest investigator program for X-ray observations  
of two remarkable group of quasars and X-ray observations of  
selected Area 57 and X-ray observations of blue compact dwarf  
galaxies  
*Period* *Obligations*  
09/21/80-09/20/81 FY80: \$9,447 TOTAL: \$9,447  
*Prin Invest* NASA Tech Officer CASE Category  
Thuan, T. X. MSFC/Stone, J. F. 11-Astronomy

**NAS 1-14862** University of Virginia 4214  
Interactive software invocation system  
*Period* *Obligations*  
04/01/77-10/15/79 FY80: TOTAL: \$143,438  
*Prin Invest* NASA Tech Officer CASE Category  
Berman, W. J. LARC/Will, R. W. 22-Computer Science  
LARC/Straeter, T. A.

**NAS 1-14908** University of Virginia 4215  
Air transportation systems research  
*Period* *Obligations*  
05/02/77-05/02/80 FY80: \$13,032 TOTAL: \$211,690  
*Prin Invest* NASA Tech Officer CASE Category  
Kuhlthau, A. R. LARC/Conner, D. W. 49-Engr, NEC  
LARC/Brissenden, R. F.

**NAS 2-10195** University of Virginia 4216  
Effect of weightlessness on body mass and organ mass and  
composition in the rat  
*Period* *Obligations*  
02/21/79-08/31/80 FY80: TOTAL: \$12,177  
*Prin Invest* NASA Tech Officer CASE Category  
Pitts, G. C. ARC/Souza, K. A. 59-Life Sci, NEC

**NAS 5-22346** University of Virginia 4217  
Design and application of a one meter UV-optical telescope for  
spacelab astronomy missions  
*Period* *Obligations*  
04/29/75-06/30/81 FY80: \$4,000 TOTAL: \$37,468  
*Prin Invest* NASA Tech Officer CASE Category  
OConnell, R. W. GSFC/Johnson, G. 11-Astronomy

**NAS 5-24218** University of Virginia 4218  
Research study on mixer diodes for submillimeter applications  
*Period* *Obligations*  
06/23/77-02/28/81 FY80: \$36,361 TOTAL: \$100,909  
*Prin Invest* NASA Tech Officer CASE Category  
Mattauch, R. J. GSFC/Lamb, G. M. 49-Engr, NEC  
GSFC/Buhl, D.

**NAS 5-25634** University of Virginia 4219  
Study of the trellis phase codes for improved power/bandwidth  
efficiency in satellite communications  
*Period* *Obligations*  
04/11/79-04/10/81 FY80: TOTAL: \$84,511  
*Prin Invest* NASA Tech Officer CASE Category  
Wilson, S. G. GSFC/Kahle, D. R. 45-Elec Engr



**NASA'S UNIVERSITY PROGRAM**  
**VIRGINIA (Continued)**

**NSG 3242** University of Virginia 4233  
Investigation of the formation of diffusion barrier materials on silicon carbide filaments and their incorporation into metal matrix composites  
*Period* *Obligations*  
01/03/79-01/01/81 FY80: \$39,600 TOTAL \$79,206  
*Prin Invest* *NASA Tech Officer* *C&SF Category*  
Wawner, F. F., Jr LERC/Behrendt, D. R.  
LERC/Grimes, H. H. 47-Materials Engr

**NSG 7364** University of Virginia 4234  
Observations of the satellites of the outer planets  
*Period* *Obligations*  
07/01/78-06/30/81 FY80: \$19,999 TOTAL \$80,853  
*Prin Invest* *NASA Tech Officer* *C&SF Category*  
Ianna, P. A. HD-SI/Brunk, W. I. 11-Astronomy  
HD-SI/Murphy, R. I.

**NSG 7572** University of Virginia 4235  
Study of layered deposits and paleoclimates on Mars  
*Period* *Obligations*  
04/01/79-09/30/80 FY80: \$32,899 TOTAL \$49,578  
*Prin Invest* *NASA Tech Officer* *C&SF Category*  
Howard, A. HD-SI/Boyce, J. M. 32-Geological Sci  
HD-SI/Quaide, W. I.

**NAS 9-10046** Virginia Commonwealth University 4236  
Influence of weightlessness upon automatic cardiovascular control  
*Period* *Obligations*  
01/17/80-10/31/80 FY80: \$32,391 TOTAL \$32,391  
*Prin Invest* *NASA Tech Officer* *C&SF Category*  
Eckberg, D. I. JSC/Kirby, R. 59-Life Sci, NEC

**NSG 9063** Virginia Commonwealth University 4237  
Carotid arterial baroreflex mechanisms  
*Period* *Obligations*  
10/01/77-12/31/80 FY80: \$40,000 TOTAL \$119,102  
*Prin Invest* *NASA Tech Officer* *C&SF Category*  
Eckberg, D. I. JSC/Hull, W. F. 56-Medical Sciences

**NSG 7355** Virginia Military Institute 4238  
Oxidation-reduction processes in synthetic silicate melts  
*Period* *Obligations*  
06/01/77-12/31/81 FY80: \$22,050 TOTAL \$77,332  
*Prin Invest* *NASA Tech Officer* *C&SF Category*  
Schreiber, H. D. HD-SI/Quaide, W. I. 32-Geological Sci  
HD-SI/French, B. M.

**DFN 3-65** Va Polytechnic Inst & St Univ 4239  
Electronically computed dc motor for electric passenger vehicles  
*Period* *Obligations*  
09/13/78-06/27/81 FY80: \$146,256 TOTAL \$306,032  
*Prin Invest* *NASA Tech Officer* *C&SF Category*  
Demerdash, N. A. LERC/Maslowski, E. A. 45-Elec Engr  
Lee, F. C.

**NAG 1-7** Va Polytechnic Inst & St Univ 4240  
The reduced order model problem in distributed parameter systems adaptive identification and control  
*Period* *Obligations*  
11/01/79-10/31/80 FY80: \$29,972 TOTAL \$29,972  
*Prin Invest* *NASA Tech Officer* *C&SF Category*  
Johnson, C. R. LARC/Montgomery, R. C. 42-Astro Engr

**NAG 1-52** Va Polytechnic Inst & St Univ 4241  
Study of altitude transition in aircraft energy climbs  
*Period* *Obligations*  
04/01/80-03/31/81 FY80: \$31,920 TOTAL \$31,920  
*Prin Invest* *NASA Tech Officer* *C&SF Category*  
Kelly, H. J. LARC/Price, D. B. 41-Aero Engr  
Cliff, E. M.

**NAG 1-53** Va Polytechnic Inst & St Univ 4242  
Space shuttle windward side viscous flowfield predictions  
*Period* *Obligations*  
04/01/80-10/31/80 FY80: \$39,718 TOTAL \$39,718  
*Prin Invest* *NASA Tech Officer* *C&SF Category*  
Lewis, C. H. LARC/Zoby, E. V. 41-Aero Engr  
Szema, K. Y. LARC/Hamilton, H. H.

**NAG 1-68** Va Polytechnic Inst & St Univ 4243  
Optical fiber interferometer for the study of ultrasonic waves in composite materials  
*Period* *Obligations*  
10/01/80-09/30/81 FY80: \$30,536 TOTAL \$30,536  
*Prin Invest* *NASA Tech Officer* *C&SF Category*  
Claus, R. O. LARC/Cantrell, J. H. 13-Physics  
LARC/Heyman, J. S.

**NAG 1-78** Va Polytechnic Inst & St Univ 4244  
Nonequilibrium material effects on behavior of polymeric composite matrices and their related composites  
*Period* *Obligations*  
07/01/80-06/30/81 FY80: \$51,500 TOTAL \$51,500  
*Prin Invest* *NASA Tech Officer* *C&SF Category*  
Wilkes, G. I. LARC/Price, H. I. 47-Materials Engr  
LARC/Sikes, G. F.

**NAG 1-80** Va Polytechnic Inst & St Univ 4245  
Preliminary demonstration of a robust controller design method  
*Period* *Obligations*  
06/15/80-11/14/80 FY80: \$10,392 TOTAL \$10,392  
*Prin Invest* *NASA Tech Officer* *C&SF Category*  
Anderson, I. R. LARC/Newsom, J. R. 41-Aero Engr

**NAG 1-89** Va Polytechnic Inst & St Univ 4246  
Chemical modification of semiconductor surfaces  
*Period* *Obligations*  
09/01/80-08/31/81 FY80: \$19,806 TOTAL \$19,806  
*Prin Invest* *NASA Tech Officer* *C&SF Category*  
Finklea, H. O. LARC/Byvik, C. E. 19-Phys Sci, NEC  
LARC/Conway, I. J.

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VIRGINIA (Continued)**

**NAG 1-101** Va Polytechnic Inst & St Univ 4247  
Shuttle nozzle flowfield  
*Period* *Obligations*  
08/12/80-11/11/80 FY80 \$25,204 TOTAL \$25,204  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Lewis, C. H. LARC/Melfi, L. T. 41-Aero Engr

**NAG 2-3** Va Polytechnic Inst & St Univ 4248  
Weld microstructure, stress state and the effect of hydrogen on fatigue crack initiation in X-65 steel  
*Period* *Obligations*  
11/01/79-10/31/80 FY80 \$43,292 TOTAL \$43,292  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Louthan, M. R. ARC/Nelson, H. G. 47-Materials Engr  
McNitt, R. P.

**NAG 2-17** Va Polytechnic Inst & St Univ 4249  
Comparative evaluation of workload estimation techniques in piloting tasks  
*Period* *Obligations*  
01/15/80-01/14/81 FY80 \$74,527 TOTAL \$74,527  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Wierwille, W. W. ARC/Wempe, F. F. 99-Multi-Discip

**NAG 3-78** Va Polytechnic Inst & St Univ 4250  
Environmental degradation of engineering materials II  
*Period* *Obligations*  
01/01/81-12/31/81 FY80 \$3,385 TOTAL \$3,385  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Louthan, M. R. LERC/Stephens, J. R. 47-Materials Engr  
McNitt, R. P.  
Sisson, R. D., Jr.

**NAG 3-81** Va Polytechnic Inst & St Univ 4251  
Input filter compensation for switching regulators  
*Period* *Obligations*  
10/01/80-09/30/81 FY80 \$35,090 TOTAL \$35,090  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Lee, F. C. LERC/Kolecki, J. C. 45-Elec Engr

**NAG 3-99** Va Polytechnic Inst & St Univ 4252  
High power transistor evaluations for electric vehicle applications  
*Period* *Obligations*  
09/15/80-09/14/82 FY80 \$174,822 TOTAL \$174,822  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Lee, F. C. LERC/Maslowski, F. A. 45-Elec Engr  
Chen, D. D.

**NAG 8-314** Va Polytechnic Inst & St Univ 4253  
X ray emission from optically-quiet compact radio sources, lacertae objects and from bright optically selected quasars under the high energy astronomical observatory  
*Period* *Obligations*  
02/01/80-07/31/81 FY80 \$2,895 TOTAL \$2,895  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
ODell, S. L. MSFC/Jones, J. B. 11-Astronomy  
Ledden, J. F.  
Condon, J. J.

**NAG 8-348** Va Polytechnic Inst & St Univ 4254  
Coordinated high energy astronomical observatory-2 observations of low-frequency variable radio sources  
*Period* *Obligations*  
06/20/80-06/19/81 FY80 \$7,475 TOTAL \$7,475  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
ODell, S. L. MSFC/Swearingen, J. C. 11-Astronomy  
Dennison, B. K.

**NAS 1-15080** Va Polytechnic Inst & St Univ 4255  
Research in the area of physical sciences  
*Period* *Obligations*  
08/25/77-08/24/80 FY80 \$40,846 TOTAL \$217,261  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Unavailable LARC/Anderson, A. F. 99-Multi-Discip  
LARC/Royall, J. F.

**NAS 5-22577** Va Polytechnic Inst & St Univ 4256  
Communications link characterization study  
*Period* *Obligations*  
09/08/76-04/07/85 FY80 \$354,303 TOTAL \$866,175  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Bostian, C. W. GSFC/Hirschmann, I. 45-Elec Engr  
Stutzman, W. I.  
Wiley, P. H.

**NAS 5-25839** Va Polytechnic Inst & St Univ 4257  
Develop micro and macro texture measures for lands at scenes  
*Period* *Obligations*  
09/07/79-06/06/80 FY80 TOTAL \$40,184  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Havaleck, R. M. GSFC/Argentiero, P. D. 31-Atmos Sci

**NAS 5-25935** Va Polytechnic Inst & St Univ 4258  
Applications of LANDSAT imaging to state information systems  
*Period* *Obligations*  
10/22/79-10/22/80 FY80 \$9,500 TOTAL \$9,500  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Giles, R. H. GSFC/Gervin, J. C. 99-Multi-Discip



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**NAS 5-26199** Va Polytechnic Inst & St Univ 4259  
 Services to support a demonstration project to determine the usefulness of LANDSAT data to Virginia's regional land use planning and resource management programs  
*Period* *Obligations*  
 06/26/80-11/25/80 FY80: \$3,995 TOTAL: \$3,995  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
 Munday, J GSFC/Gervin, J C 39-Env Sci, NEC

**NAS 5-26276** Va Polytechnic Inst & St Univ 4260  
 Applicability of the Massive Parallel Processor (MPP) to the utilization of ecological and landuse models  
*Period* *Obligations*  
 08/15/80-08/14/81 FY80: \$62,731 TOTAL: \$62,731  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
 Haralick, R GSFC/Argentiero, P D

**NAS 8-33359** Va Polytechnic Inst & St Univ 4261  
 Magnetic fields in cluster of galaxies  
*Period* *Obligations*  
 05/25/79-05/24/80 FY80 TOTAL: \$6,988  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
 Dennison, B K MSFC/Jones, J B., Jr. 11-Astronomy

**NAS 8-33449** Va Polytechnic Inst & St Univ 4262  
 Research study Strength and constitutive behavior of soils in a very low gravitational field  
*Period* *Obligations*  
 07/16/79-03/19/80 FY80 TOTAL: \$22,052  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
 Storre, S MSFC/Costes, N C 32-Geological Sci

**NASW 3357** Va Polytechnic Inst & St Univ 4263  
 Dual-polarization space diversity measurements with the sirio satellite  
*Period* *Obligations*  
 12/16/79-12/16/80 FY80 \$30,000 TOTAL: \$30,000  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
 Krebs, A H HD-SC/Freibaum, J 31-Atmos Sci  
 HD-SC/Ippolito, I J

**NCC 1-4** Va Polytechnic Inst & St Univ 4264  
 Dynamics and control of large flexible spacecraft  
*Period* *Obligations*  
 05/01/79-12/31/80 FY80: TOTAL: \$49,992  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
 Meirovitch, I LARC/Montgomery, R C 42-Astro Engr

**NCC 1-10** Va Polytechnic Inst & St Univ 4265  
 Environmental effects on advanced aerospace materials  
*Period* *Obligations*  
 08/01/79-11/30/81 FY80 \$141,420 TOTAL: \$230,837  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
 Unnam, J LARC/Tenney, D R 39-Env Sci, NEC  
 Houska, C R LARC/Brewer, W D

**NCC 1-15** Va Polytechnic Inst & St Univ 4266  
 Composite materials research and education  
*Period* *Obligations*  
 09/01/79-08/31/81 FY80: \$207,223 TOTAL: \$371,407  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
 Herakovich, C T LARC/Davis, J. D., Jr 49-Engr, NEC

**NCC 1-20** Va Polytechnic Inst & St Univ 4267  
 Graduate-study research program in aeronautics and air transportation systems  
*Period* *Obligations*  
 07/01/79-08/31/81 FY80: TOTAL: \$79,991  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
 Hobeika, A. G. LARC/Erickson, W. D. 41-Aero Engr

**NCC 2-71** Va Polytechnic Inst & St Univ 4268  
 The accelerated characterization of polymer based fiber reinforced composites  
*Period* *Obligations*  
 10/01/80-09/30/81 FY80: \$65,719 TOTAL: \$65,719  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
 Brinson, H. F. ARC/Nelson, H. G. 47-Materials Engr  
 Morris, D. H.

**NGL 47-004-067** Va Polytechnic Inst & St Univ 4269  
 Measurement of the ground wind structure  
*Period* *Obligations*  
 06/15/70-09/30/81 FY80: TOTAL: \$568,375  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
 Fieleman, H. W WFC/Schmidlin, F J 31-Atmos Sci

**NGT 47-004-800** Va Polytechnic Inst & St Univ 4270  
 Computational study of leading edge vortex flaps graduate student-researcher's program  
*Period* *Obligations*  
 06/01/80-05/31/81 FY80 \$10,250 TOTAL: \$10,250  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
 Marchman, J. F. LARC/Campbell, J F 41-Aero Engr

**NSG 1085** Va Polytechnic Inst & St Univ 4271  
 Kinetics of the reactions of acid anhydrides with aromatic amines in aprotic solvents  
*Period* *Obligations*  
 07/01/74-01/31/81 FY80 TOTAL: \$93,519  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
 Mason, J. G LARC/Young, P. R. 12-Chemistry

**NSG 1124** Va Polytechnic Inst & St Univ 4272  
 A fundamental approach to adhesion Synthesis surface analysis, thermodynamics and mechanics  
*Period* *Obligations*  
 12/01/74-02/28/81 FY80: \$79,987 TOTAL: \$422,781  
*Prn Invest* *NASA Tech Officer* *CASE Category*  
 Wightman, J P LARC/Progar, D J 12-Chemistry  
 LARC/Nelson, J. B.

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**NSG 1254** Va Polytechnic Inst & St Univ 4273  
Short beam shear tests of polymeric laminates and unidirectional composites  
*Period* *Obligations*  
10/01/75-11/30/79 FY80: TOTAL: \$79,994  
*Prin Invest* NASA Tech Officer CASE Category  
Stinchcomb, W. W. LARC/Hoffman, F. L. 46-Mech Engr  
Henneke, F. G. LARC/Deaton, J. W.

**NSG 1255** Va Polytechnic Inst & St Univ 4274  
Application of stability theory to laminar flow control  
*Period* *Obligations*  
10/01/75-10/31/81 FY80: \$115,000 TOTAL: \$347,400  
*Prin Invest* NASA Tech Officer CASE Category  
Nayfeh, A. H. LARC/Harris, J. F. 41-Aero Engr  
LARC/Hefner, J. W.

**NSG 1262** Va Polytechnic Inst & St Univ 4275  
Subsonic steady and unsteady aerodynamic loads missiles and aircraft  
*Period* *Obligations*  
12/01/75-02/28/81 FY80: \$30,000 TOTAL: \$100,141  
*Prin Invest* NASA Tech Officer CASE Category  
Mook, D. T. LARC/Yates, E. C., Jr. 41-Aero Engr  
Nayfeh, A. H.

**NSG 1354** Va Polytechnic Inst & St Univ 4276  
Study of an automatic trajectory following control system  
*Period* *Obligations*  
10/15/76-09/14/81 FY80 \$14,556 TOTAL \$113,244  
*Prin Invest* NASA Tech Officer CASE Category  
Vanlandingham, H. F. LARC/Creedon, J. F. 41-Aero Engr  
Moose, R. I. LARC/Hueschen, R. M.

**NSG 1428** Va Polytechnic Inst & St Univ 4277  
The incorporation of metal ions polyimides  
*Period* *Obligations*  
07/01/77-05/31/81 FY80: \$20,003 TOTAL \$129,754  
*Prin Invest* NASA Tech Officer CASE Category  
Taylor, L. T. LARC/St.Clair, A. K. 12-Chemistry  
LARC/Slemp, W. S.

**NSG 1470** Va Polytechnic Inst & St Univ 4278  
Control of interface reactions in composites  
*Period* *Obligations*  
11/07/77-06/30/81 FY80: \$35,664 TOTAL: \$91,048  
*Prin Invest* NASA Tech Officer CASE Category  
Houska, C. R. LARC/Tenney, D. R. 47-Materials Engr  
LARC/Brewer, W. D.

**NSG 1524** Va Polytechnic Inst & St Univ 4279  
New aromatic polyamides containing n-propargyl groups as potential cross linking functions  
*Period* *Obligations*  
06/01/78-05/31/81 FY80: \$12,910 TOTAL: \$70,197  
*Prin Invest* NASA Tech Officer CASE Category  
Wolfe, J. F. LARC/St.Clair, T. L. 12-Chemistry  
LARC/St.Clair, A. K.

**NSG 1527** Va Polytechnic Inst & St Univ 4280  
Distributed surface control for large space systems  
*Period* *Obligations*  
06/01/78-07/31/80 FY80: TOTAL: \$127,373  
*Prin Invest* NASA Tech Officer CASE Category  
Vanlandingham, H. F. LARC/Montgomery, R. C. 45-Elec Engr  
Jonsson, C. R.

**NSG 1571** Va Polytechnic Inst & St Univ 4281  
Fracture testing of graphite/polymide  
*Period* *Obligations*  
03/27/79-12/31/80 FY80: TOTAL: \$25,705  
*Prin Invest* NASA Tech Officer CASE Category  
Morris, D. H. LARC/Everett, R. A. 47-Materials Engr  
LARC/Crews, J. H.

**NSG 1573** Va Polytechnic Inst & St Univ 4282  
Nonlinear wave choke inlets  
*Period* *Obligations*  
11/01/78-10/31/80 FY80: \$21,300 TOTAL: \$46,300  
*Prin Invest* NASA Tech Officer CASE Category  
Nayfeh, A. H. LARC/Watson, W. R. 45-Elec Engr  
LARC/Lester, H. C.

**NSG 1589** Va Polytechnic Inst & St Univ 4283  
Mass transfer effects on turbulent flow along surfaces  
*Period* *Obligations*  
06/01/79-09/30/80 FY80: TOTAL: \$49,858  
*Prin Invest* NASA Tech Officer CASE Category  
Schetz, J. A. LARC/Hefner, J. N. 41-Aero Engr  
Inger, G. R. LARC/Bushnell, D. M.

**NSG 1597** Va Polytechnic Inst & St Univ 4284  
Advanced matrix resins for graphite composites  
*Period* *Obligations*  
03/01/79-02/28/81 FY80: \$33,988 TOTAL \$67,087  
*Prin Invest* NASA Tech Officer CASE Category  
McGrath, J. F. LARC/St.Clair, A. K. 12-Chemistry  
Ward, T. C. LARC/St.Clair, T. L.

**NSG 1598** Va Polytechnic Inst & St Univ 4285  
Selected parameters to minimize community annoyance from airport noise  
*Period* *Obligations*  
04/01/79-03/31/81 FY80 \$41,803 TOTAL: \$72,391  
*Prin Invest* NASA Tech Officer CASE Category  
Frair, L. LARC/Deloach, R. 99-Multi-Discip

**NSG 1608** Va Polytechnic Inst & St Univ 4286  
Experiments to verify non-parallel stability theory  
*Period* *Obligations*  
04/01/79-11/15/80 FY80: \$75,000 TOTAL: \$137,600  
*Prin Invest* NASA Tech Officer CASE Category  
Sanic, W. S. LARC/Hefner, J. N. 41-Aero Engr  
LARC/Bushnell, D. M.

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<b>NSG 1621</b>	<b>Va Polytechnic Inst &amp; St Univ</b>	<b>4287</b>			
Use of two-dimensional transmission photoelastic models to study the stresses in double lap bolted joints					
<i>Period</i>	<i>Obligations</i>				
09/01/79-11/30/81	FY80:	TOTAL:	\$27,802		
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>Case Category</i>			
Hyer, M. W.	LARC/Baker, D. J.	47-Materials Engr			
	LARC/Dexter, H. B.				
<b>NSG 2038</b>	<b>Va Polytechnic Inst &amp; St Univ</b>	<b>4288</b>			
Fundamental investigation of failure of fiber composites					
<i>Period</i>	<i>Obligations</i>				
10/01/74-09/30/80	FY80:	TOTAL:	\$460,274		
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>Case Category</i>			
Brinson, H. F.	ARC/Nelson, H. G.	47-Materials Engr			
<b>NSG 2301</b>	<b>Va Polytechnic Inst &amp; St Univ</b>	<b>4289</b>			
Near-wall similarity in three-dimensional turbulent flows					
<i>Period</i>	<i>Obligations</i>				
04/01/78-03/31/81	FY80 \$55,046	TOTAL	\$162,509		
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>Case Category</i>			
Pierce, F. J.	ARC/Rubenstein, M. W.	41-Aero Engr			
	ARC/Cleary, J. W.				
<b>NSG 3073</b>	<b>Va Polytechnic Inst &amp; St Univ</b>	<b>4290</b>			
Studies of internal flowfields of high throat mach-number quiet engine inlets					
<i>Period</i>	<i>Obligations</i>				
10/01/75-02/14/81	FY80	TOTAL	\$63,122		
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>Case Category</i>			
Jakubowski, A. K.	IFRC/Johns, A. I.	41-Aero Engr			
<b>NSG 3204</b>	<b>Va Polytechnic Inst &amp; St Univ</b>	<b>4291</b>			
Ion beam surface modification Surface analysis and adhesion					
<i>Period</i>	<i>Obligations</i>				
06/07/78-06/06/81	FY80 \$19,867	TOTAL	\$39,738		
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>Case Category</i>			
Dwight, D. W.	IFRC/Wintucky, I. G.	47-Materials Engr			
<b>NSG 3239</b>	<b>Va Polytechnic Inst &amp; St Univ</b>	<b>4292</b>			
Investigation of coupled torsional-axial-lateral coupled response of geared systems					
<i>Period</i>	<i>Obligations</i>				
01/02/79-07/31/81	FY80 \$54,859	TOTAL	\$102,310		
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>Case Category</i>			
Mitchell, I. D.	IFRC/Flemings, D. P.	41-Aero Engr			
<b>NSG 3274</b>	<b>Va Polytechnic Inst &amp; St Univ</b>	<b>4293</b>			
An improved model for switching converter power stages					
<i>Period</i>	<i>Obligations</i>				
06/01/79-11/30/80	FY80	TOTAL	\$30,000		
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>Case Category</i>			
Lee, F. C.	IFRC/Kolecki, J. C.	45-Elec Engr			
<b>NSG 3275</b>	<b>Va Polytechnic Inst &amp; St Univ</b>	<b>4294</b>			
An adaptive controller for an aircraft gas turbine propulsion system					
<i>Period</i>	<i>Obligations</i>				
05/01/79-03/31/81	FY80:	TOTAL:	\$40,713		
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>Case Category</i>			
Leonard, R. G.	IFRC/Lehtinen, B.	41-Aero Engr			
<b>NSG 6029</b>	<b>Va Polytechnic Inst &amp; St Univ</b>	<b>4295</b>			
Demonstration of a peanut leafspot advisory system based on agro environmental monitoring system data					
<i>Period</i>	<i>Obligations</i>				
04/01/79-09/30/80	FY80: \$18,532	TOTAL:	\$43,632		
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>Case Category</i>			
Powell, N. I.	WFC/Parker, L. C.	19-Phys Sci, NEC			
Phipps, P. M.	WFC/Scott, J. H., Jr				
<b>NSG 6030</b>	<b>Va Polytechnic Inst &amp; St Univ</b>	<b>4296</b>			
Agro-environmental monitoring and management model development and implementation program					
<i>Period</i>	<i>Obligations</i>				
04/01/79-09/30/81	FY80: \$48,568	TOTAL:	\$98,368		
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>Case Category</i>			
Powell, N. I.	WFC/Scott, J. H.	19-Phys Sci, NEC			
<b>NSG 6031</b>	<b>Va Polytechnic Inst &amp; St Univ</b>	<b>4297</b>			
Development of water management systems for crop production utilizing soil, crop and agro environmental monitoring systems data					
<i>Period</i>	<i>Obligations</i>				
04/01/79-09/30/80	FY80 \$32,900	TOTAL	\$58,400		
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>Case Category</i>			
Powell, N. I.	WFC/Parker, L. C.	19-Phys Sci, NEC			
	WFC/Scott, J. H., Jr				
<b>NAS 1-16079</b>	<b>Virginia State University</b>	<b>4298</b>			
An evaluation of the Langley Learning Center					
<i>Period</i>	<i>Obligations</i>				
01/08/80-01/07/81	FY80 \$25,460	TOTAL	\$25,460		
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>Case Category</i>			
Boese, A. F.	IFRC/Owens, F. C.	99-Multi-Discip			
<b>NSG 1342</b>	<b>Virginia State University</b>	<b>4299</b>			
Material science and solid state physics studies with positive muon spin precession					
<i>Period</i>	<i>Obligations</i>				
01/01/77-09/30/82	FY80 \$49,911	TOTAL	\$99,824		
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>Case Category</i>			
Stronach, C. F.	IFRC/Singh, J. J.	13-Physics			
<b>NSG 1646</b>	<b>Virginia State University</b>	<b>4300</b>			
Medium-energy nuclear physics studies					
<i>Period</i>	<i>Obligations</i>				
10/01/79-05/31/81	FY80	TOTAL	\$26,618		
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>Case Category</i>			
Stronach, C. F.	IFRC/Wilson, J. W.	13-Physics			

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**NAG 1-41** University of Washington 4301  
Radiation viewfactor analysis  
*Period* *Obligations*  
03/01/80-02/28/81 FY80: \$49,994 TOTAL: \$49,994  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Emery, A. F. LARC/Wieting, A. R. 46-Mech Engr  
Kippenham, C. J.

**NAG 3-7** University of Washington 4302  
In service shaping of abradable seals  
*Period* *Obligations*  
12/01/79-11/30/80 FY80: \$48,395 TOTAL: \$48,395  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Wolak, J. LERC/Hall, R. C. 46-Mech Engr  
LERC/Ludwig, I. P.

**NAG 3-16** University of Washington 4303  
Research related to the technology of radiation machinery and  
high power gas lasers  
*Period* *Obligations*  
12/17/79-12/16/80 FY80: \$143,194 TOTAL: \$143,194  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Hertzberg, A. LERC/Chai, A. 13-Physics

**NAG 5-45** University of Washington 4304  
Observations of selected astronomical objects  
*Period* *Obligations*  
04/15/80-04/14/81 FY80: \$6,346 TOTAL: \$6,346  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Bohm, K. H. GSFC/Bogges, A. 11-Astronomy  
Vitense, F. R.

**NAG 8-342** University of Washington 4305  
X-ray and optical study of symbiotic stars  
*Period* *Obligations*  
03/01/80-02/28/81 FY80: \$11,350 TOTAL: \$11,350  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Wallerstein, G. MSFC/Jones, J. B. 11-Astronomy  
Wilson, L. A.

**NAG 8-359** University of Washington 4306  
X-ray images of spiral-rich clusters of galaxies  
*Period* *Obligations*  
07/01/80-06/30/81 FY80: \$4,268 TOTAL: \$4,268  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Sullivan, W. T. MSFC/Swearingen, J. C. 11-Astronomy

**NAG 8-361** University of Washington 4307  
X-ray study of four blue galactic emission line objects  
*Period* *Obligations*  
07/01/80-06/30/81 FY80: \$8,794 TOTAL: \$8,794  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Szkody, P. MSFC/Swearingen, J. C. 11-Astronomy  
Crosa, L.

**NAG 8-364** University of Washington 4308  
Cluster hubble-constant study  
*Period* *Obligations*  
06/20/80-06/19/81 FY80: \$5,970 TOTAL: \$5,970  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Boynton, P. F. MSFC/Swearingen, J. C. 11-Astronomy

**NAG 8-366** University of Washington 4309  
Analysis and interpretation of X-ray timing observations HEAO-1  
guest investigator program  
*Period* *Obligations*  
07/27/80-07/26/81 FY80: \$21,064 TOTAL: \$21,064  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Boynton, P. F. MSFC/Stone, J. F. 11-Astronomy  
Lamb, F. F.

**NAG 8-378** University of Washington 4310  
X-ray and IUF study of ball and ch stars  
*Period* *Obligations*  
09/22/80-09/21/81 FY80: \$7,991 TOTAL: \$7,991  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Bohm-vitense, F. MSFC/Stone, J. F. 11-Astronomy

**NAGW 36** University of Washington 4311  
Long term Viking Lander meteorology mission operations and  
analysis  
*Period* *Obligations*  
03/01/80-02/28/81 FY80: \$50,000 TOTAL: \$50,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Tillman, J. F. HD-SL/Murphy, R. F. 31-Atmos Sci  
HD-SL/Brunk, W. I.

**NAGW 85** University of Washington 4312  
Geologic remote sensing  
*Period* *Obligations*  
09/16/80-09/15/83 FY80: \$200,000 TOTAL: \$200,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Adams, J. B. HD-ET/Vitale, J. A. 32-Geological Sci

**NAS 1-14341** University of Washington 4313  
Science support for the limb infrared monitor of the stratosphere  
experiment  
*Period* *Obligations*  
04/12/76-09/30/81 FY80: \$104,352 TOTAL: \$104,352  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Leovy, C. B. LARC/Russell, J. M., III 31-Atmos Sci  
LARC/James, R. L., Jr.

**NAS 1-16462** University of Washington 4314  
Scientific investigations for Earth Radiation Budget Experiment  
(ERBE)  
*Period* *Obligations*  
09/30/80-09/29/85 FY80: \$4,020 TOTAL: \$4,020  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Hartman, D. L. LARC/Hall, J. B. 31-Atmos Sci  
Wallace, J. M. LARC/Barkstrom, B. R.

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**NAS 5-26262** University of Washington 4315  
Nimbus 7 liquid water and vapor data studies  
Period Obligations  
09/26/80-09/25/82 FY80. \$50,000 TOTAL \$50,000  
Pnn Invest NASA Tech Officer CASE Category  
Katsaros, K. B. GSFC/Nelson, D. 31-Atmos Sci

**NAS 5-26301** University of Washington 4316  
Wave dynamics and transport in the middle atmosphere (UARS)  
Period Obligations  
10/01/80-12/30/81 FY80 \$10,516 TOTAL \$10,516  
Pnn Invest NASA Tech Officer CASE Category  
Holton, J. R. GSFC/Reber, C. A. 31-Atmos Sci

**NAS 6-2996** University of Washington 4317  
Air/Sea interaction studies for satellite measurements  
Period Obligations  
05/01/79-10/31/81 FY80. TOTAL \$91,300  
Pnn Invest NASA Tech Officer CASE Category  
Katsaros, K. B. WFC/Huang, N. F. 33-Oceanography  
Brown, R. A. WFC/Long, S. R.  
Businger, J. A.

**NAS 8-33148** University of Washington 4318  
Atmospheric cloud physics laboratory gas scavenging experiment  
Period Obligations  
07/07/78-05/31/81 FY80 \$52,482 TOTAL \$99,585  
Pnn Invest NASA Tech Officer CASE Category  
Hobbs, P. V. MSFC/Smith, R. F. 31-Atmos Sci  
MSFC/Keller, V. W.

**NAS 8-33337** University of Washington 4319  
X-ray and optical study of the high polarization of variable stars (AN U/MA)  
Period Obligations  
02/23/79-11/30/80 FY80. TOTAL \$10,925  
Pnn Invest NASA Tech Officer CASE Category  
Szkody, P. MSFC/Jones, J. B., Jr. 11-Astronomy  
Wallerstein, G.  
Crosa, I.

**NAS 8-33344** University of Washington 4320  
Coordinated X-ray infrared observations of rich clusters of galaxies  
Period Obligations  
02/27/79-12/26/79 FY80 TOTAL \$2,436  
Pnn Invest NASA Tech Officer CASE Category  
Boynton, P. F. MSFC/Jones, J. B., Jr. 11-Astronomy

**NAS 8-33360** University of Washington 4321  
Analysis and interpretation of X-ray timing observations  
Period Obligations  
06/12/79-08/11/80 FY80 TOTAL \$24,571  
Pnn Invest NASA Tech Officer CASE Category  
Boynton, P. F. MSFC/Jones, J. B., Jr. 11-Astronomy  
Lamb, F. K.

**NAS 8-33884** University of Washington 4322  
Research study: Theory of global lightning as seen from a satellite  
Period Obligations  
07/22/80-07/21/81 FY80: \$14,657 TOTAL: \$14,657  
Pnn Invest NASA Tech Officer CASE Category  
Fly, J. T. MSFC/Smith, R. E. 31-Atmos Sci  
MSFC/Jasper, G.

**NAS 9-16052** University of Washington 4323  
Life science flight experiment influence of gravity  
Period Obligations  
01/17/80-05/31/81 FY80. \$17,503 TOTAL. \$17,503  
Pnn Invest NASA Tech Officer CASE Category  
Mlastala, M. P. JSC/French, B. O. 59-Life Sci, NEC

**NCA 2-850001** University of Washington 4324  
1980 land cover classification for the Puget Sound region  
Period Obligations  
03/01/80-11/30/80 FY80. \$25,000 TOTAL: \$25,000  
Pnn Invest NASA Tech Officer CASE Category  
Shinn, R. D. ARC/Wilson, D. F. 39-Env Sci, NEC

**NCA 2-850002** University of Washington 4325  
Development of remote sensing techniques for Alaska wetlands delineation  
Period Obligations  
09/01/80-12/31/80 FY80 \$8,826 TOTAL. \$8,826  
Pnn Invest NASA Tech Officer CASE Category  
Westerlund, F. V. ARC/Wilson, D. F. 39-Env Sci, NEC

**NGI 48-002-004** University of Washington 4326  
Multidisciplinary research in materials sciences with emphasis on investigation of inorganic nonmetallic ceramic materials  
Period Obligations  
06/28/73-06/30/81 FY80. \$878,906 TOTAL \$5,248,077  
Pnn Invest NASA Tech Officer CASE Category  
Mueller, J. I. HD-RT/Greenfield, M. A. 47-Materials Engr  
HD-RT/Harris, L.

**NGI 48-002-044** University of Washington 4327  
Generation of coherent radiation and the use of intense coherent radiation for generation of plasmas  
Period Obligations  
05/19/67-02/15/80 FY80. TOTAL \$1,092,900  
Pnn Invest NASA Tech Officer CASE Category  
Hertzberg, A. HD-RT/Randolph, L. 13-Physics  
ARC/Billman, K. W.

**NGI 48-002-047** University of Washington 4328  
Interaction shock wave and turbulent boundary layer  
Period Obligations  
09/16/67-09/30/81 FY80. TOTAL \$442,659  
Pnn Invest NASA Tech Officer CASE Category  
Childs, M. E. ARC/Chapman, G. T. 41-Aero Engr  
ARC/Presley, L. L.

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<b>NGR 48-002-141</b>	<b>University of Washington</b>	<b>4329</b>
Research program in aeronautics and air transportation		
<i>Period</i>	<i>Obligations</i>	
05/10/72-10/31/80	FY80: \$50,000	TOTAL: \$323,485
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Childs, M. E.	ARC/Lee, G.	41-Aero Engr
Gessner, F. B.		
<b>NGR 48-002-142</b>	<b>University of Washington</b>	<b>4330</b>
Analysis of continuum channel light curves		
<i>Period</i>	<i>Obligations</i>	
10/03/72-06/30/79	FY80:	TOTAL: \$107,031
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Greene, T. F.	HD-SL/Brunk, W. E.	11-Astronomy
<b>NSG 2176</b>	<b>University of Washington</b>	<b>4331</b>
Wind shear detection by total energy method for use in landing of aircraft		
<i>Period</i>	<i>Obligations</i>	
10/01/76-12/31/80	FY80:	TOTAL: \$100,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Joppa, R. G.	ARC/Greer, B.	41-Aero Engr
<b>NSG 2228</b>	<b>University of Washington</b>	<b>4332</b>
Stratospheric planetary waves		
<i>Period</i>	<i>Obligations</i>	
08/01/77-01/31/81	FY80	TOTAL \$295,106
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Holton, J. R.	ARC/Young, R. F.	31-Atmos Sci
Leovy, C. B.		
<b>NSG 2362</b>	<b>University of Washington</b>	<b>4333</b>
Direct measurement of extinction by stratospheric aerosols		
<i>Period</i>	<i>Obligations</i>	
01/01/79-12/31/80	FY80 \$74,611	TOTAL: \$109,778
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Charlson, R. J.	ARC/Page, W. A.	31-Atmos Sci
Waggoner, A. P.		
<b>NSG 2365</b>	<b>University of Washington</b>	<b>4334</b>
Configuration interaction		
<i>Period</i>	<i>Obligations</i>	
07/01/79-06/30/81	FY80 \$22,000	TOTAL: \$43,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Davidson, F. R.	ARC/Larghoff, S. R.	12-Chemistry
<b>NSG 3194</b>	<b>University of Washington</b>	<b>4335</b>
Stirling engine design manual		
<i>Period</i>	<i>Obligations</i>	
05/01/78-10/31/79	FY80:	TOTAL \$51,858
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Martini, W. R.	LERC/Valentine, H. H.	46-Mech Engr
	LERC/Tew, R. C.	
<b>NSG 3261</b>	<b>University of Washington</b>	<b>4336</b>
Design methods for shock-free cascades with future application to turbomachinery components		
<i>Period</i>	<i>Obligations</i>	
03/15/79-03/14/81	FY80: \$43,446	TOTAL: \$72,139
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Dixon, L. J.	LERC/Braun, W. H.	41-Aero Engr
Hertzberg, A.		
<b>NSG 5240</b>	<b>University of Washington</b>	<b>4337</b>
Line identification in A stars: Termination of hydrogen convection		
<i>Period</i>	<i>Obligations</i>	
03/01/78-10/31/79	FY80:	TOTAL: \$19,467
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bohm-vitense, E.	GSFC/Bogges, A.	11-Astronomy
	GSFC/West, D. K.	
<b>NSG 5283</b>	<b>University of Washington</b>	<b>4338</b>
Field-aligned particle fluxes and parallel electric potential		
<i>Period</i>	<i>Obligations</i>	
07/01/78-07/31/79	FY80:	TOTAL: \$21,732
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lin, C. S.	GSFC/Spencer, N. W.	31-Atmos Sci
<b>NSG 5374</b>	<b>University of Washington</b>	<b>4339</b>
Kinematics and physical conditions in shocked clouds in supernova remnants		
<i>Period</i>	<i>Obligations</i>	
06/01/79-09/30/81	FY80 \$14,465	TOTAL: \$31,647
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wallerstein, G.	GSFC/Bogges, A.	11-Astronomy
<b>NSG 5395</b>	<b>University of Washington</b>	<b>4340</b>
Ultraviolet observations of selected cataclysmic variables		
<i>Period</i>	<i>Obligations</i>	
07/01/79-05/31/81	FY80: \$10,000	TOTAL: \$19,604
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Szkody, P.	GSFC/Bogges, A.	11-Astronomy
<b>NSG 5398</b>	<b>University of Washington</b>	<b>4341</b>
Observations of classical stellar chromospheres		
<i>Period</i>	<i>Obligations</i>	
07/15/79-06/30/81	FY80: \$9,800	TOTAL \$18,800
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bohm-vitense, E.	GSFC/Bogges, A.	11-Astronomy
<b>NSG 5410</b>	<b>University of Washington</b>	<b>4342</b>
Studies of discrete electromagnetic emissions in the magnetosphere		
<i>Period</i>	<i>Obligations</i>	
09/15/79-03/14/81	FY80: \$22,418	TOTAL \$22,418
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lin, C. S.	GSFC/Wende, C.	11-Astronomy

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<b>NSG 7085</b>	<b>University of Washington</b>	<b>4343</b>	<b>NSG 9052</b>	<b>University of Washington</b>	<b>4350</b>
Dynamics of planetary atmospheres			A study of interplanetary dust		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
07/01/74-09/30/81	FY80: \$92,125	TOTAL: \$278,958	03/01/77-02/28/81	FY80: \$92,300	TOTAL: \$331,474
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Leovy, C. B.	HD-SL/Murphy, R. E.	31-Atmos Sci	Brownlee, D. E.	JSC/Harris, J. W.	31-Atmos Sci
	HD-SL/Brunk, W. E.				
<b>NSG 7173</b>	<b>University of Washington</b>	<b>4344</b>	<b>NAS 5-25994</b>	<b>Walla Walla College</b>	<b>4351</b>
Application of spectral reflectance of lunar samples to telescopic spectra of unvisited parts of the moon			Study of high-speed complex number algorithms		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
07/01/75-02/28/81	FY80:	TOTAL: \$184,453	01/21/80-01/21/81	FY80: \$15,905	TOTAL: \$15,905
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Adams, J. B.	HD-SL/Quaide, W. L.	32-Geological Sci	Heisler, R.	GSFC/Schmidt, R.	21-Mathematics
	HD-SL/French, B. M.				
<b>NSG 7313</b>	<b>University of Washington</b>	<b>4345</b>	<b>NCA 2-840001</b>	<b>Washington State University</b>	<b>4352</b>
Crystal-liquid distribution coefficients for selected elements			Joint use of facilities for establishing operational capabilities of Washington state agencies and municipalities in the use of image processing		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
03/01/77-02/28/81	FY80: \$49,795	TOTAL: \$167,903	04/01/80-04/01/81	FY80: \$25,000	TOTAL: \$25,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
McCallum, I. S.	HD-SL/Quaide, W. L.	32-Geological Sci	Krebs, L. T.	ARC/Wilson, D. E.	39-Env Sci, NEC
	HD-SL/French, B. F.		Scuderi, P. V.		
<b>NSG 7318</b>	<b>University of Washington</b>	<b>4346</b>	<b>NCA 2-840002</b>	<b>Washington State University</b>	<b>4353</b>
Analysis of data on very high energy galactic electrons			The physics and chemistry of supported metal clusters		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
12/01/76-11/30/81	FY80: \$25,000	TOTAL: \$93,061	06/01/80-05/31/82	FY80: \$30,000	TOTAL: \$30,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lord, J. J.	HD-SC/Gilman, D. A.	11-Astronomy	Dickinson, J. T.	ARC/Poppa, H. R.	13-Physics
	HD-SC/Opp, A. G.				
<b>NSG 7448</b>	<b>University of Washington</b>	<b>4347</b>	<b>NCA 2-840901</b>	<b>Washington State University</b>	<b>4354</b>
Mars spectral photometry and surface composition			Studies and applications of hydrogen mapping on surfaces		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
02/01/78-01/31/80	FY80:	TOTAL: \$41,326	03/01/79-02/28/81	FY80: \$20,000	TOTAL: \$40,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Adams, J. B.	HD-SL/Quaide, W. L.	32-Geological Sci	Dickinson, J. T.	ARC/Poppa, H. R.	13-Physics
	HD-SL/Dwornik, S.				
<b>NSG 7611</b>	<b>University of Washington</b>	<b>4348</b>	<b>NCC 2-69</b>	<b>Washington State University</b>	<b>4355</b>
Investigations of Martian meteorological processes using Viking meteorological data			The nucleation, growth, and in-situ oxidation of microscopic crystallites of transition metals on refractory oxide substrates		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
03/01/79-12/31/80	FY80: \$70,000	TOTAL: \$114,000	04/15/80-04/15/81	FY80: \$42,172	TOTAL: \$42,172
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Leovy, C. B.	HD-SL/Murphy, R. E.	31-Atmos Sci	Dickinson, J. T.	ARC/Poppa, H. R.	13-Physics
	HD-SL/Brunk, W. E.		Anton, R.		
<b>NSG 9032</b>	<b>University of Washington</b>	<b>4349</b>	<b>NSG 5383</b>	<b>Washington State University</b>	<b>4356</b>
Reflectance spectroscopy of lunar samples			Observations of planetary nebula shells and central stars		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
07/01/75-01/31/81	FY80: \$57,800	TOTAL: \$339,805	07/01/79-06/30/81	FY80: \$3,100	TOTAL: \$5,650
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Adams, J. B.	JSC/Harris, J. W.	32-Geological Sci	Lutz, J. H.	GSFC/Bogges, A.	11-Astronomy

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**NSG 7214**                      **Washington State University**                      **4357**  
 Atmospheric measurements of nitrous oxide and the halocarbons  

<i>Period</i>	<i>Obligations</i>	
02/01/76-03/02/81	FY80: \$60,000	TOTAL: \$292,168
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Cronn, D.	HD-EB/Toth, R. A.	31-Atmos Sci
Robinson, E.	HD-EB/Tilford, S. G.	

**NAG 8-319**                      **University of Wisconsin - Madison**                      **4364**  
 A study of soft X-ray absorption by dense interstellar clouds under the High Energy Astronomical Observatory-B guest investigator program  

<i>Period</i>	<i>Obligations</i>	
02/01/80-01/31/81	FY80: \$8,233	TOTAL: \$8,233
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kraushaar, W. L.	MSFC/Jones, J. B.	11-Astronomy
Sanders, W. T.		

**WISCONSIN**

**NAS 8-32901**                      **Beloit College**                      **4358**  
 Scientific investigations in support of the space telescope project  

<i>Period</i>	<i>Obligations</i>	
02/22/78-02/22/84	FY80:	TOTAL: \$102,965
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Schroeder, D. J.	MSFC/ODell, C. R.	11-Astronomy

**NAG 8-345**                      **University of Wisconsin - Madison**                      **4365**  
 Observations and analysis of X-ray emission AE/BE stars: simultaneous x-rays and ultraviolet observations of QB supergiants; search and analysis for X-ray emission from luminous early type stars  

<i>Period</i>	<i>Obligations</i>	
03/01/80-02/28/81	FY80: \$27,938	TOTAL: \$27,938
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Cassinelli, J. P.	MSFC/Jones, J. B.	11-Astronomy

**NAS 8-33355**                      **Beloit College**                      **4359**  
 Guest investigation of three young supernova remnants  

<i>Period</i>	<i>Obligations</i>	
06/15/79-06/14/81	FY80	TOTAL: \$6,922
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Winkler, P. F., Jr	MSFC/Jones, J. B., Jr.	11-Astronomy

**NAGW 47**                      **University of Wisconsin - Madison**                      **4366**  
 Interpretation of results from the Pioneer/ Venus net radiometer experiment  

<i>Period</i>	<i>Obligations</i>	
02/01/80-01/30/81	FY80: \$50,000	TOTAL: \$50,000
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Suomi, V. E.	HD-SL/Murphy, R. E.	31-Atmos Sci
	HD-SL/Brunk, W. E.	

**NAG 1-65**                      **Marquette University**                      **4360**  
 A new observer system for determining orientation of balloon-borne observational platforms  

<i>Period</i>	<i>Obligations</i>	
07/01/80-06/30/81	FY80: \$32,810	TOTAL: \$32,810
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Nigro, N. J.	LARC/Hinton, D.	

**NAS 1-14136**                      **University of Wisconsin - Madison**                      **4367**  
 Laser radar for meteorological measurements  

<i>Period</i>	<i>Obligations</i>	
09/11/75-01/31/81	FY80: \$166,425	TOTAL: \$785,979
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Eloranta, E.	LARC/Browell, E. V.	31-Atmos Sci
Parent, R. J.	LARC/Remsberg, E. E.	
Roesler, F. L.		

**NAS 9-15711**                      **Marquette University**                      **4361**  
 Alterations in skeletal muscle with disuse atrophy  

<i>Period</i>	<i>Obligations</i>	
09/21/78-03/01/81	FY80: \$40,000	TOTAL: \$115,000
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Fitts, R. H.	JSC/Smith, M. C., Jr.	59-Life Sci, NEC

**NAS 2-10359**                      **University of Wisconsin - Madison**                      **4368**  
 Dual photon absorptiometry system for ground based measurements of the lumbar spine in man  

<i>Period</i>	<i>Obligations</i>	
09/24/79-11/15/80	FY80:	TOTAL: \$30,047
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Mazess, R.	ARC/Young, D. R.	56-Medical Sciences

**NAG 5-23**                      **University of Wisconsin - Madison**                      **4362**  
 Analysis of three-dimensional thunderstorm model output in terms of geosynchronous satellite observations  

<i>Period</i>	<i>Obligations</i>	
03/01/80-03/14/81	FY80: \$20,806	TOTAL: \$20,806
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Schlesinger, R. F.	GSFC/Adler, R. F.	31-Atmos Sci

**NAS 5-21965**                      **University of Wisconsin - Madison**                      **4369**  
 Development of an IR temperature sounder for SMS spacecraft  

<i>Period</i>	<i>Obligations</i>	
08/01/73-10/15/81	FY80: \$786,797	TOTAL: \$2,506,330
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Suomi, V. E.	GSFC/Montgomery, H. E.	31-Atmos Sci

**NAG 5-81**                      **University of Wisconsin - Madison**                      **4363**  
 Resolution studies and energy diagnostics of global data and climate model simulation.  

<i>Period</i>	<i>Obligations</i>	
06/15/80-06/14/81	FY80: \$38,500	TOTAL: \$38,500
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Johnson, D. R.	GSFC/Atlas, R. M.	31-Atmos Sci



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**NAS 5-22349** University of Wisconsin - Madison 4370  
High resolution spectroscopy for a one meter class UV-optical  
telescope for Spacelab astronomy missions  
Period Obligations  
04/23/75-06/30/81 FY80: TOTAL: \$16,247  
Pnn Invest NASA Tech Officer CASE Category  
Anderson, C. M. GSFC/Eiband, A. M. 11-Astronomy

**NAS 5-25377** University of Wisconsin - Madison 4377  
A study on the meteorological significance of cloud tracked winds  
during data systems test 5 and 6  
Period Obligations  
12/27/78-01/26/81 FY80: TOTAL: \$28,160  
Pnn Invest NASA Tech Officer CASE Category  
Suomi, V. E. GSFC/Greaves, J. R. 31-Atmos Sci

**NAS 5-22410** University of Wisconsin - Madison 4371  
Reduction and analysis of data from OSO-1 soft X-ray background  
experiment  
Period Obligations  
06/26/75-03/31/81 FY80: TOTAL: \$682,537  
Pnn Invest NASA Tech Officer CASE Category  
Kraushaar, W. L. GSFC/Gemmell, J. D. 31-Atmos Sci

**NAS 5-25399** University of Wisconsin - Madison 4378  
Data systems test evaluation  
Period Obligations  
12/27/78-03/26/80 FY80: TOTAL: \$34,637  
Pnn Invest NASA Tech Officer CASE Category  
Johnson, D. R. GSFC/Greaves, J. R. 31-Atmos Sci  
Gallimore, R. G. GSFC/Stetina, F. L.

**NAS 5-23462** University of Wisconsin - Madison 4372  
Global atmospheric research project  
Period Obligations  
06/07/76-11/30/80 FY80 TOTAL: \$335,920  
Pnn Invest NASA Tech Officer CASE Category  
Suomi, V. E. GSFC/Greaves, J. R. 31-Atmos Sci

**NAS 5-25487** University of Wisconsin - Madison 4379  
Support to the space telescope wide field planetary camera  
development team  
Period Obligations  
02/01/79-10/30/80 FY80 \$28,590 TOTAL: \$41,126  
Pnn Invest NASA Tech Officer CASE Category  
Code, A. D. GSFC/Sours, W. 11-Astronomy

**NAS 5-23706** University of Wisconsin - Madison 4373  
Study of the economic benefits of meteorological satellite data  
Period Obligations  
08/30/76-01/31/81 FY80 \$74,862 TOTAL \$391,774  
Pnn Invest NASA Tech Officer CASE Category  
Suomi, V. E. GSFC/Hasler, A. F. 31-Atmos Sci

**NAS 5-25505** University of Wisconsin - Madison 4380  
Demonstration project to evaluate the opportunities for oper-  
ational applications of LANDSAT data  
Period Obligations  
03/23/79-07/22/80 FY80: TOTAL: \$9,860  
Pnn Invest NASA Tech Officer CASE Category  
Searpice, F. L. GSFC/Middleton, F. 39-Env Sci, NFC

**NAS 5-24385** University of Wisconsin - Madison 4374  
Operation of a biomedical applications team  
Period Obligations  
12/19/77-12/31/80 FY80 \$125,000 TOTAL \$570,000  
Pnn Invest NASA Tech Officer CASE Category  
Siedbank, M. P. GSFC/Friedman, D. S.  
Huston, N. F. 56-Medical Sciences

**NAS 5-25714** University of Wisconsin - Madison 4381  
Support of High Resolution Spectrograph (HRS)  
Period Obligations  
05/16/79-03/15/84 FY80: \$35,000 TOTAL: \$55,000  
Pnn Invest NASA Tech Officer CASE Category  
Savage, B. C. GSFC/Vitagliano, H. D. 11-Astronomy

**NAS 5-24487** University of Wisconsin - Madison 4375  
High speed photometer for the space telescope printer  
Period Obligations  
03/08/78-03/31/84 FY80: \$1,516,517 TOTAL: \$2,635,668  
Pnn Invest NASA Tech Officer CASE Category  
Bless, R. C. GSFC/White, R. A. 11-Astronomy

**NAS 5-25977** University of Wisconsin - Madison 4382  
Investigation of antarctic crust and upper mantle using Magsat  
and other geophysical data  
Period Obligations  
01/18/80-05/17/82 FY80: \$83,875 TOTAL: \$83,875  
Pnn Invest NASA Tech Officer CASE Category  
Bentley, C. R. GSFC/Oseroff, H. 32-Geological Sci

**NAS 5-25148** University of Wisconsin - Madison 4376  
Technical support to the first GARP global experiment special  
effort  
Period Obligations  
08/18/78-04/17/81 FY80: \$99,887 TOTAL: \$340,829  
Pnn Invest NASA Tech Officer CASE Category  
Suomi, V. E. GSFC/Greaves, J. R. 31-Atmos Sci

**NAS 5-26055** University of Wisconsin - Madison 4383  
Generate an investigation development plan and establish the  
preliminary interface for the Wisconsin ultraviolet photoelectric  
polarimeter experiment  
Period Obligations  
02/29/80-02/28/81 FY80: \$54,996 TOTAL: \$54,996  
Pnn Invest NASA Tech Officer CASE Category  
Code, A. D. GSFC/Eiband, A. M. 11-Astronomy

**NASA'S UNIVERSITY PROGRAM  
WISCONSIN (Continued)**

**NAS 5-26078** University of Wisconsin - Madison 4384  
Generate an investigation development plan and establish preliminary interfaces for the diffuse soft X-ray Bragg spectrometer

<i>Period</i>	<i>Obligations</i>	
03/10/80-05/09/81	FY80: \$218,364	TOTAL: \$218,364
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kraushaar, W. L.	GSFC/Campbell, C. E.	11-Astronomy

**NAS 5-26142** University of Wisconsin - Madison 4385  
Partially scanned interferometer sounding technique

<i>Period</i>	<i>Obligations</i>	
06/26/80-06/26/81	FY80: \$71,103	TOTAL: \$71,103
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Smith, W. L.	GSFC/Hurley, E. J.	31-Atmos Sci

**NAS 5-26345** University of Wisconsin - Madison 4386  
Study climate observing system requirements and capability assessments

<i>Period</i>	<i>Obligations</i>	
09/25/80-09/24/81	FY80: \$39,946	TOTAL: \$39,946
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Suomi, V. E.	GSFC/Thiele, O. W.	39-Env Sci, NEC

**NAS 8-33222** University of Wisconsin - Madison 4387  
Diagnostics of severe convection and sub synoptic scale ageostrophic circulations

<i>Period</i>	<i>Obligations</i>	
06/01/79-10/31/80	FY80: \$78,488	TOTAL: \$78,488
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Johnson, D. R.	MSFC/Turner, R. E.	31-Atmos Sci
	MSFC/Johnson, R.	

**NAS 8-33340** University of Wisconsin - Madison 4388  
Search and analysis of the X-ray emission from luminous type stars

<i>Period</i>	<i>Obligations</i>	
02/06/79-02/05/80	FY80: \$11,960	TOTAL: \$11,960
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Cassinelli, J. P.	MSFC/Jones, J. B., Jr	11-Astronomy

**NAS 8-33799** University of Wisconsin - Madison 4389  
Application of the AVE-SESAME data set to mesoscale studies

<i>Period</i>	<i>Obligations</i>	
05/13/80-05/12/81	FY80: \$48,529	TOTAL: \$48,529
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Suchman, D.	MSFC/Turner, R. E.	31-Atmos Sci
Wash, C. H.	MSFC/Hill, C. K.	

**NAS 9-15580** University of Wisconsin - Madison 4390  
Vitamin D metabolites and bone demineralization

<i>Period</i>	<i>Obligations</i>	
04/01/78-10/01/81	FY80: \$50,000	TOTAL: \$165,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Schnoes, H. K.	JSC/Cintron, N. M.	56-Medical Sciences
Holton, E. M.		
Deluca, H. F.		

**NGL 50-002-013** University of Wisconsin - Madison 4391  
Investigations and studies of ultraviolet stellar spectra and associated instrumentation

<i>Period</i>	<i>Obligations</i>	
05/20/64-04/30/81	FY80: \$44,000	TOTAL: \$2,861,490
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Code, A. D.	GSFC/Guidotti, T.	11-Astronomy

**NGL 50-002-044** University of Wisconsin - Madison 4392  
Research in cosmic and solar physics

<i>Period</i>	<i>Obligations</i>	
10/25/65-12/31/82	FY80: \$180,000	TOTAL: \$2,532,626
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kraushaar, W. L.	GSFC/Bissell, E. E.	11-Astronomy
	HD-SC/Opp, A. G.	

**NGL 50-002-127** University of Wisconsin - Madison 4393  
Multidisciplinary research in space science and engineering

<i>Period</i>	<i>Obligations</i>	
12/19/69-07/31/81	FY80: \$1,737,000	TOTAL: \$1,737,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Clapp, J. L.	HD-ET/Vitale, J. J.	39-Env Sci, NEC

**NGR 50-002-051** University of Wisconsin - Madison 4394  
Applications of the direct photon absorption techniques for measuring bone-mineral content

<i>Period</i>	<i>Obligations</i>	
09/01/66-10/31/80	FY80: \$25,005	TOTAL: \$656,269
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Mazess, R.	ARC/Young, D. R.	56-Medical Sciences
Cameron, J. R.		

**NGR 50-002-162** University of Wisconsin - Madison 4395  
Solar wind physics

<i>Period</i>	<i>Obligations</i>	
01/26/71-12/31/80	FY80: \$21,000	TOTAL: \$398,463
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Scherb, F.	HD-ST/Hedin, A. E.	13-Physics
	HD-ST/Scmerling, E. R.	

**NGR 50-002-189** University of Wisconsin - Madison 4396  
Cloud image processing for planetary flybys

<i>Period</i>	<i>Obligations</i>	
01/19/72-09/30/80	FY80: \$158,083	TOTAL: \$158,083
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Suomi, V. E.	HD-SL/Murphy, R. E.	31-Atmos Sci

**NSG 2104** University of Wisconsin - Madison 4397  
Viral etiology and epidemiology of respiratory infection in an isolated antarctic station

<i>Period</i>	<i>Obligations</i>	
09/01/75-11/30/80	FY80: \$30,000	TOTAL: \$180,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Benton, G.	ARC/Mandel, A.D.	56-Medical Sciences

**NASA'S UNIVERSITY PROGRAM  
WISCONSIN (Continued)**

**NSG 2405** University of Wisconsin - Madison 4398  
 Definition of plant characteristics for controlled ecology life support system and study of physiological injuries to plants anticipated in controlled ecology life support system

<i>Period</i>	<i>Obligations</i>	
09/01/79-05/30/81	FY80: \$36,791	TOTAL: \$76,646
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Tibbitts, T. W.	ARC/Zill, L. P.	51-Biological Sci

**NSG 5251** University of Wisconsin - Madison 4404  
 Investigation of computer processing method of multiple geostationary satellite transmissions for cloud height determination

<i>Period</i>	<i>Obligations</i>	
03/01/78-03/31/80	FY80: \$34,864	TOTAL: \$34,864
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Suomi, V. E.	GSFC/Minzner, R. A.	31-Atmos Sci
Sremier, F. G.	GSFC/Shenk, W. E.	

**NSG 5152** University of Wisconsin - Madison 4399  
 Research of clouds and ice in the planetary scale circulation and in climate

<i>Period</i>	<i>Obligations</i>	
01/01/77-01/31/83	FY80: \$61,235	TOTAL: \$262,874
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kutzbach, J. E.	GSFC/Halem, M.	31-Atmos Sci
Suomi, V. E.		

**NSG 5252** University of Wisconsin - Madison 4405  
 Optimum employment of satellite

<i>Period</i>	<i>Obligations</i>	
03/15/78-04/14/81	FY80: \$62,503	TOTAL: \$123,995
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Horn, L. H.	GSFC/Halem, M.	31-Atmos Sci

**NSG 5181** University of Wisconsin - Madison 4400  
 A source of interstellar abundances/ultraviolet studies of the interstellar medium, hot stars and cosmic X-ray sources

<i>Period</i>	<i>Obligations</i>	
07/01/77-06/30/79	FY80: \$17,454	TOTAL: \$17,454
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Savage, B. D.	GSFC/Kupperian, J. E., Jr	11-Astronomy

**NSG 5363** University of Wisconsin - Madison 4406  
 Studies of the ultraviolet spectra of astronomical sources

<i>Period</i>	<i>Obligations</i>	
06/01/79-11/30/80	FY80: \$75,431	TOTAL: \$107,660
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Code, A. D.	GSFC/Boggess, A.	11-Astronomy
Savage, B. D.		
Doherty, L. R.		

**NSG 5223** University of Wisconsin - Madison 4401  
 Research of the effect of synoptic scale processes in global circulation models modelling

<i>Period</i>	<i>Obligations</i>	
01/16/78-11/14/80	FY80: \$52,330	TOTAL: \$142,500
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Herman, G. F.	GSFC/Halem, M.	31-Atmos Sci
Johnson, D. R.		

**NSG 7050** University of Wisconsin - Madison 4407  
 Data analysis of OAO-2 ultraviolet spectrophotometry

<i>Period</i>	<i>Obligations</i>	
07/01/74-09/30/80	FY80: \$421,267	TOTAL: \$421,267
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Code, A. D.	HD-SC/Weiler, E. J.	11-Astronomy
	HD-SC/Roman, N. G.	

**NSG 5241** University of Wisconsin - Madison 4402  
 Interstellar Lyman alpha observations with the IUE satellite

<i>Period</i>	<i>Obligations</i>	
02/15/78-02/14/80	FY80: \$23,361	TOTAL: \$23,361
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Savage, B. D.	GSFC/Boggess, A.	11-Astronomy
	GSFC/West, D. K.	

**NSG 7215** University of Wisconsin - Madison 4408  
 Vacuum ultraviolet photon excitation and electron ejection from surfaces

<i>Period</i>	<i>Obligations</i>	
02/01/76-01/31/80	FY80: \$132,555	TOTAL: \$132,555
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Taylor, J. W.	HD-SL/Quaide, W. L.	32-Geological Sci
	HD-SL/French, B. E.	

**NSG 5242** University of Wisconsin - Madison 4403  
 High resolution spectral observations IUF

<i>Period</i>	<i>Obligations</i>	
02/15/78-02/14/80	FY80: \$15,646	TOTAL: \$15,646
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Doherty, L. R.	GSFC/Boggess, A.	11-Astronomy
	GSFC/West, D. K.	

**NSG 7521** University of Wisconsin - Madison 4409  
 Origin of bacteria

<i>Period</i>	<i>Obligations</i>	
01/01/79-12/31/80	FY80: \$41,300	TOTAL: \$82,550
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Fitch, W. M.	HD-SB/Devincenzi, D. L.	51-Biological Sci

**NASA'S UNIVERSITY PROGRAM  
WYOMING**

**WYOMING**

**NAG 2-33** University of Wyoming **4410**  
 Carbonyl sulfide: An analysis of measurement techniques and  
 determination of the stratospheric profile  
*Period* *Obligations*  
 02/15/80-05/14/81 FY80: \$35,000 TOTAL: \$35,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Hofmann, D. J. ARC/Page, W. A. 31-Atmos Sci  
 Rinehart, E. A.

**NAS 1-14373** University of Wyoming **4411**  
 Science support for the Nimbus G stratospheric aerosol measure-  
 ment experiment  
*Period* *Obligations*  
 04/02/76-12/31/79 FY80: TOTAL: \$211,131  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Pepin, T. J. LARC/McCormick, M. P. 31-Atmos Sci  
 LARC/McMaster, L. R.

**NAS 1-14931** University of Wyoming **4412**  
 Stratospheric aerosol and gas experiment  
*Period* *Obligations*  
 07/19/77-06/30/80 FY80: \$59,684 TOTAL: \$119,684  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Pepin, T. J. LARC/McMaster, L. R. 31-Atmos Sci  
 LARC/McCormick, M. P.

**NAS 1-15377** University of Wyoming **4413**  
 Balloon-borne aerosol measurements. Ground truth for SAM  
 II  
*Period* *Obligations*  
 05/04/78-12/31/80 FY80: \$29,925 TOTAL: \$109,725  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Hofmann, D. J. LARC/McMaster, L. R. 31-Atmos Sci  
 Rosen, J. M. LARC/McCormick, M. P.

**NAS 1-16305** University of Wyoming **4414**  
 Science support for Earth radiation budget satellite/stratospheric  
 aerosol and gas experiment  
*Period* *Obligations*  
 06/27/80-06/26/85 FY80: \$40,540 TOTAL: \$40,540  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Pepin, T. J. LARC/McMaster, L. R. 31-Atmos Sci  
 LARC/McCormick, M. P.

**NAS 8-32486** University of Wyoming **4415**  
 Space processing applications rocket: Charged water-drop  
 oscillations  
*Period* *Obligations*  
 04/30/77-03/29/80 FY80: TOTAL: \$25,307  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Saunders, C. MSFC/Rceves, F. A. 47-Materials Engr  
 MSFC/Chassay, R. P.

**NAS 8-33150** University of Wyoming **4416**  
 Atmospheric cloud physics laboratory ice forming experiment  
 preliminary definition  
*Period* *Obligations*  
 08/07/78-05/31/81 FY80: \$47,026 TOTAL: \$90,238  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Vali, G. MSFC/Smith, R. E. 31-Atmos Sci  
 MSFC/Keller, V. W.

**NSG 1518** University of Wyoming **4417**  
 Preliminary aerosol measurement (PAM II) data reduction  
*Period* *Obligations*  
 04/15/78-07/14/80 FY80: TOTAL: \$133,825  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Pepin, T. J. LARC/McMaster, L. R. 31-Atmos Sci  
 LARC/McCormick, M. P.

**NSG 3217** University of Wyoming **4418**  
 Energy absorption mechanisms during crack propagation in metal  
 matrix composites  
*Period* *Obligations*  
 08/01/78-07/30/81 FY80: \$38,556 TOTAL: \$103,810  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Adams, D. F. LERC/Dicarlo, J. A. 47-Materials Engr  
 LERC/Grimes, H. H.

**NSG 7349** University of Wyoming **4419**  
 Measurements of the natural background of condensation nuclei  
 at high altitude for assessment of future space shuttle effluent  
 effect  
*Period* *Obligations*  
 07/01/77-06/30/80 FY80: TOTAL: \$153,985  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Hofmann, D. J. HD-EB/Kakar, R. K. 31-Atmos Sci  
 Rosen, J. M. HD-EB/Seals, R. K., Jr.

**PUERTO RICO**

**NAS 5-25844** University of Puerto Rico - Mayaguez **4420**  
 Computerized safety information system for GSFC's Health and  
 Safety Engineering Office  
*Period* *Obligations*  
 07/05/79-09/14/80 FY80: TOTAL: \$17,318  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Cabassa, H. D. GSFC/Lopez, J. J. 49-Engr, NEC

**NASA'S UNIVERSITY PROGRAM  
CANADA**

**CANADA**

**NSG 7409** University of Toronto **4421**  
Application of the cubic strength criterion to the failure analysis of composite structures

<i>Period</i>	<i>Obligations</i>	
03/01/78-05/31/82	FY80	TOTAL \$22,880
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Tennyson, R. C.	LARC/Baker, D. J.	47-Materials Engr
	LARC/Pride, R. A.	

**NSG 7647** University of Toronto **4422**  
Electron beam charging and arc discharging of spacecraft insulating materials

<i>Period</i>	<i>Obligations</i>	
10/01/79-09/30/80	FY80: \$52,472	TOTAL \$52,472
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Balmain, K. G.	LERC/Aron, P. R.	45-Elec Engr

**NSG 7223** York University **4423**  
Studies of the spectrum chlorine monoxide in the stratosphere

<i>Period</i>	<i>Obligations</i>	
05/01/76-04/30/80	FY80 \$40,000	TOTAL \$200,234
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Nicholls, R. W.	ARC/Cooper, D. M.	31-Atmos Sci
	ARC/Arnold, J. O.	

**CHILE**

**NAS 5-1925** University of Chile **4424**  
Maintenance and operation of minitrack facilities

<i>Period</i>	<i>Obligations</i>	
09/21/62-10/31/81	FY80 \$5,484,139	TOTAL \$39,916,976
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Diaz, I.	GSFC/Force, C. A.	99-Multi-Discip
	GSFC/Spintman, D.	

**GREAT BRITAIN**

**NASW 3001** University of Oxford **4425**  
Nimbus type pressure modular drive

<i>Period</i>	<i>Obligations</i>	
11/01/79-01/31/80	FY80: \$14,950	TOTAL \$14,950
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Unavailable	LARC/Hinton, D.	45-Elec Engr

**NSG 7517** University of Sheffield **4426**  
Vaporization of droplets in premixing chambers

<i>Period</i>	<i>Obligations</i>	
10/01/78-09/30/80	FY80:	TOTAL: \$50,000
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Chigier, N. A.	LERC/Lyons, V. J.	43-Chem Engr

**NSG 7172** University of Southampton **4427**  
Self-streamlining of the test section of a transonic wind tunnel

<i>Period</i>	<i>Obligations</i>	
10/01/75-07/31/80	FY80: \$66,240	TOTAL: \$221,026
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Goodyer, M. J.	LARC/Kilgore, R. A.	41-Aero Engr
	LARC/Ladson, C. L.	

**NSG 7523** University of Southampton **4428**  
Investigations into the technology required to raise reliability levels of magnetic suspension system

<i>Period</i>	<i>Obligations</i>	
01/01/79-08/31/81	FY80: \$54,590	TOTAL: \$64,390
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Goodyer, M. J.	LARC/Boyden, R. P.	41-Aero Engr
	LARC/Kilgore, R. A.	

**ISRAEL**

**NSG 7373** Israel Institute of Technology **4429**  
Study of active control systems for application to supersonic cruise aircraft

<i>Period</i>	<i>Obligations</i>	
11/01/77-10/31/80	FY80:	TOTAL: \$41,707
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Nissim, E.	LARC/Abel, I.	41-Aero Engr
	LARC/Sobieski, J.	

**ITALY**

**NASW 2135** University of Rome **4430**  
Back-up data acquisition

<i>Period</i>	<i>Obligations</i>	
10/21/71-06/30/80	FY80: \$400,000	TOTAL: \$615,455
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Broglio, L.	HD-TN/Bavely, J. C.	11-Astronomy
	HD-TN/Stockwell, F. J.	

# NASA'S UNIVERSITY PROGRAM

## APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

The Fields used here are specified by Amendment J, "Standard Classification of Fields of Science and Engineering," to Office of Management and Budget (OMB) Circular A-46, "Standards for Statistical Surveys." Field codes are interpreted as follows:

<b>PHYSICAL SCIENCES</b> 11 ASTRONOMY 12 CHEMISTRY 13 PHYSICS 19 PHYSICAL SCIENCES, NEC*	<b>ENVIRONMENTAL SCIENCES</b> <i>(Terrestrial and extraterrestrial)</i> 31 ATMOSPHERIC SCIENCES 32 GEOLOGICAL SCIENCES 33 OCEANOGRAPHY 39 ENVIRONMENTAL SCIENCES, NEC*	<b>LIFE SCIENCES</b> 51 BIOLOGICAL SCIENCES 52 CLINICAL MEDICAL 53 OTHER MEDICAL 54 ENVIRONMENTAL BIOLOGY 55 AGRICULTURAL SCIENCES 56 MEDICAL SCIENCES 59 LIFE SCIENCES, NEC*	<b>SOCIAL SCIENCES</b> 71 ANTHROPOLOGY 72 ECONOMICS 73 HISTORY 74 LINGUISTICS 75 POLITICAL SCIENCE 76 SOCIOLOGY 79 SOCIAL SCIENCE, NEC*
<b>ENGINEERING</b>			
<b>MATHEMATICAL/COMP SCI</b> 21 MATHEMATICS 22 COMPUTER SCIENCES 29 MATHEMATICAL COMPUTER SCIENCES, NEC*	41 AERONAUTICAL 42 ASTRONAUTICAL 43 CHEMICAL 44 CIVIL 45 ELECTRICAL 46 MECHANICAL 47 METALLURGY AND MATERIALS 49 ENGINEERING, NEC*	<b>PSYCHOLOGY</b> 61 BIOLOGICAL 62 SOCIAL ASPECTS 69 PSYCHOLOGY, NEC*	<b>OTHER SCIENCES**</b> 99 ALL DISCIPLINE(S)

\*Not Elsewhere Classified (For interdisciplinary projects and others not listed by discipline name)  
 \*\*For interdisciplinary projects which cannot be classified within any of the preceding main fields

Abbreviations used in the "Technical Officer Locations" column are discussed in the prefatory pages.

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
11	AMHERST COLLEGE	Jones, J. B.	MSFC	Greenstein, G.	NAG 8-330	2619
11	BELOIT COLLEGE	ODell, C. R.	MSFC	Schroeder, D. J.	NAS 8-32901	4358
11	BELOIT COLLEGE	Jones, J. B., Jr	MSFC	Winkler, P. F., Jr.	NAS 8-33355	4359
11	BOSTON UNIVERSITY	Bogges, A.	GSFC	Kamp, L. W.	NAS 5-25445	2622
11	BOSTON UNIVERSITY	Leckrone, D. S.	GSFC	Kamp, L. W.	NSG 5389	2630
11	BOSTON UNIVERSITY	Corrigan, J. P.	GSFC	Hughes, W. J.	NSG 5407	2631
11	BOWIE STATE COLLEGE	Kniffen, D. A	GSFC	Walker, R. P.	NGR 21-027-001	2472
11	BOWLING GRN STATE U	Bogges, A	GSFC	Gregory, S.	NAG 5-64	3401
11	BRANDEIS UNIVERSITY	Jones, J. B., Jr.	MSFC	Ghigo, F. D.	NAS 8-33343	2633
11	BRIGHAM YOUNG UNIV	Bogges, A.	GSFC	McNamara, D. H.	NAG 5-62	4080
11	CALIF INST OF TECH	Haughney, L. C.	ARC	Phillips, T. G.	NAG 2-1	1202
11	CALIF INST OF TECH	Haughney, L. C.	ARC	Werner, M. W.	NGR 05-002-281	1243
11	CALIF INST OF TECH	Haughney, L. C.	ARC	Soifer, B. T.	NSG 2413	1249
11	CALIF INST OF TECH	Bogges, A	GSFC	Sargent, W. L.	NAG 5-4	1204
11	CALIF INST OF TECH	Bogges, A.	GSFC	Soifer, B. T.	NAG 5-47	1205
11	CALIF INST OF TECH	Bogges, A.	GSFC	Trauger, J. T.	NAG 5-66	1206
11	CALIF INST OF TECH	Bogges, A	GSFC	Cohen, J. G.	NAG 5-68	1207
11	CALIF INST OF TECH	Neupert, W. M	GSFC	Zirin, H.	NAS 5-22939	1217
11	CALIF INST OF TECH	Sours, W. P.	GSFC	Westphal, J	NAS 5-25451	1220
11	CALIF INST OF TECH	Corrigan, J. P.	GSFC	Stone, E. C.	NAS 5-25789	1221
11	CALIF INST OF TECH	Guidotti, J.	GSFC	Garmire, G. P.	NGR 05-002-284	1244
11	CALIF INST OF TECH	Kupperian, J. E., Jr.	GSFC	Neugebauer, G.	NSG 5208	1250
11	CALIF INST OF TECH	Bogges, A.	GSFC	Greenstein, J. L.	NSG 5243	1252
11	CALIF INST OF TECH	Bogges, A	GSFC	Schmidt, M.	NSG 5244	1253
11	CALIF INST OF TECH	Bogges, A.	GSFC	Sargent, W. L.	NSG 5369	1258
11	CALIF INST OF TECH	Bogges, A.	GSFC	Greenstein, J. L.	NSG 5381	1259
11	CALIF INST OF TECH	Bogges, A.	GSFC	Meier, D. L.	NSG 5384	1260
11	CALIF INST OF TECH	Bogges, A.	GSFC	Green, R. F.	NSG 5385	1261
11	CALIF INST OF TECH	Jones, J. B.	MSFC	Zirin, H.	NAG 8-304	1208
11	CALIF INST OF TECH	Jones, J. B.	MSFC	Zirin, H.	NAG 8-313	1209

APPENDIX

**NASA'S UNIVERSITY PROGRAM  
APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING**

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
11	CALIF INST OF TECH	Jones, J. B.	MSFC	Decampli, W. D.	NAG 8-322	1210
11	CALIF INST OF TECH	Jones, J. B.	MSFC	Garmire, G. P.	NAG 8-324	1211
11	CALIF INST OF TECH	Stone, J. F.	MSFC	Garmire, G. P.	NAG 8-374	1212
11	CALIF INST OF TECH	Stone, J. F.	MSFC	Pravdo, S. H.	NAG 8-376	1213
11	CALIF INST OF TECH	Stone, J. F.	MSFC	Stone, E. C.	NAS 8-27978	1222
11	CALIF INST OF TECH	Jones, J. B.	MSFC	Garmire, G. P.	NAS 8-33331	1226
11	CALIF INST OF TECH	Jones, J. B.	MSFC	Garmire, G. P.	NAS 8-33352	1227
11	CALIF INST OF TECH	Roman, N. G.	HD-SC	Oke, J. B.	NGL 05-002-134	1234
11	CALIF INST OF TECH	Bogges, N. W.	HD-SC	Neugebauer, G.	NGL 05-002-207	1238
11	CALIF INST OF TECH	Kaluzienski, L. J.	HD-SC	Vogt, R. E.	NGR 05-002-160	1241
11	CALIF INST OF TECH	Roman, N. G.	HD-SC	Thorne, K. S.	NGR 05-002-256	1242
11	CALIF INST OF TECH	Roman, N. G.	HD-SC	Mashhoon, B.	NSG 7495	1269
11	CALIF INST OF TECH	Brunk, W. F.	HD-SL	Muhleman, D. O.	NGL 05-002-003	1230
11	CALIF INST OF TECH	Brunk, W. E.	HD-SL	Goldreich, P.	NGL 05-002-140	1235
11	CALIF INST OF TECH	Brunk, W. E.	HD-SL	Muhleman, D. O.	NGR 05-002-114	1240
11	CALIF INST OF TECH	Quaide, W. L.	HD-SL	Neugebauer, M. G.	NSG 7635	1273
11	CALIF INST OF TECH	Chipman, E.	HD-ST	Zirin, H.	NGL 05-002-034	1231
11	CASE WESTERN RESERVE	Gilman, D. A.	HD-SC	Frye, G.	NASW 3404	3428
11	CITADEL MLTRY CO S C	Bogges, A.	GSFC	Adelman, S. J.	NSG 5420	3791
11	CITY COLLEGE OF N Y	Black, D. C.	ARC	Yuan, C.	NSG 2348	3152
11	CITY COLLEGE OF N Y	Canuto, V.	GSFC	Arons, M.	NGL 33-013-040	3149
11	COLUMBIA UNIVERSITY	Gemmell, J. D.	GSFC	Novick, R.	NAS 5-24152	3166
11	COLUMBIA UNIVERSITY	Eiband, A. M.	GSFC	Novick, R.	NAS 5-24457	3167
11	COLUMBIA UNIVERSITY	Underwood, C.	GSFC	Novick, R.	NAS 5-26041	3171
11	COLUMBIA UNIVERSITY	Guidotti, J.	GSFC	Novick, R.	NGR 33-008-102	3180
11	COLUMBIA UNIVERSITY	Thaddeus, P.	GSFC	Happner, W.	NSG 5163	3186
11	COLUMBIA UNIVERSITY	Kupperian, J. E., Jr.	GSFC	Novick, R.	NSG 5194	3187
11	COLUMBIA UNIVERSITY	Jones, J. B.	MSFC	Novick, R.	NAS 8-30753	3172
11	COLUMBIA UNIVERSITY	Dailey, C. C.	MSFC	Novick, R.	NAS 8-33085	3174
11	COLUMBIA UNIVERSITY	Kaluzienski, L. J.	HD-SC	Novick, R.	NAGW 18	3164
11	COLUMBIA UNIVERSITY	Bogges, N. W.	HD-SC	Flynn, G.	NSG 7105	3190
11	CORNELL UNIVERSITY	Erickson, F. F.	ARC	Harwit, M.	NCA 2-175002	3206
11	CORNELL UNIVERSITY	Lum, H.	ARC	Houck, J. R.	NCC 2-79	3207
11	CORNELL UNIVERSITY	Haughney, L. C.	ARC	Houck, J. R.	NGR 33-010-081	3213
11	CORNELL UNIVERSITY	Mason, R. H.	ARC	Harwit, M.	NGR 33-010-146	3216
11	CORNELL UNIVERSITY	Cameron, R. M.	ARC	Houck, J. R.	NGR 33-010-182	3218
11	CORNELL UNIVERSITY	Haughney, L. C.	ARC	Harwit, M.	NSG 2347	3222
11	CORNELL UNIVERSITY	Haughney, L. C.	ARC	Beckwith, R.	NSG 2412	3226
11	CORNELL UNIVERSITY	Cohen, S. C.	GSFC	Turcott, R.	NCC 5 2	3208
11	CORNELL UNIVERSITY	Bogges, N. W.	HD-SC	Houck, J.	NSG 7324	3233
11	CORNELL UNIVERSITY	Brunk, W. F.	HD-SL	Veverka, J.	NSG 7126	3236
11	DARTMOUTH COLLEGE	Jones, J. B.	MSFC	Mook, D. F.	NAG 8-305	3039
11	FLORIDA STATE UNIV	Brunk, W. F.	HD-SL	Hunt, R. H.	NGR 10-004-056	2036
11	GEORGE MASON UNIV	Michaltsianos, A. G.	GSFC	Kafatos, M.	NAG 5-124	4137
11	GEORGE MASON UNIV	Hobbs, R. W.	GSFC	Kafatos, M.	NSG 5305	4138
11	GEORGE MASON UNIV	Bogges, A.	GSFC	Michaltsianos, A. G.	NSG 5371	4139
11	GEORGE MASON UNIV	Gull, T. R.	GSFC	Kafatos, M.	NSG 5403	4140
11	HARVARD UNIVERSITY	Bogges, A.	GSFC	Grindlay, J. F.	NAG 5-72	2637
11	HARVARD UNIVERSITY	Kupperian, J. E., Jr.	GSFC	Dupree, A. K.	NSG 5226	2666
11	HARVARD UNIVERSITY	Bogges, A.	GSFC	Dupree, A. K.	NSG 5229	2668
11	HARVARD UNIVERSITY	Bogges, A.	GSFC	Dupree, A. K.	NSG 5239	2669
11	HARVARD UNIVERSITY	Kupperian, J. E., Jr.	GSFC	Dupree, A. K.	NSG 5293	2670
11	HARVARD UNIVERSITY	Kupperian, J. E., Jr.	GSFC	Dupree, A. K.	NSG 5312	2671
11	HARVARD UNIVERSITY	Bogges, A.	GSFC	Dupree, A. K.	NSG 5370	2672
11	HARVARD UNIVERSITY	Bogges, A.	GSFC	Dupree, A. K.	NSG 5380	2673
11	HARVARD UNIVERSITY	Jones, J. B.	MSFC	Rosner, R.	NAG 8-302	2638
11	HARVARD UNIVERSITY	Jones, J. B.	MSFC	Dupree, A. K.	NAG 8-344	2639
11	HARVARD UNIVERSITY	Snoddy, W. C.	MSFC	Hughes, B. M.	NAS 5-3949	2643

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FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH		AGREEMENT NUMBER	ACC NO.
			OFF LOC	FIRST PRINCIPAL INVESTIGATOR		
11	HARVARD UNIVERSITY	Bogger, N. W.	HD-SC	Fazio, G. G.	NGR 22-007-270	2660
11	HARVARD UNIVERSITY	Kaluzenski, L. J.	HD-SC	Cameron, A. G.	NGR 22-007-272	2661
11	HARVARD UNIVERSITY	Brunk, W. E.	HD-SL	Goody, R. M.	NSG 7332	2677
11	HARVARD UNIVERSITY	Bohlin, J. D.	HD-ST	Parkinson, W. H.	NGR 22-007-202	2658
11	HARVARD UNIVERSITY	Bohlin, J. D.	HD-ST	Parkinson, W. H.	NSG 7461	2678
11	HOUSTON BAPTIST UNIV	Kondo, Y.	GSFC	Modjette, J. L.	NSG 5421	3864
11	HOUSTON BAPTIST UNIV	Potter, A.	JSC	Morgan, T. H.	NSG 9038	3865
11	HOWARD UNIVERSITY	Bogges, A.	GSFC	Jackson, W. M.	NAG 5-65	1997
11	HOWARD UNIVERSITY	Stone, J. F.	MSFC	Kumar, C. K.	NAG 8-371	1999
11	INDIANA U-BLOOMINGTN	Hobbs, R. W.	GSFC	Burkhead, M. S.	NAS 5-22987	2278
11	INDIANA U-BLOOMINGTN	Jones, J. B.	MSFC	Mufson, S. L.	NAG 8-331	2273
11	INDIANA U-BLOOMINGTN	Stone, J. F.	MSFC	Durisen, R. H.	NAG 8-362	2274
11	INDIANA U-BLOOMINGTN	Stone, J. F.	MSFC	Mufson, S. L.	NAG 8-365	2275
11	INDIANA U-BLOOMINGTN	Dailey, C. C.	MSFC	Mufson, S. L.	NAS 8-33087	2279
11	INDIANA U-BLOOMINGTN	Brunk, W. E.	HD-SL	Edmondson, F. K.	NAGW 98	2277
11	IOWA STATE UNIV	Jones, T. B.	MSFC	Lamb, R. C.	NAG 8-338	2332
11	IOWA STATE UNIV	Swearingen, J. C.	MSFC	Lamb, R. C.	NAG 8-360	2333
11	IOWA STATE UNIV	Dailey, C. C.	MSFC	Lamb, R. C.	NAS 8-33013	2334
11	IOWA STATE UNIV	Jones, J. B., Jr.	MSFC	Lamb, R. C.	NAS 8-33334	2335
11	JOHNS HOPKINS UNIV	Eiband, A. M.	GSFC	Davidson, A.	NAS 5-26057	2485
11	JOHNS HOPKINS UNIV	Guidotti, J.	GSFC	Fastie, W. G.	NGR 21-001-001	2496
11	JOHNS HOPKINS UNIV	Bogges, A.	GSFC	Moos, H. W.	NSG 5255	2502
11	JOHNS HOPKINS UNIV	Kupperman, J. E., Jr.	GSFC	Moos, H. W.	NSG 5310	2504
11	JOHNS HOPKINS UNIV	Bogges, A.	GSFC	Moos, H. W.	NSG 5393	2505
11	JOHNS HOPKINS UNIV	ODell, C. R.	MSFC	Fastie, W. G.	NAS 8-32903	2489
11	JOHNS HOPKINS UNIV	Weiler, E. J.	HD-SC	Davidson, A. F.	NSG 7449	2508
11	JOHNS HOPKINS UNIV	Murphy, R. E.	HD-SL	Feldman, P. D.	NSG 7382	2507
11	LEHIGH UNIVERSITY	Bogges, A.	GSFC	McCluskey, G. E.	NSG 5386	3683
11	LEHIGH UNIVERSITY	Potter, A.	JSC	McCluskey, G. E.	NGR 39-007-061	3680
11	LEHIGH UNIVERSITY	Swearingen, J. C.	MSFC	McCluskey, G. E.	NAG 8-355	3673
11	LA ST U&A&M COL-BRGE	Sofia, S.	GSFC	Endal, A. S.	NAG 5-13	2445
11	LA ST U&A&M COL-BRGE	Bogges, A.	GSFC	Drilling, J. S.	NAG 5-71	2446
11	MASS INST OF TECH	Black, D. C.	ARC	Stalein, D. H.	NAG 2-50	2693
11	MASS INST OF TECH	Hall, C. F.	ARC	Pettingill, G. H.	NAS 2-9473	2712
11	MASS INST OF TECH	Hall, C. F.	ARC	Shapiro, I. I.	NAS 2-9483	2713
11	MASS INST OF TECH	Haughney, L. C.	ARC	Wright, E. L.	NSG 2263	2779
11	MASS INST OF TECH	Haughney, L. C.	ARC	Elliot, J. L.	NSG 2342	2781
11	MASS INST OF TECH	Bobbess, A.	GSFC	McClintock, J. E.	NAG 5-43	2703
11	MASS INST OF TECH	Corrigan, J. P.	GSFC	Clark, G. W.	NAS 5-24441	2721
11	MASS INST OF TECH	Mather, J. C.	GSFC	Weiss, R.	NAS 5-24493	2722
11	MASS INST OF TECH	Clark, T. C.	GSFC	Burke, B. F.	NAS 5-25543	2724
11	MASS INST OF TECH	Corrigan, J. P.	GSFC	Bridge, H. S.	NAS 5-25790	2726
11	MASS INST OF TECH	Bissell, E. E.	GSFC	Rappaport, S. A.	NGR 22-009-730	2763
11	MASS INST OF TECH	Hansen, J. E.	GSFC	Rivas, F. K.	NSG 5076	2797
11	MASS INST OF TECH	Stone, J. F.	MSFC	Bradt, H. V.	NAS 8-27972	2729
11	MASS INST OF TECH	Stone, J. F.	MSFC	Lewin, W. H.	NAS 8-27975	2730
11	MASS INST OF TECH	Stone, J. F.	MSFC	Clark, G. W.	NAS 8-30752	2731
11	MASS INST OF TECH	Kaluzenski, L. J.	HD-SC	Ricker, G. R.	NAGW 14	2706
11	MASS INST OF TECH	Bogges, N. W.	HD-SC	Weiss, R.	NGR 22-009-526	2757
11	MASS INST OF TECH	Bogges, N. W.	HD-SC	Kleinmann, S.	NSG 7186	2805
11	MASS INST OF TECH	Bogges, N. W.	HD-SC	Weiss, R.	NSG 7328	2907
11	MASS INST OF TECH	Gilman, D. A.	HD-SC	Lewin, W. H.	NSG 7339	2811
11	MASS INST OF TECH	Kaluzenski, L. J.	HD-SC	Clark, G.	NSG 7643	2819
11	MASS INST OF TECH	Brunk, W. E.	HD-SL	Pettingill, G. H.	NGR 22-009-672	2760
11	MASS INST OF TECH	Brunk, W. E.	HD-SL	Elliot, J. L.	NSG 7526	2815
11	MASS INST OF TECH	Brunk, W. E.	HD-SL	Shapiro, I. I.	NSG 7556	2816
11	MISSISSIPPI STATE U	Thomas, J. H.	MSFC	Ingels, F. M.	NAS 8-33570	2969
11	MORGAN STATE UNIV	Baker, G. R.	GSFC	Hammond, E. C., Jr.	NSG 5074	2514



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FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
11	NEW MEX INST MINING	Hobbs, R. W.	GSFC	Moore, E.	NCA 5-69	3120
11	NEW MEX INST MINING	Hobbs, R. W.	GSFC	Moore, E. P.	NCA 5-71	3121
11	NEW MEX INST MINING	Brandt, J.	GSFC	Moore, E. P.	NCA 5-81	3122
11	NEW MEX INST MINING	Jones, J. B.	MSFC	Gibson, D. M.	NAG 8-347	3117
11	NEW MEX INST MINING	Jones, J. B.	MSFC	Gibson, D. M.	NAS 8-33341	3118
11	NEW MEX ST U-LAS CR	Brunk, W. E.	HD-SL	Beebe, R. F.	NGL 32-003-001	3131
11	NEW YORK UNIVERSITY	Boggess, A.	GSFC	Glassgold, A. E.	NAG 5-73	3247
11	NEW YORK UNIVERSITY	Boggess, A.	GSFC	Huggins, P. J.	NSG 5411	3264
11	NEW YORK UNIVERSITY	Jones, J. B.	MSFC	Glassgold, A. E.	NAG 8-337	3248
11	NEW YORK UNIVERSITY	Jones, J. B.	MSFC	Huggins, P. J.	NAG 8-343	3249
11	NEW YORK UNIVERSITY	Swearingen, J. C.	MSFC	Glassgold, A. E.	NAG 8-358	3250
11	NORTHWESTERN UNIV	Jones, J. B., Jr.	MSFC	Ulmer, M. P.	NAG 8-326	2194
11	NORTHWESTERN UNIV	Stone, J. F.	MSFC	Ulmer, M. P.	NAG 8-367	2195
11	NORTHWESTERN UNIV	Stone, J. F.	MSFC	Ulmer, M. P.	NAG 8-368	2196
11	NORTHWESTERN UNIV	Jones, J. B., Jr.	MSFC	Ulmer, M. P.	NAS 8-33010	2197
11	NORTHWESTERN UNIV	Jones, J. B., Jr.	MSFC	Ulmer, M. P.	NAS 8-33354	2198
11	NORTHWESTERN UNIV	Weiler, E. J.	HD-SC	Huang, S. S.	NGL 14-007-041	2201
11	OHIO STATE UNIV	Boggess, A.	GSFC	Czyzak, S. J.	NAG 5-42	3494
11	OHIO STATE UNIV	Boggess, A.	GSFC	Slettebak, A.	NAG 5-52	3495
11	OHIO STATE UNIV	Boggess, A.	GSFC	Wing, R. F.	NSG 5247	3523
11	OHIO STATE UNIV	Kupperman, J. E., Jr.	GSFC	Slettebak, A. E.	NSG 5299	3526
11	OHIO STATE UNIV	Boggess, A.	GSFC	Wing, R. F.	NSG 5368	3527
11	PAN AMERICAN UNIV	Mendell, W.	JSC	Glaser, F. M.	NSG 9070	3868
11	PENN STATE U-UNIV PK	Boggess, A.	GSFC	Wegner, G. A.	NAG 5-60	3694
11	PRINCETON UNIVERSITY	Boggess, A.	GSFC	Cowie, L. L.	NAG 5-48	3065
11	PRINCETON UNIVERSITY	Kupperman, J. E., Jr.	GSFC	Spitzer, L., Jr.	NAS 5-1810	3071
11	PRINCETON UNIVERSITY	Corrigan, J. P.	GSFC	Spitzer, L., Jr.	NAS 5-23576	3073
11	PRINCETON UNIVERSITY	Mather, J. C.	GSFC	Wilkinson, D.	NAS 5-24486	3074
11	PRINCETON UNIVERSITY	Leckrone, D. S.	GSFC	Groth, E. J.	NAS 5-25084	3075
11	PRINCETON UNIVERSITY	Guidotti, J.	GSFC	Jenkins, E. B.	NAS 5-26268	3077
11	PRINCETON UNIVERSITY	Boggess, A.	GSFC	Jenkins, E. B.	NSG 5248	3093
11	PRINCETON UNIVERSITY	Boggess, A.	GSFC	York, D. G.	NSG 5382	3095
11	PRINCETON UNIVERSITY	Corrigan, J. P.	GSFC	Turners, E. L.	NSG 5415	3096
11	PRINCETON UNIVERSITY	Jones, J. B., Jr.	MSFC	Cowie, L. L.	NAG 8-306	3066
11	PRINCETON UNIVERSITY	Swearingen, J. C.	MSFC	Bahcall, N. A.	NAG 8-363	3067
11	PRINCETON UNIVERSITY	Jones, J. B., Jr.	MSFC	Cowie, L. L.	NAS 8-33345	3079
11	PRINCETON UNIVERSITY	Weiler, E. J.	HD-SC	York, D. G.	NAGW 10	3068
11	PRINCETON UNIVERSITY	Weiler, E. J.	HD-SC	Spitzer, L., Jr.	NGL 31-001-007	3082
11	PRINCETON UNIVERSITY	Weiler, F. J.	HD-SC	Bahcall, N. A.	NSG 7256	3099
11	PRINCETON UNIVERSITY	Boggess, N. W.	HD-SC	Wilkinson, D.	NSG 7302	3101
11	PRINCETON UNIVERSITY	Roman, N. G.	HD-SC	Spitzer, L., Jr.	NSG 7600	3103
11	PRINCETON UNIVERSITY	Weiler, E. J.	HD-SC	Jenkins, E. B.	NSG 7618	3105
11	PRINCETON UNIVERSITY	Brunk, W. E.	HD-SL	Danielson, R. E.	NSG 7053	3097
11	PURDUE UNIVERSITY	Rosendhal, J. D.	HD-SC	Moffett, T. J.	NSG 7167	2322
11	RICE UNIVERSITY	Boggess, A.	GSFC	Dufour, R. J.	NSG 5364	3893
11	RICE UNIVERSITY	Parker, R. A.	JSC	Dufour, R. J.	NAS 9-15940	3884
11	RICE UNIVERSITY	Jones, J. B.	MSFC	Haymes, R. C.	NAS 8-33361	3880
11	RICE UNIVERSITY	Gray, J. W.	WFC	Anderson, H. R.	NAS 6-1667	3877
11	RUTGERS U-N BRUNSWK	Boggess, A.	GSFC	Matlisky, T.	NAG 5-70	3106
11	RUTGERS U-N BRUNSWK	Kupperman, J. E., Jr.	GSFC	Matlisky, T.	NSG 5195	3110
11	RUTGERS U-N BRUNSWK	Jones, J. B.	MSFC	Matlisky, T.	NAG 8-309	3107
11	RUTGERS U-N BRUNSWK	Jones, J. B.	MSFC	Cheng, A. F.	NAG 8-328	3108
11	SAN DIEGO STATE UNIV	Swearingen, J. C.	MSFC	Young, A.	NAG 8-356	1313
11	SAN FRAN STATE UNIV	Barnes, A.	ARC	Nerney, S. F.	NCC 2-95	1321
11	SO UNIV-BATON ROUGE	Estabrook, F. B.	JPL	Yang, C. H.	NGR 19-005-006	2461
11	STANFORD UNIVERSITY	Hoffman, R. A.	GSFC	Helliwell, R. A.	NAS 5-25688	1382
11	STANFORD UNIVERSITY	Corrigan, J. P.	GSFC	Helliwell, R. A.	NAS 5-25744	1383
11	STANFORD UNIVERSITY	Campbell, C. F.	GSFC	Hofstadler, R.	NAS 5-26020	1384

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11	STANFORD UNIVERSITY	Bogges, A.	GSFC	Walker, A. B.	NSG 5417	1470
11	STANFORD UNIVERSITY	Jones, J. B.	MSFC	Walker, A. B.	NAG 8-325	1371
11	STANFORD UNIVERSITY	Snoddy, W. C.	MSFC	Underwood, J. H.	NAS 8-32263	1385
11	STANFORD UNIVERSITY	Dailey, C. C.	MSFC	Walker, A. B.	NAS 8-33012	1389
11	STANFORD UNIVERSITY	Manning, H. S.	MSFC	Wagoner, R. V.	NAS 8-33234	1391
11	STANFORD UNIVERSITY	Kaluziński, L. J.	HD-SC	Hofstadter, R.	NGR 05-020-452	1447
11	STANFORD UNIVERSITY	Kaluziński, L. J.	HD-SC	Sturrock, P. A.	NGR 05-020-668	1452
11	STANFORD UNIVERSITY	Weiler, E. J.	HD-SC	Will, C. M.	NSG 7204	1472
11	STANFORD UNIVERSITY	Kaluziński, L. J.	HD-SC	Walker, A. B.	NSG 7476	1473
11	STANFORD UNIVERSITY	Brunk, W. E.	HD-SL	Tyler, G. L.	NSG 7561	1476
11	STANFORD UNIVERSITY	Chipman, E.	HD-ST	Wilcox, J. M.	NGR 05-020-559	1449
11	STANFORD UNIVERSITY	Chipman, E.	HD-ST	Petrosian, V.	NSG 7092	1471
11	STATE UNIV NY-ALBANY	Gary, G. A.	MSFC	Weinberg, J. L.	NSG 8040	3317
11	STATE UNIV NY-ALBANY	Weiler, E. J.	HD-SC	Weinberg, J. L.	NSG 7241	3315
11	ST U NY COL-GENESE	Corrigan, J. P.	GSFC	Meisel, D. D.	NAG 5-113	3350
11	STATE U NY-STONY BRK	Kerr, A. R.	GSFC	Kao, Y. H.	NSG 5125	3340
11	STATE U NY-STONY BRK	Bogges, A.	GSFC	Caldwell, J. J.	NSG 5250	3341
11	STATE U NY-STONY BRK	Jones, J. B.	MSFC	Simon, M.	NAG 8-332	3322
11	STATE U NY-STONY BRK	ODell, C. R.	MSFC	Caldwell, J. J.	NAS 8-32904	3327
11	STATE U NY-STONY BRK	Fishman, G. J.	HD-SC	Forman, M. A.	NGR 33-015-180	3337
11	STATE U NY-STONY BRK	Brunk, W. E.	HD-SL	Owen, T.	NGR 33-015-141	3335
11	STATE U NY-STONY BRK	Brunk, W. E.	HD-SL	Knacke, R. F.	NSG 7286	3343
11	STATE U NY-STONY BRK	Brunk, W. E.	HD-SL	Caldwell, J. J.	NSG 7320	3344
11	UNIV ALA-HUNTSVILLE	Corrigan, J. P.	GSFC	Horwitz, J. L.	NSG 5413	1072
11	UNIV ALA-HUNTSVILLE	Weisskopf, M. C.	MSFC	Gregory, J. C.	NAS 8-33977	1063
11	UNIV ALASKA-FAIRBANKS	Corrigan, J. P.	GSFC	Lee, L. C.	NSG 5409	1085
11	UNIV OF ARIZONA	Black, D. C.	ARC	Serkowski, K. M.	NAG 2-52	1111
11	UNIV OF ARIZONA	Haughney, L. C.	ARC	Thronson, H.	NAG 2-55	1112
11	UNIV OF ARIZONA	Hall, C. F.	ARC	Gehrels, A. M.	NAS 2-6265	1128
11	UNIV OF ARIZONA	McCright, C. R.	ARC	Davidson, A.	NAS 2-10436	1130
11	UNIV OF ARIZONA	Werner, M. W.	ARC	Harvey, P. M.	NCA 2-40001	1147
11	UNIV OF ARIZONA	Haughney, L. C.	ARC	Larson, H. P.	NGR 03-002-332	1160
11	UNIV OF ARIZONA	Haughney, L. C.	ARC	Harvey, P. M.	NGR 03-002-390	1163
11	UNIV OF ARIZONA	Black, D. C.	ARC	Serkowski, K. M.	NSG 2205	1166
11	UNIV OF ARIZONA	Gull, T. R.	GSFC	Craine, E. R.	NAG 5-34	1115
11	UNIV OF ARIZONA	Bogges, A.	GSFC	Green, R. F.	NAG 5-38	1116
11	UNIV OF ARIZONA	Bogges, A.	GSFC	Williams, R. E.	NAG 5-56	1117
11	UNIV OF ARIZONA	Bogges, A.	GSFC	Giampapa, M. S.	NAG 5-57	1118
11	UNIV OF ARIZONA	Donn, B.	GSFC	Larson, S.	NAG 5-86	1120
11	UNIV OF ARIZONA	Eirand, A. M.	GSFC	Smith, B. A.	NAS 5-24308	1131
11	UNIV OF ARIZONA	Liberatore, F. J.	GSFC	Weymann, R. J.	NAS 5-25733	1133
11	UNIV OF ARIZONA	Kalet, M. W.	GSFC	Beckers, J. M.	NAS 5-25955	1134
11	UNIV OF ARIZONA	Bogges, A.	GSFC	Imhoff, C. L.	NSG 5235	1169
11	UNIV OF ARIZONA	Bogges, A.	GSFC	Tomasko, M. G.	NSG 5249	1170
11	UNIV OF ARIZONA	Jones, J. B.	MSFC	Strittmatter, P. A.	NAG 8-321	1121
11	UNIV OF ARIZONA	Stone, J. F.	MSFC	Stoeck, J. T.	NAG 8-370	1122
11	UNIV OF ARIZONA	Stone, J. F.	MSFC	Green, R. F.	NAG 8-380	1123
11	UNIV OF ARIZONA	Parnell, T. A.	MSFC	Benton, E. V.	NAS 8-31192	1136
11	UNIV OF ARIZONA	Jones, J. B., Jr.	MSFC	Strittmatter, P. A.	NAS 8-33351	1139
11	UNIV OF ARIZONA	Fishman, G. J.	MSFC	Larson, H. P.	NAS 8-33732	1142
11	UNIV OF ARIZONA	Bogges, N. W.	HD-SC	Low, F. J.	NGR 03-002-269	1159
11	UNIV OF ARIZONA	Bogges, N. W.	HD-SC	Campbell, M.	NGR 03-002-371	1162
11	UNIV OF ARIZONA	Gilman, D. A.	HD-SC	Jokipii, J. R.	NSG 7101	1177
11	UNIV OF ARIZONA	Bogges, N. W.	HD-SC	Craine, E. R.	NSG 7368	1182
11	UNIV OF ARIZONA	Weiler, E. J.	HD-SC	Tapia, S. F.	NSG 7574	1191
11	UNIV OF ARIZONA	Brunk, W. E.	HD-SL	Gehrels, A. M.	NASW 3262	1144
11	UNIV OF ARIZONA	Brunk, W. E.	HD-SL	Wilkening, L. L.	NASW 3413	1145
11	UNIV OF ARIZONA	Brunk, W. E.	HD-SL	Smith, B. A.	NGL 03-002-002	1150

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11	UNIV OF ARIZONA	Brunk, W. E.	HD-SL	Gehrels, T.	NGL 03-002-081	1152
11	UNIV OF ARIZONA	Brunk, W. E.	HD-SL	Cox, E. L.	NGL 03-002-122	1153
11	UNIV OF ARIZONA	Brunk, W. E.	HD-SL	Gehrels, A. M.	NGR 03-002-219	1158
11	UNIV OF ARIZONA	Brunk, W. E.	HD-SL	Hubbard, W. B.	NSG 7045	1175
11	UNIV OF ARIZONA	Brunk, W. E.	HD-SL	Fink, U. W.	NSG 7070	1176
11	UNIV OF ARIZONA	Brunk, W. E.	HD-SL	Rieke, G. H.	NSG 7114	1178
11	UNIV OF ARIZONA	Murphy, R. E.	HD-SL	Hsieh, K. C.	NSG 7374	1183
11	UNIV OF ARIZONA	Brunk, W. E.	HD-SL	Zellner, B. H.	NSG 7502	1187
11	UNIV OF ARIZONA	Brunk, W. E.	HD-SL	Brown, R. A.	NSG 7634	1195
11	UNIV CALIF-BERKELEY	Haughney, L. C.	ARC	Townes, C. H.	NGR 05-003-511	1545
11	UNIV CALIF-BERKELEY	Corrigan, J. P.	GSFC	Bowyer, C. S.	NAG 5-27	1481
11	UNIV CALIF-BERKELEY	Corrigan, J. P.	GSFC	Bowyer, C. S.	NAG 5-28	1482
11	UNIV CALIF-BERKELEY	Boggess, A.	GSFC	Kuhi, L.	NAG 5-55	1483
11	UNIV CALIF-BERKELEY	Boggess, A.	GSFC	Bowyer, C. S.	NAG 5-69	1484
11	UNIV CALIF-BERKELEY	Boggess, A.	GSFC	Chu, Y. H.	NAG 5-103	1486
11	UNIV CALIF-BERKELEY	Corrigan, J. P.	GSFC	Bowyer, C. S.	NAG 5-117	1487
11	UNIV CALIF-BERKELEY	Willis, S. E.	GSFC	Bowyer, C. S.	NAS 5-24189	1508
11	UNIV CALIF-BERKELEY	Willis, S. E.	GSFC	Bowyer, C. S.	NAS 5-24445	1509
11	UNIV CALIF-BERKELEY	Mather, J. C.	GSFC	Smoot, G. F.	NAS 5-25007	1510
11	UNIV CALIF-BERKELEY	Leckrone, D. S.	GSFC	King, I.	NAS 5-25070	1511
11	UNIV CALIF-BERKELEY	Corrigan, J. P.	GSFC	Moler, F. S.	NAS 5-25770	1513
11	UNIV CALIF-BERKELEY	Porreca, G.	GSFC	Anderson, D. A.	NAS 5-25892	1514
11	UNIV CALIF-BERKELEY	Wales, R. O.	GSFC	Anderson, K. A.	NAS 5-25980	1516
11	UNIV CALIF-BERKELEY	Guidotti, J.	GSFC	Bowyer, C. S.	NGR 05-003-450	1541
11	UNIV CALIF-BERKELEY	Kupperian, J. E., Jr.	GSFC	Bowyer, S.	NSG 5292	1553
11	UNIV CALIF-BERKELEY	Boggess, A.	GSFC	Spinrad, H.	NSG 5360	1554
11	UNIV CALIF-BERKELEY	Jones, J. L.	LARC	Price, P. B.	NAS 1-16268	1500
11	UNIV CALIF-BERKELEY	Jones, J. B.	MSFC	Bowyer, C. S.	NAG 8-301	1488
11	UNIV CALIF-BERKELEY	Jones, J. B.	MSFC	Bowyer, C. S.	NAG 8-303	1489
11	UNIV CALIF-BERKELEY	Jones, J. B.	MSFC	Silk, J. I.	NAG 8-311	1490
11	UNIV CALIF-BERKELEY	Jones, J. B.	MSFC	Welsh, W. J.	NAG 8-312	1491
11	UNIV CALIF-BERKELEY	Jones, J. B.	MSFC	Silk, J. I.	NAG 8-320	1492
11	UNIV CALIF-BERKELEY	Jones, J. B.	MSFC	Spinrad, H.	NAG 8-333	1493
11	UNIV CALIF-BERKELEY	Jones, J. B.	MSFC	Kuhi, L. V.	NAG 8-336	1494
11	UNIV CALIF-BERKELEY	Swearingen, J. C.	MSFC	Silk, J. I.	NAG 8-351	1495
11	UNIV CALIF-BERKELEY	Stone, J. F.	MSFC	Kuhi, L.	NAG 8-381	1496
11	UNIV CALIF-BERKELEY	Marmann, R.	MSFC	Bowyer, C. S.	NAS 8-32577	1517
11	UNIV CALIF-BERKELEY	Dailey, C. C.	MSFC	Anderson, K. A.	NAS 8-33011	1518
11	UNIV CALIF-BERKELEY	Jones, J. B., Jr.	MSFC	Bowyer, C. S.	NAS 8-33349	1519
11	UNIV CALIF-BERKELEY	Jones, J. B., Jr.	MSFC	McKee, C.	NAS 8-33356	1520
11	UNIV CALIF-BERKELEY	Barnes, J. B.	MSFC	Anderson, K. A.	NAS 8-33357	1521
11	UNIV CALIF-BERKELEY	Kaluzienski, L. J.	HD-SC	Lampton, M.	NAGW 44	1497
11	UNIV CALIF-BERKELEY	Boggess, N. W.	HD-SC	Smoot, G. F.	NAGW 66	1498
11	UNIV CALIF-BERKELEY	Boggess, N. W.	HD-SC	Townes, C. H.	NGL 05-003-272	1535
11	UNIV CALIF-BERKELEY	Kaluzienski, L. J.	HD-SC	Price, P. B.	NGR 05-003-376	1540
11	UNIV CALIF-BERKELEY	Kaluzienski, L. J.	HD-SC	Heckman, H. H.	NGR 05-003-513	1546
11	UNIV CALIF-BERKELEY	Kaluzienski, L. J.	HD-SC	Buffington, A.	NGR 05-003-553	1547
11	UNIV CALIF-BERKELEY	Veiler, E. J.	HD-SC	Silk, J. I.	NGR 05-003-578	1548
11	UNIV CALIF-BERKELEY	Boggess, N. W.	HD-SC	Richards, P. L.	NSG 7205	1557
11	UNIV CALIF-BERKELEY	Boggess, N. W.	HD-SC	Smoot, G. F.	NSG 7455	1562
11	UNIV CALIF-BERKELEY	Kaluzienski, L. J.	HD-SC	Lin, R. P.	NSG 7592	1565
11	UNIV CALIF-BERKELEY	Brunk, W. E.	HD-SL	Townes, C. H.	NGR 05-003-452	1543
11	UNIV CALIF-BERKELEY	Brunk, W. E.	HD-SL	Welch, W. J.	NSG 7152	1556
11	UNIV CALIF-L ANGELES	Fimmel, R. O.	ARC	Kaula, W. H.	NAS 2-9128	1595
11	UNIV CALIF-L ANGELES	Fimmel, R. O.	ARC	Schubert, G.	NAS 2-9131	1596
11	UNIV CALIF-L ANGELES	Corrigan, J. P.	GSFC	Plavec, M. J.	NAG 5-112	1588
11	UNIV CALIF-L ANGELES	Corrigan, J. P.	GSFC	Jura, M.	NAG 5-116	1589
11	UNIV CALIF-L ANGELES	Liberatore, F. J.	GSFC	Jura, M.	NAS 5-25657	1600

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11	UNIV CALIF-L ANGELES	Corrigan, J P	GSFC	Russell, C T	NAS 5-25772	1601
11	UNIV CALIF-L ANGELES	Kupperian, J. F., Jr	GSFC	Jura, M	NSG 5169	1633
11	UNIV CALIF-L ANGELES	Bogges, A.	GSFC	Plavec, M J	NSG 5272	1636
11	UNIV CALIF-L ANGELES	Bogges, A.	GSFC	Aller, L. H	NSG 5358	1638
11	UNIV CALIF-L ANGELES	Bogges, A	GSFC	Jura, M	NSG 5377	1639
11	UNIV CALIF-L ANGELES	Jones, J. B., Jr	MSFC	Margon, B H	NAS 8-33353	1604
11	UNIV CALIF-L ANGELES	Weiler, E. J.	HD-SC	Jura, M.	NAGW 80	1593
11	UNIV CALIF-L ANGELES	Kaluziński, L J	HD-SC	Kennel, C F	NSG 7341	1647
11	UNIV CALIF-L ANGELES	Weiler, F. J	HD-SC	Jura, M	NSG 7621	1656
11	UNIV CALIF-RIVERSIDE	Gilman, D A	HD-SC	White, R S	NGR 05-008-022	1658
11	UNIV CALIF-SAN DIEGO	Haughney, L. C	ARC	Willner, S P	NGR 05-005-055	1694
11	UNIV CALIF-SAN DIEGO	Bogges, A	GSFC	Worrall, D M	NAG 5-63	1661
11	UNIV CALIF-SAN DIEGO	Stouffer, C. G	GSFC	Tabakoff, W.	NAS 5-22375	1671
11	UNIV CALIF-SAN DIEGO	White, R A	GSFC	Harms, R J	NAS 5-24463	1672
11	UNIV CALIF-SAN DIEGO	Shannon, J. L.	GSFC	Beaver, F. A	NAS 5-25054	1673
11	UNIV CALIF-SAN DIEGO	Davis, M A	GSFC	Peterson, L. F	NAS 5-25448	1674
11	UNIV CALIF-SAN DIEGO	Jones, J B	MSFC	Marscher, A P	NAG 8-315	1663
11	UNIV CALIF-SAN DIEGO	Jones, J B	MSFC	Burbidge, F M	NAG 8-340	1664
11	UNIV CALIF-SAN DIEGO	Stone, J F	MSFC	Worrall, D M	NAG 8-377	1665
11	UNIV CALIF-SAN DIEGO	Stone, J F	MSFC	Peterson, L. F	NAS 8-27974	1677
11	UNIV CALIF-SAN DIEGO	Kaluziński, L J	HD-SC	Felten, J F	NAGW 12	1666
11	UNIV CALIF-SAN DIEGO	Weiler, F J	HD-SC	Canfield, R C	NAGW 30	1668
11	UNIV CALIF-SAN DIEGO	Kaluziński, L J	HD-SC	Gould, R J	NGL 05-005-004	1685
11	UNIV CALIF-SAN DIEGO	Weiler, F J	HD-SC	Mellwan, C F	NGR 05-009-188	1696
11	UNIV CALIF-SAN DIEGO	Kaluziński, L J	HD-SC	Rothschild, R F	NSG 7294	1710
11	UNIV CALIF-SAN DIEGO	Weiler, F J	HD-SC	Burbidge, M	NSG 7377	1711
11	UNIV CALIF-SAN DIEGO	Kaluziński, L J	HD-SC	Lingenfelter, R F	NSG 7541	1713
11	UNIV CALIF-SAN DIEGO	Murphy, R F	HD-SL	Alfven, H	NGR 05-009-110	1695
11	UNIV CALIF-S CRUZ	Black, D C	ARC	Bodenheimer, P	NCA 2-690001	1760
11	UNIV CALIF-S CRUZ	Bogges, A	GSFC	Herbig, G H	NSG 5361	1762
11	UNIV CALIF-S CRUZ	Swearingen, J C	MSFC	Miller, J S	NAG 8-352	1758
11	UNIV CALIF-S CRUZ	Jones, J B, Jr	MSFC	Davies, R L	NAS 8-33347	1759
11	UNIV CALIF-S CRUZ	Bogges, N W	HD-SC	Rank, D M	NGR 05-061-015	1761
11	UNIV CALIF-S CRUZ	Weiler, F J	HD-SC	Miller, J S	NSG 7503	1763
11	UNIV OF CHICAGO	Hall, C F	ARC	Simpson, J A	NAS 2-6551	2208
11	UNIV OF CHICAGO	Smith, B F	ARC	Miller, R H	NCA 2-108902	2216
11	UNIV OF CHICAGO	Haughney, L. C	ARC	Harper, D A, Jr	NGR 14-001-227	2229
11	UNIV OF CHICAGO	Haughney, L. C	ARC	Hildebrand, R H	NSG 2057	2231
11	UNIV OF CHICAGO	Bogges, A	GSFC	Frisch, P C	NAG 5-53	2206
11	UNIV OF CHICAGO	Corrigan, J P	GSFC	Simpson, J A	NAS 5-25731	2211
11	UNIV OF CHICAGO	Ormes, J F	GSFC	Muller, D	NAS 5-26076	2212
11	UNIV OF CHICAGO	Underwood, C	GSFC	Meyer, P	NAS 5-26099	2213
11	UNIV OF CHICAGO	Kupperian, J. F., Jr	GSFC	Simpson, J A	NSG 5202	2232
11	UNIV OF CHICAGO	Kupperian, J. F., Jr	GSFC	Simpson, J A	NSG 5311	2233
11	UNIV OF CHICAGO	Bogges, A	GSFC	Frisch, P C	NSG 5405	2235
11	UNIV OF CHICAGO	Jones, J B, Jr	MSFC	Meyer, P	NAS 8-33350	2215
11	UNIV OF CHICAGO	Kaluziński, L J	HD-SC	Parker, F N	NGL 14-001-001	2217
11	UNIV OF CHICAGO	Gilman, D A	HD-SC	Meyer, P	NGL 14-001-005	2218
11	UNIV OF CHICAGO	Gilman, D A	HD-SC	Simpson, J A	NGL 14-001-006	2219
11	UNIV OF CHICAGO	Weiler, F J	HD-SC	Hobbs, L M	NGR 14-001-147	2227
11	UNIV OF CHICAGO	Brunk, W F	HD-SL	Hildebrand, R H	NAGW 4	2207
11	UNIV COLORADO-BOLDR	Corrigan, J. P	GSFC	Snow, T P	NAG 5-15	1850
11	UNIV COLORADO-BOLDR	Bogges, A.	GSFC	Conti, P S	NAG 5-78	1853
11	UNIV COLORADO-BOLDR	Bogges, A	GSFC	Linsky, J I	NAG 5-82	1854
11	UNIV COLORADO-BOLDR	Guidotti, J	GSFC	Cash, W C	NAG 5-96	1855
11	UNIV COLORADO-BOLDR	Corrigan, J P	GSFC	Shull, J M	NAG 5-111	1856
11	UNIV COLORADO-BOLDR	Bogges, A.	GSFC	Conti, P S	NAS 5-22833	1867
11	UNIV COLORADO-BOLDR	Bogges, A	GSFC	Linsky, J L	NAS 5-23274	1868

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			OFF LOC	FIRST PRINCIPAL INVESTIGATOR		
11	UNIV COLORADO-BOLDR	Bogges, A.	GSFC	Snow, T. P.	NSG 5300	1888
11	UNIV COLORADO-BOLDR	Guidotti, J.	GSFC	Snow, T. P.	NSG 5303	1889
11	UNIV COLORADO-BOLDR	Wende, C. D.	GSFC	Snow, T. P., Jr.	NSG 5355	1891
11	UNIV COLORADO-BOLDR	Bogges, A.	GSFC	Shull, J. M.	NSG 5365	1892
11	UNIV COLORADO-BOLDR	Manning, H. S.	MSFC	Snow, T. P.	NAG 8-300	1857
11	UNIV COLORADO-BOLDR	Jones, J. B., Jr.	MSFC	Ayres, T. R.	NAG 8-316	1858
11	UNIV COLORADO-BOLDR	Jones, J. B.	MSFC	Snow, T. P.	NAG 8-327	1859
11	UNIV COLORADO-BOLDR	Jones, J. B.	MSFC	Linsky, J. L.	NAG 8-334	1860
11	UNIV COLORADO-BOLDR	Swearingen, J. C.	MSFC	Cash, W. C.	NAG 8-353	1861
11	UNIV COLORADO-BOLDR	Stone, J. F.	MSFC	Simon, T. S.	NAG 8-382	1862
11	UNIV COLORADO-BOLDR	Dailey, C. C.	MSFC	Linsky, J. L.	NAS 8-33084	1875
11	UNIV COLORADO-BOLDR	Jones, J. B., Jr.	MSFC	Haisch, B. M.	NAS 8-33333	1876
11	UNIV COLORADO-BOLDR	Jones, J. B., Jr.	MSFC	McCray, R.	NAS 8-33338	1877
11	UNIV COLORADO-BOLDR	Jones, J. B., Jr.	MSFC	Ayres, T. R.	NAS 8-33342	1878
11	UNIV COLORADO-BOLDR	Kaluzienski, L. J.	HD-SC	McCray, R.	NSG 7128	1894
11	UNIV COLORADO-BOLDR	Roman, N. G.	HD-SC	Conti, P. S.	NSG 7430	1901
11	UNIV COLORADO-BOLDR	Roman, N. G.	HD-SC	Snow, T. P.	NSG 7477	1903
11	UNIV COLORADO-BOLDR	Weiler, E. J.	HD-SC	Snow, T. P.	NSG 7626	1908
11	UNIV COLORADO-BOLDR	Weiler, E. J.	HD-SC	Ashby, N.	NSG 7637	1909
11	UNIV COLORADO-DENVER	Bogges, A.	GSFC	Lane, A. L.	NSG 5394	1910
11	UNIV DC-MT VERNON SQ	Webster, W. H., Jr.	GSFC	Nottingham, W. C.	NGR 09-050-003	2020
11	UNIV DC-VAN NESS	Hobbs, R. W.	GSFC	Kasten, R.	NCA 5-95	2026
11	UNIV OF DELAWARE	Kupperian, J. E., Jr	GSFC	Shipman, H. L.	NSG 5144	1956
11	UNIV OF DENVER	Bogges, A.	GSFC	Lesh, J. R.	NSG 5367	1922
11	UNIV OF FLORIDA	Black, D. C.	ARC	Eichhorn, H. K.	NAG 2-46	2049
11	UNIV OF FLORIDA	Corrigan, J. P.	GSFC	Wood, F. B.	NAG 5-110	2050
11	UNIV OF HAWAII-MANOA	Haughney, L. C.	ARC	Becklin, E.	NAG 2-59	2155
11	UNIV OF HAWAII-MANOA	White, W. W.	GSFC	Jefferies, J. T.	NAS 5-25181	2160
11	UNIV OF HAWAII-MANOA	Kupperian, J. E., Jr	GSFC	Boesgarrd, A. M.	NSG 5231	2172
11	UNIV OF HAWAII-MANOA	Brunk, W. E.	HD-SL	Cruikshank, D. P.	NAGW 61	2158
11	UNIV OF HAWAII-MANOA	Brunk, W. E.	HD-SL	Unavailable	NAGW 65	2159
11	UNIV OF HAWAII-MANOA	Weir, J. F.	HD-SL	Jefferies, J. T.	NASW 2801	2164
11	UNIV OF HAWAII-MANOA	Brunk, W. E.	HD-SL	Jefferies, J. T.	NASW 3159	2165
11	UNIV OF HAWAII-MANOA	Brunk, W. E.	HD-SL	Jefferies, J. T.	NGL 12-001-057	2167
11	UNIV OF HAWAII-MANOA	Brunk, W. E.	HD-SL	McCord, T. B.	NSG 7323	2177
11	UNIV OF HAWAII-MANOA	Chipman, E.	HD-ST	Jefferies, J. T.	NGL 12-001-011	2166
11	UNIV ILLINOIS-URBANA	Gull, T. R.	GSFC	Dickel, J. R.	NAG 5-84	2247
11	UNIV ILLINOIS-URBANA	Bogges, A.	GSFC	Lamb, S. A.	NAG 5-85	2248
11	UNIV ILLINOIS-URBANA	Donn, B. D.	GSFC	Snyder, L. E.	NSG 5278	2264
11	UNIV ILLINOIS-URBANA	Kupperian, J. E., Jr	GSFC	Crutcher, R. M.	NSG 5294	2265
11	UNIV ILLINOIS-URBANA	Jones, J. B.	MSFC	Lamb, D. Q.	NAG 8-310	2249
11	UNIV ILLINOIS-URBANA	Jones, J. B.	MSFC	Dickel, J. R.	NAG 8-317	2250
11	UNIV ILLINOIS-URBANA	Opp, A. G.	HD-SC	Pines, D.	NSG 7598	2269
11	UNIV ILLINOIS-URBANA	Kaluzienski, L. J.	HD-SC	Lamb, D. Q.	NSG 7653	2270
11	UNIV ILLINOIS-URBANA	Brunk, W. E.	HD-SL	Dickel, J. R.	NGR 14-005-176	2255
11	UNIV OF IOWA	Fimmel, R. O.	ARC	VanAllen, J. A.	NAS 2-6553	2352
11	UNIV OF IOWA	Corrigan, J. P.	GSFC	Gurnett, D. A.	NAS 5-11279	2354
11	UNIV OF IOWA	Stone, R. G.	GSFC	Gurnett, D. A.	NAS 5-25999	2364
11	UNIV OF IOWA	Corrigan, J. P.	GSFC	Gurnett, D. A.	NAS 5-26125	2365
11	UNIV OF IOWA	Brunk, W. E.	HD-SL	Neff, J. S.	NSG 7412	2376
11	UNIV MARYLAND-BALT	Roman, N. G.	HD-SC	Misner, C. W.	NGR 21-002-010	2516
11	UNIV MARYLAND-COL PK	Bogges, A.	GSFC	Wilson, A. S.	NAG 5-54	2524
11	UNIV MARYLAND-COL PK	Bogges, A.	GSFC	Ahearn, M. F.	NAG 5-74	2525
11	UNIV MARYLAND-COL PK	Ogilvie, K. W.	GSFC	Coplan, M. A.	NAS 5-25472	2540
11	UNIV MARYLAND-COL PK	Corrigan, J. P.	GSFC	Gloeckler, G.	NAS 5-25735	2542
11	UNIV MARYLAND-COL PK	Ormes, J. F.	GSFC	Yodh, G. B.	NAS 5-26098	2544
11	UNIV MARYLAND-COL PK	Baurer, S.	GSFC	Ponnamperuma, C.	NAS 5-26294	2545
11	UNIV MARYLAND-COL PK	Klinglesmith, D. A.	GSFC	Rosenfeld, A.	NCA 5-26	2554

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11	UNIV MARYLAND-COL PK	Hobbs, R. W.	GSFC	Trasco, J. D.	NCC 5-9	2558
11	UNIV MARYLAND-COL PK	Wolff, C.	GSFC	Rose, W.	NGT 21-002-801	2574
11	UNIV MARYLAND-COL PK	Cline, T.	GSFC	Wentzel, D. G.	NGT 21-002-802	2575
11	UNIV MARYLAND-COL PK	Bolt, E. A.	GSFC	Boldt, E. A.	NGT 21-002-804	2577
11	UNIV MARYLAND-COL PK	Ramaty, R.	GSFC	Holmgren, H. D.	NSG 5298	2590
11	UNIV MARYLAND-COL PK	Boggess, A.	GSFC	Harrington, J. P.	NSG 5390	2594
11	UNIV MARYLAND-COL PK	Boggess, A.	GSFC	Bell, R. A.	NSG 5399	2595
11	UNIV MARYLAND-COL PK	Corrigan, J. P.	GSFC	Wu, C. S.	NSG 5408	2597
11	UNIV MARYLAND-COL PK	Pearl, J. C.	GSFC	Khanna, R. K.	NSG 5424	2599
11	UNIV MARYLAND-COL PK	Jones, J. B.	MSFC	Wilson, A. S.	NAG 8-307	2528
11	UNIV MARYLAND-COL PK	Jones, J. B.	MSFC	Wilson, A. S.	NAG 8-329	2529
11	UNIV MARYLAND-COL PK	Swearingen, J. C.	MSFC	Wilson, A. S.	NAG 8-349	2530
11	UNIV MARYLAND-COL PK	Stone, J. F.	MSFC	Erickson, W. C.	NAG 8-369	2531
11	UNIV MARYLAND-COL PK	Stone, J. F.	MSFC	Matthews, D. L.	NAG 8-379	2532
11	UNIV MARYLAND-COL PK	Jones, J. B., Jr.	MSFC	Scott, J. S.	NAS 8-33329	2546
11	UNIV MARYLAND-COL PK	Jones, J. B., Jr.	MSFC	Erickson, W. C.	NAS 8-33346	2547
11	UNIV MARYLAND-COL PK	Jones, J. B., Jr.	MSFC	Wilson, A. S.	NAS 8-33358	2548
11	UNIV MARYLAND-COL PK	Gilman, D. A.	HD-SC	Earl, J. A.	NGR 21-002-066	2561
11	UNIV MARYLAND-COL PK	Roman, N. G.	HD-SC	Griem, H. R.	NGR 21-002-073	2562
11	UNIV MARYLAND-COL PK	Gilman, D. A.	HD-SC	Gloeckler, G.	NGR 21-002-224	2565
11	UNIV MARYLAND-COL PK	Kaluzienski, L. J.	HD-SC	Scott, J. S.	NSG 7555	2610
11	UNIV MARYLAND-COL PK	Brunk, W. E.	HD-SL	AHearn, M. F.	NSG 7322	2603
11	UNIV OF MASS-AMHERST	Fimmel, R. O.	ARC	McGill, G. E.	NAS 2-9129	2826
11	UNIV OF MASS-AMHERST	Eiband, A. M.	GSFC	Yngvesson, K. S.	NAS 5-26151	2827
11	UNIV OF MASS-AMHERST	Brunk, W. E.	HD-SL	Irvine, W. M.	NGL 22-010-023	2829
11	UNIV MICH-ANN ARBOR	Hall, C. F.	ARC	Donahue, T. M.	NAS 2-9126	2867
11	UNIV MICH-ANN ARBOR	Hall, C. F.	ARC	Nagy, A. F.	NAS 2-9130	2868
11	UNIV MICH-ANN ARBOR	Corrigan, J. P.	GSFC	Ateya, S. K.	NAG 5-109	2857
11	UNIV MICH-ANN ARBOR	Boggess, A.	GSFC	Kirshner, R.	NSG 5366	2917
11	UNIV MICH-ANN ARBOR	Jones, J. B.	MSFC	Patterson, J.	NAG 8-318	2858
11	UNIV MICH-ANN ARBOR	Jones, J. B.	MSFC	Kirshner, R.	NAG 8-341	2859
11	UNIV MICH-ANN ARBOR	Weiler, E. J.	HD-SC	Hiltner, W. A.	NGR 73-005-464	2903
11	UNIV MICH-ANN ARBOR	Weiler, E. J.	HD-SC	Hegy, D. J.	NSG 7608	2924
11	UNIV MICH-ANN ARBOR	Bohlin, J. D.	HD-ST	Mohler, O. C.	NGL 23-005-275	2898
11	U MINN-MNPLS-ST PAUL	Corrigan, J. P.	GSFC	Kellogg, P. J.	NAS 5-11310	2935
11	U MINN-MNPLS-ST PAUL	Stone, R.	GSFC	Kellogg, P. J.	NAS 5-25753	2939
11	U MINN-MNPLS-ST PAUL	Underwood, C.	GSFC	Waddington, C. J.	NAS 5-26056	2940
11	U MINN-MNPLS-ST PAUL	Boggess, A.	GSFC	Davidson, K.	NSG 5397	2951
11	U MINN-MNPLS-ST PAUL	Stone, J. F.	MSFC	Waddington, C. J.	NAS 8-27977	2941
11	U MINN-MNPLS-ST PAUL	Gilman, D. A.	HD-SC	Waddington, C. J.	NGR 24-005-050	2945
11	U MINN-MNPLS-ST PAUL	Boggess, N. W.	HD-SC	Ney, E.	NSG 2014	2947
11	UNIV MO-ST LOUIS	Boggess, A.	GSFC	Lamb, S. A.	NSG 5400	3000
11	UNIV NEBRASKA-LINCLN	Boggess, A.	GSFC	Schmidt, E. G.	NSG 5391	3027
11	UNIV NEW HAMP-DURHAM	Davis, M. A.	GSFC	Lockwood, J. A.	NAS 5-25420	3052
11	UNIV NEW HAMP-DURHAM	Gilman, D. A.	HD-SC	Chupp, E. L.	NGL 30-002-021	3056
11	UNIV NEW HAMP-DURHAM	Kaluzienski, L. J.	HD-SC	Webber, W. R.	NGR 30-002-052	3057
11	UNIV NEW HAMP-DURHAM	Gilman, D. A.	HD-SC	Lockwood, J. A.	NSG 7481	3061
11	UNIV OF NOTRE DAME	Haggard, J.	LERC	Kanury, M.	NAS 3-21018	2325
11	UNIV OKLAHOMA-NORMAN	Kupperian, J. E., Jr	GSFC	Herczeg, T.	NSG 5257	3617
11	UNIV OKLAHOMA-NORMAN	Stone, J. F.	MSFC	Chincarini, G.	NAG 8-372	3608
11	UNIV OKLAHOMA-NORMAN	Jones, J. B., Jr.	MSFC	Chincarini, G.	NAS 8-33330	3611
11	UNIV OREGON-EUGENE	Kaluzienski, L. J.	HD-SC	Kemp, J. C.	NAGW 7	3635
11	UNIV OREGON-EUGENE	Weiler, E. J.	HD-SC	Zimmerman, R. L.	NSG 7639	3640
11	UNIV OREGON-EUGENE	Brunk, W. E.	HD-SL	Kemp, J. C.	NSG 7531	3639
11	UNIV OF PENNSYLVANIA	Boggess, A.	GSFC	Koch, R. H.	NSG 5296	3752
11	UNIV OF PENNSYLVANIA	Jones, J. B.	MSFC	Koch, R. H.	NAG 8-346	3744
11	UNIV OF PENNSYLVANIA	Jones, J. B., Jr.	MSFC	Shen, B. S.	NAS 8-33336	3746
11	UNIV OF PITTSBURGH	Black, D. C.	ARC	Gatewood, G. D.	NAG 2-53	3753

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			OFF LOC	FIRST PRINCIPAL INVESTIGATOR		
11	UNIV OF PITTSBURGH	Bogges, A.	GSFC	Hapke, B.	NSG 5362	3770
11	UNIV OF PITTSBURGH	Boyce, J. M.	HD-SL	Hapke, B.	NSG 7147	3772
11	UNIV OF ROCHESTER	Haughney, L. C.	ARC	Pipher, J. L.	NSG 2343	3359
11	UNIV OF ROCHESTER	Bogges, A.	GSFC	Heffer, H. L.	NAG 5-46	3356
11	UNIV OF ROCHESTER	Kupperian, J. E., Jr	GSFC	Vanhorn, H. M.	NSG 5354	3360
11	UNIV OF ROME	Bavely, J. C	HD-TN	Broghio, L.	NASW 2135	4430
11	UNIV OF SOUTHERN CAL	Fimmel R. O.	ARC	Judge, D. L.	NAS 2-6558	1791
11	UNIV OF SOUTHERN CAL	Kupperian, J. E., Jr,	GSFC	Peters, G. J.	NSG 5356	1804
11	UNIV OF SOUTHERN CAL	Bogges, A.	GSFC	Barry, D. C	NSG 5412	1805
11	UNIV OF SOUTHERN CAL	Bogges, A.	GSFC	Peters, G. J.	NSG 5422	1806
11	UNIV OF SOUTHERN CAL	Murphy, R. E.	HD-SL	Broadfoot, A. L.	NAGW 62	1790
11	UNIV OF SOUTHERN CAL	Chipman, E.	HD-ST	Rhodes, E. J	NAGW 13	1787
11	UNIV TENNESSEE-KNOXV	Harris, J. W.	JSC	Taylor, L. A.	NGL 43-001-140	3840
11	UNIV TEXAS-AUSTIN	Haughney, L. C	ARC	Evans, N. J., II	NSG 2345	4017
11	UNIV TEXAS-AUSTIN	Bogges, A.	GSFC	Parsons, S. B	NAG 5-80	3983
11	UNIV TEXAS-AUSTIN	Liberatore, F. J.	GSFC	Trafton, L. M	NAS 5-25656	3987
11	UNIV TEXAS-AUSTIN	White, W. W.	GSFC	Silverberg, E. C	NAS 5-25948	3990
11	UNIV TEXAS-AUSTIN	Bogges, A	GSFC	VandenBout, P. A.	NSG 5233	4021
11	UNIV TEXAS-AUSTIN	Kupperian, J. E., Jr	GSFC	Smith, M. A.	NSG 5309	4022
11	UNIV TEXAS-AUSTIN	Bogges, A	GSFC	Parsons, S. B.	NSG 5328	4023
11	UNIV TEXAS-AUSTIN	Bogges, A	GSFC	Wray, J. D.	NSG 5337	4024
11	UNIV TEXAS-AUSTIN	Bogges, A	GSFC	Lambert, D. L.	NSG 5379	4025
11	UNIV TEXAS-AUSTIN	Bogges, A.	GSFC	Wills, B. J	NSG 5387	4026
11	UNIV TEXAS-AUSTIN	Swearingen, J. C	MSFC	Wheeler, J. C.	NAG 8-350	3984
11	UNIV TEXAS-AUSTIN	Snoddy, W. C	MSFC	Henize, K. G	NAS 8-31459	3992
11	UNIV TEXAS-AUSTIN	ODell, C. R	MSFC	Lambert, D. L	NAS 8-32905	3993
11	UNIV TEXAS-AUSTIN	ODell, C. R	MSFC	Jefferys, W. H	NAS 8-32906	3994
11	UNIV TEXAS-AUSTIN	Weiler, F. J	HD-SC	Shields, G. A	NSG 7232	4029
11	UNIV TEXAS-AUSTIN	Weiler, F. J	HD-SC	Henize, K. G.	NSG 7371	4031
11	UNIV TEXAS-AUSTIN	Bogges, N. W.	HD-SC	Evans, N. J., II	NSG 7381	4032
11	UNIV TEXAS-AUSTIN	Brunk, W. F.	HD-SL	Wilson, W. J	NGL 44-012-006	4007
11	UNIV TEXAS-AUSTIN	Brunk, W. F.	HD-SL	Douglas, J. N.	NGL 44-012-055	4008
11	UNIV TEXAS-AUSTIN	Brunk, W. F.	HD-SL	Smith, H. J	NGR 44-012-152	4009
11	UNIV TEXAS-AUSTIN	Brunk, W. F.	HD-SL	Mulholland J. D	NGR 44-012-282	4011
11	UNIV OF TOLEDO	Bogges, A	GSFC	Bopp, B. W	NAG 5-67	3569
11	UNIV OF TOLEDO	Kupperian, J. E., Jr	GSFC	Bopp, B. W	NSG 5207	3579
11	UNIV OF TOLEDO	Bogges, A.	GSFC	Morrison, N. D	NSG 5359	3580
11	UNIV OF TOLEDO	Bogges, A.	GSFC	Witt, A. N	NSG 5388	3591
11	UNIV OF TOLEDO	Weiler, F. J	HD-SC	Witt, A. N	NAGW 89	3570
11	UNIV OF TOLEDO	Rosendhal, J. D	HD-SC	Witt, A. N	NSG 7431	3583
11	UNIV OF TOLEDO	Weiler, F. J.	HD-SC	Witt, A. N	NSG 7620	3584
11	UNIV OF TOLEDO	Murphy, R.	HD-SL	Delsemme, A. H.	NSG 7301	3582
11	UNIV OF UTAH	Brunk, W. F.	HD-SL	Shorthill, R. W.	NAGW 11	4083
11	UNIV OF VIRGINIA	Bogges, A	GSFC	Thuan, T. X.	NAG 5-61	4210
11	UNIV OF VIRGINIA	Johnson, G	GSFC	OConnell, R. W	NAS 5-22346	4217
11	UNIV OF VIRGINIA	Stecher, T. P	GSFC	OConnell, R. W.	NAS 5-26110	4221
11	UNIV OF VIRGINIA	White, J	MSFC	Sarazin, C. L	NAG 8-308	4212
11	UNIV OF VIRGINIA	Stone, J. F.	MSFC	Thuan, T. X	NAG 8-375	4213
11	UNIV OF VIRGINIA	Jones, J. B., Jr	MSFC	Thuan, X	NAS 8-33327	4223
11	UNIV OF VIRGINIA	Jones, J. B., Jr.	MSFC	Sarazin, C. L	NAS 8-33348	4224
11	UNIV OF VIRGINIA	Brunk, W. F.	HD-SL	Ianna, P. A	NSG 7364	4234
11	UNIV OF WASHINGTON	Bogges, A.	GSFC	Bohm, K. H	NAG 5-45	4304
11	UNIV OF WASHINGTON	Bogges, A	GSFC	Bohm-vitense, E.	NSG 5240	4337
11	UNIV OF WASHINGTON	Bogges, A	GSFC	Wallerstein, G	NSG 5374	4339
11	UNIV OF WASHINGTON	Bogges, A	GSFC	Szkody, P	NSG 5395	4340
11	UNIV OF WASHINGTON	Bogges, A	GSFC	Bohm-vitense, E.	NSG 5398	4341
11	UNIV OF WASHINGTON	Wende, C	GSFC	Lin, C. S.	NSG 5410	4342
11	UNIV OF WASHINGTON	Jones, J. B	MSFC	Wallerstein, G	NAG 8-342	4305

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11	UNIV OF WASHINGTON	Swearingen, J. C.	MSFC	Sullivan, W. T.	NAG 8-359	4306
11	UNIV OF WASHINGTON	Swearingen, J. C.	MSFC	Szkody, P.	NAG 8-361	4307
11	UNIV OF WASHINGTON	Swearingen, J. C.	MSFC	Boynton, P. E.	NAG 8-364	4308
11	UNIV OF WASHINGTON	Stone, J. F.	MSFC	Boynton, P. F.	NAG 8-366	4309
11	UNIV OF WASHINGTON	Stone, J. F.	MSFC	Bohm-vitense, E.	NAG 8-378	4310
11	UNIV OF WASHINGTON	Jones, J. B., Jr.	MSFC	Szkody, P.	NAS 8-33337	4319
11	UNIV OF WASHINGTON	Jones, J. B., Jr.	MSFC	Boynton, P. F.	NAS 8-33344	4320
11	UNIV OF WASHINGTON	Jones, J. B., Jr.	MSFC	Boynton, P. E.	NAS 8-33360	4321
11	UNIV OF WASHINGTON	Gilman, D. A.	HD-SC	Lord, J. J.	NSG 7318	4346
11	UNIV OF WASHINGTON	Brunk, W. E.	HD-SL	Greene, T. F.	NGR 48-002-142	4330
11	UNIV WISC-MADISON	Eiband, A. M.	GSFC	Anderson, C. M.	NAS 5-22349	4370
11	UNIV WISC-MADISON	White, R. A.	GSFC	Bless, R. C.	NAS 5-24487	4375
11	UNIV WISC-MADISON	Sours, W.	GSFC	Code, A. D.	NAS 5-25487	4379
11	UNIV WISC-MADISON	Vitagliano, H. D.	GSFC	Savage, B. C.	NAS 5-25714	4381
11	UNIV WISC-MADISON	Eiband, A. M.	GSFC	Code, A. D.	NAS 5-26055	4383
11	UNIV WISC-MADISON	Campbell, C. E.	GSFC	Kraushaar, W. L.	NAS 5-26078	4384
11	UNIV WISC-MADISON	Guidotti, T.	GSFC	Code, A. D.	NGL 50-002-013	4391
11	UNIV WISC-MADISON	Bissell, E. E.	GSFC	Kraushaar, W. L.	NGL 50-002-044	4392
11	UNIV WISC-MADISON	Kupperman, J. L., Jr.	GSFC	Savage, B. D.	NSG 5181	4400
11	UNIV WISC-MADISON	Boggett, A.	GSFC	Savage, B. D.	NSG 5241	4402
11	UNIV WISC-MADISON	Boggett, A.	GSFC	Doherty, L. R.	NSG 5242	4403
11	UNIV WISC-MADISON	Boggett, A.	GSFC	Code, A. D.	NSG 5363	4406
11	UNIV WISC-MADISON	Jones, J. B.	MSFC	Kraushaar, W. L.	NAG 8-319	4364
11	UNIV WISC-MADISON	Jones, J. B.	MSFC	Cassinelli, J. P.	NAG 8-345	4365
11	UNIV WISC-MADISON	Jones, J. B., Jr.	MSFC	Cassinelli, J. P.	NAS 8-33340	4388
11	UNIV WISC-MADISON	Weiler, E. J.	HD-SC	Code, A. D.	NSG 7050	4407
11	UTAH STATE UNIV	Corrigan, J. P.	GSFC	Raitt, W. J.	NAG 5-121	4096
11	VANDERBILT UNIVERSITY	Weiler, E. J.	HD-SC	Weedman, D. W.	NSG 7343	3850
11	VANDERBILT UNIVERSITY	Roman, N. G.	HD-SC	Hall, D.	NSG 7453	3851
11	VANDERBILT UNIVERSITY	Weiler, E. J.	HD-SC	Hall, D.	NSG 7543	3852
11	VIRGINIA UNIVERSITY	Boggett, A.	GSFC	Guinan, F. F.	NSG 5375	3775
11	VIRGINIA POLY INST	Jones, J. B.	MSFC	ODell, S. L.	NAG 8-311	4253
11	VIRGINIA POLY INST	Swearingen, J. C.	MSFC	ODell, S. L.	NAG 8-348	4254
11	VIRGINIA POLY INST	Jones, J. B., Jr.	MSFC	Dennison, B. K.	NAS 8-33359	4261
11	WASHINGTON STATE UNIV	Boggett, A.	GSFC	Lutz, J. H.	NSG 5383	4356
11	WASHINGTON UNIVERSITY	Corrigan, J. P.	GSFC	Smith, W. H.	NAG 5-108	3003
11	WASHINGTON UNIVERSITY	Scobie, J. F.	MSFC	Israel, M. H.	NAS 8-27976	3006
11	WASHINGTON UNIVERSITY	Kolouch, M. L. J.	HD-SC	Klarmann, J.	NGR 26-008-001	3010
11	WASHINGTON UNIVERSITY	Weiler, E. J.	HD-SC	Smith, W. H.	NSG 7372	3016
11	WASHINGTON UNIVERSITY	Brunk, W. E.	HD-SL	Smith, W. H.	NSG 7334	3015
11	WESLEYAN UNIVERSITY	Gull, T. R.	GSFC	Herbst, W.	NAG 5-59	1935
11	WESLEYAN UNIVERSITY	Warner, J. R.	MSFC	Herbst, W.	NAG 8-335	1936
11	WESTERN KENTUCKY UNIV	Boggett, A.	GSFC	Hackney, R. L.	NSG 5238	2443
11	WHEATON COLLEGE	Boggett, A.	GSFC	Barker, T.	NSG 5376	2837
11	YALE UNIVERSITY	Eby, P.	MSFC	Parker, P. D.	NAS 8-33572	1939
12	ARIZONA STATE UNIV	Blanchard, D. P.	JSC	Moore, C. B.	NGT 03-001-800	1101
12	ARKANSAS STATE UNIV	Kohl, F. J.	LERC	Bennett, J. F.	NSG 3249	1196
12	ATLANTA UNIVERSITY	Kent, M. I.	MSFC	Reed, J. L.	NSG 8019	2093
12	BOWIE STATE COLLEGE	Gross, F. C.	GSFC	Rock, M.	NSG 5009	2476
12	CALIF INST OF TECH	Harris, J. W.	JSC	Wasserburg, G. J.	NGL 05-002-188	1236
12	CASE WESTERN RESERVE	Donn, B. D.	GSFC	Anderson, A. B.	NSG 5392	3462
12	CASE WESTERN RESERVE	Riley, T. J.	LERC	Angus, J.	NAS 3-21965	3422
12	CASE WESTERN RESERVE	Serafini, T. T.	LERC	Koenig, J. L.	NSG 3140	3440
12	CASE WESTERN RESERVE	Lauver, R. W.	LERC	Ritchey, W.	NSG 3241	3449
12	CASE WESTERN RESERVE	Lauver, R. W.	LERC	Ishida, H.	NSG 3272	3455
12	CASE WESTERN RESERVE	Hsu, L. C.	LERC	Koenig, J. L.	NSG 3276	3456
12	CASE WESTERN RESERVE	Jones, W. R.	LERC	Cahan, B. D.	NSG 3278	3459
12	CATHOLIC UNIVERSITY	Nava, D. F.	GSFC	Hunt, J. B.	NSG 5173	1963



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12	CLARK COLLEGE	Whitten, R. C.	ARC	Veluri, V. R.	NSG 2143	2094
12	CLEVELAND STATE UNIV	Gordon, W. A.	LERC	Megargle, R.	NSG 3308	3477
12	COLLEGE OF WM & MARY	Burks, H. D.	LARC	Kranbuehl, D. E.	NSG 1095	4129
12	COLORADO SCH OF MINE	Antoine, A. C.	LFRC	Daniel, S. R.	NSG 3122	1811
12	COPPIN STATE COLLEGE	Halpert, G.	GSFC	McDermott, P. P.	NSG 5051	2478
12	CORNELL UNIVERSITY	Devincenzi, D. L.	HD-SB	Sagan, C. E.	NGR 33-010-101	3214
12	DREXEL UNIVERSITY	Torres, A. L.	WFC	Thornton, D. C.	NSG 6035	3669
12	HARVARD UNIVERSITY	Harris, J. W.	JSC	Hays, J. F.	NGL 22-007-247	2657
12	HOWARD UNIVERSITY	Murphy, R. E.	HD-SL	Jackson, W. M.	NSG 5071	2012
12	KENT STATE UNIV-KENT	Quattrone, P. D.	ARC	Madey, R.	NSG 2013	3480
12	LEHIGH UNIVERSITY	Boese, R. W.	ARC	Lovejoy, R. W.	NCA 2-380901	3676
12	LEHIGH UNIVERSITY	Harris, J. W.	JSC	Goldstein, J. I.	NGR 39-007-056	3679
12	MASS INST OF TECH	Quattrone, P. D.	ARC	Reid, R. C.	NGR 22-009-723	2761
12	MASS INST OF TECH	Harris, J. W.	JSC	Burns, R. C.	NGR 22-009-551	2758
12	MASS INST OF TECH	Brabbs, T. A.	LERC	Hoult, D. P.	NCC 3-15	2743
12	MASS INST OF TECH	Antoine, A. C.	LERC	Uhlmann, D. R.	NSG 3286	2794
12	MASS INST OF TECH	Geib, D. S.	HD-SB	Rich, A.	NGR 22-009-277	2754
12	MICHIGAN STATE UNIV	Seng, G. T.	LERC	Crouch, S. R.	NAG 3-93	2846
12	MICHIGAN STATE UNIV	Seng, G. T.	LERC	Enke, C. G.	NAG 3-107	2847
12	MISS UNIV FOR WOMEN	St. Clair, T. L.	LARC	Pratt, J. R.	NSG 1539	2980
12	MOREHOUSE COLLEGE	Pohly, J. G.	HD-LU	Hall, H. H.	NSG 7652	2145
12	MUSKINGUM COLLEGE	Charleston, L. J.	LERC	Wallace, W. J.	NAG 3-79	3486
12	MUSKINGUM COLLEGE	Charleston, L. J.	LERC	Wallace, W. J.	NSG 3278	3487
12	OLD DOMINION UNIV	Phillips, D. H.	LARC	Ake, R. L.	NSG 1393	4185
12	PENN STATE U-UNIV PK	Fewell, L. L.	ARC	Allcock, H. R.	NSG 2364	3723
12	PENN STATE U-UNIV PK	Devincenzi, D. L.	HD-SB	Wedler, F. C.	NSG 7515	3741
12	POLY INST OF NY	Fohlen, G. M.	ARC	Pearce, E. M.	NSG 2147	3271
12	POLY INST OF NY	Devincenzi, D. L.	HD-SB	Eirich, F. R.	NGR 33-006-070	3269
12	RENSELAER POLY-NY	Comister, T. C.	MSFC	Glücksman, M. E.	NAS 8-32690	3282
12	RENSELAER POLY-NY	Devincenzi, D. L.	HD-SB	Ferns, J. P.	NGR 33-018-148	3290
12	SAN FRAN STATE UNIV	Devincenzi, D. L.	HD-SB	Orenberg, J. B.	NAGW 94	1316
12	SAN JOSE STATE UNIV	Miquel, J.	ARC	Yengoyan, L. S.	NCA 2-675004	1326
12	SAN JOSE STATE UNIV	Caqliostro, D. E.	ARC	Ballard, R. C.	NCC 2-4	1336
12	SAN JOSE STATE UNIV	Wydeven, T.	ARC	Spitze, L. A.	NCC 2-8	1337
12	SAN JOSE STATE UNIV	Heimbuch, A. H.	ARC	Ling, A. C.	NCC 2-28	1338
12	SAN JOSE STATE UNIV	Wydeven, T.	ARC	Spitze, L. A.	NCC 2-53	1342
12	SAN JOSE STATE UNIV	Kennedy, D. A.	ARC	Ling, A. C.	NCC 2-36	1343
12	SAN JOSE STATE UNIV	Colby, M. A.	ARC	Ling, A. C.	NCC 2-57	1344
12	SAN JOSE STATE UNIV	Fohlen, G. M.	ARC	Ling, A. C.	NCC 2-65	1345
12	SAN JOSE STATE UNIV	Rosser, R. W.	ARC	Sciter, G.	NCC 2-81	1350
12	SAN JOSE STATE UNIV	Rosser, P. W.	ARC	Hyer, M. W.	NSG 2186	1352
12	SAN JOSE STATE UNIV	Fish, R. H.	ARC	Mayer, L. A.	NSG 2371	1356
12	STANFORD UNIVERSITY	Jaffe, R.	ARC	Jaffe, R.	NGT 05-020-800	1456
12	STANFORD UNIVERSITY	Wiskerchen, M. J.	HD-ST	Spreiter, J. R.	NSG 7515	1373
12	STATE U NY-STONY BRK	Harris, J. W.	JSC	Schaeffer, O. A.	NGL 33-015-174	3333
12	STATE U NY-STONY BRK	Brabbs, T. A.	LERC	Yang, C. H.	NCC 3-2	1329
12	TEXAS A&M UNIVERSITY	Gibson, E. K.	JSC	Young, V.	NAS 9-1-1	231
12	TEXAS A&M UNIVERSITY	Devincenzi, D. L.	HD-SB	Nagvary, J.	NSG 7034	234
12	TUSKEGEE INSTITUTE	Bryan, C. J.	KSC	Dillon, J. G.	NAG10-1	1039
12	UNIV ALA-BIRMINGHAM	Devincenzi, D. L.	HD-SB	Lacey, J. C., Jr	NGR 01-010-001	1038
12	UNIV ALA-HUNTSVILLE	Ladner, E. R.	MSFC	Hendricks, J. B.	NAS 8-33384	1053
12	UNIV ALA-HUNTSVILLE	Bannister, T. C.	MSFC	Harris, J. M.	NAS 8-33978	1064
12	UNIV CALIF-BERKELEY	Altman, R. L.	ARC	Goren, S. L.	NCA 2-50001	1524
12	UNIV CALIF-BERKELEY	Altman, R. L.	ARC	Williams, M. C.	NCA 2-50995	1528
12	UNIV CALIF-BERKELEY	Devincenzi, D. L.	HD-SB	Jukes, J. J.	NGR 05-003-460	1544
12	UNIV CALIF-DAVIS	Fish, R. H.	ARC	Needles, J. J.	NCC 2-26	1571
12	UNIV CALIF-L ANGELES	Altman, R. L.	ARC	Smith, J. L.	NCA 2-390903	1609
12	UNIV CALIF-L ANGELES	Harris, J. W.	JSC	Wasson, T.	NGL 22-007-367	1615

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12	UNIV CALIF-SAN DIEGO	Harris, J. W.	JSC	Arnold, J. R.	NGL 05-009-148	1691
12	UNIV CALIF-SAN DIEGO	Harrison, J. O.	HD-ET	Martí, K.	NGL 05-009-150	1692
12	UNIV CALIF-S BARBARA	Kohl, F. J.	LERC	Steinberg, M.	NSG 3256	1754
12	UNIV OF CHICAGO	Harris, J. W.	JSC	Clayton, R. N.	NGL 14-001-169	2222
12	UNIV COLORADO-BOLDR	Whitten, R. C.	ARC	Castleman, A. W.	NSG 2248	1883
12	UNIV OF HAWAII-MANOA	Devincenzi, D. L.	HD-SB	Folsome, C. E.	NGR 12-001-109	2168
12	UNIV OF IDAHO	Rosser, R. W.	ARC	Korus, R. A.	NSG 2367	2187
12	UNIV ILLINOIS-URBANA	Devincenzi, D. L.	HD-SB	Woese, C. R.	NSG 7044	2267
12	UNIV MARYLAND-COL PK	Hochstein, L. I.	ARC	Ponnamperuma, C.	NCA 2-420001	2552
12	UNIV MARYLAND-COL PK	Mandel, A. D.	ARC	Goldsby, R. A.	NCA 2-420901	2553
12	UNIV MARYLAND-COL PK	Donn, B. D.	GSFC	Khanna, R. K.	NSG 5172	2585
12	UNIV MARYLAND-COL PK	Devincenzi, D. L.	HD-SB	Ponnamperuma, C.	NGR 21-002-317	2569
12	UNIV MARYLAND-COL PK	Young, R. S.	HD-SB	Ponnamperuma, C.	NSG 7469	2607
12	UNIV OF MASS-AMHERST	Guastaferró, A.	HD-SL	Huguenin, R. L.	NSG 7397	2832
12	UNIV OF MIAMI	Young, R. S.	HD-SB	Fox, S. W.	NGR 10-007-008	2085
12	UNIV MO-ROLLA	Graves, R. A.	LARC	Biolsi, L.	NSG 1369	2997
12	UNIV OF NEW MEXICO	Harris, J. W.	JSC	Keil, K.	NGL 32-004-063	3137
12	UNIV OF PITTSBURGH	Toth, R. A.	HD-EB	Kaufman, F.	NGR 39-011-161	3765
12	UNIV OF SANTA CLARA	Lawless, J. G.	ARC	Sweeney, M. A.	NCA 2-685005	1776
12	UNIV OF SANTA CLARA	Chang, S.	ARC	White, D. H.	NCA 2-685006	1777
12	UNIV TEXAS-AUSTIN	Wood, V.	JSC	Szebekely, V. G.	NAS 9-15567	3999
12	UNIV TEXAS-EL PASO	Ward, M.	JSC	Hoffer, J. M.	NSG 9062	4066
12	UNIV OF TOLEDO	Stearns, C. A.	LERC	Edwards, J. G.	NSG 3250	3577
12	UNIV OF UTAH	Seng, G. T.	LERC	Ursenbach, W. O.	NAG 3-27	4082
12	UNIV OF UTAH	Devincenzi, D. L.	HD-SB	Guillory, W. A.	NSG 7516	4095
12	UNIV OF WASHINGTON	Langhoff, S. R.	ARC	Davidson, E. R.	NSG 2365	4334
12	VIRGINIA POLY INST	Young, P. R.	LARC	Mason, J. G.	NSG 1085	4271
12	VIRGINIA POLY INST	Progar, D. J.	LARC	Wightman, J. P.	NSG 1124	4272
12	VIRGINIA POLY INST	St. Clair, A. K.	LARC	Taylor, L. T.	NSG 1428	4277
12	VIRGINIA POLY INST	St. Clair, T. L.	LARC	Wolfe, J. F.	NSG 1524	4278
12	VIRGINIA POLY INST	St. Clair, A. K.	LARC	McGrath, J. E.	NSG 1597	4279
12	WORCESTER POLY INST	Devincenzi, D. L.	HD-SB	Plumb, R. C.	NSG 7392	2844
12	YALE UNIVERSITY	Kohl, F. J.	LERC	Rosner, D. E.	NSG 3169	1945
13	ALABAMA A&M UNIV	Schafer, C. F.	MSFC	Lal, R. B.	NSG 8033	1002
13	ALABAMA A&M UNIV	Burns, R. E.	MSFC	Williams, A. C.	NSG 8068	1011
13	ARIZONA STATE UNIV	Curtis, H. B.	LERC	Wang, E. Y.	NAG 3-105	1090
13	BOWIE STATE COLLEGE	Caruso, A. J.	GSFC	Bhatia, M. S.	NGR 21-027-010	2474
13	BRIGHAM YOUNG UNIV	Fimmel, R. O.	ARC	Jones, D. E.	NAS 2-7358	4081
13	BROOKLYN COLLEGE	Meador, W. F.	LARC	Franco, V.	NSG 1378	3143
13	CALIF INST OF TECH	Chapman, G. T.	ARC	Liepmann, H. W.	NSG 7508	1270
13	CALIF INST OF TECH	Gemmell, J. D.	GSFC	Stone, E. C.	NAS 5-11066	1215
13	CALIF INST OF TECH	Wales, R. O.	GSFC	Stone, E. C.	NAS 5-20721	1216
13	CALIF INST OF TECH	Wende, C. D.	GSFC	Garmire, G. P.	NAS 5-25049	1219
13	CALIF INST OF TECH	Harris, J. W.	JSC	Epsman, S.	NGL 05-002-190	1237
13	CALIF INST OF TECH	Harris, J. W.	JSC	Albee, A. L.	NGL 05-002-338	1239
13	CALIF INST OF TECH	Harris, J. W.	JSC	Tombrello, T. A.	NGR 05-002-353	1246
13	CALIF INST OF TECH	DeLoach, A. C.	MSFC	Moore, R. L.	NAS 8-33215	1225
13	CALIF INST OF TECH	Henry, W.	HD-RP	Ahrens, T. J.	NSG 7458	1268
13	CALIF INST OF TECH	Bohlin, J. D.	HD-ST	Goldreich, P.	NSG 7342	1265
13	CAL STATE U-FULLERTN	Boese, R. W.	ARC	Nanes, R.	NCA 2-253901	1289
13	CAL STATE U-NRTHRDGE	Chipman, E.	HD-ST	Martin, S. F.	NAGW 27	1300
13	CAL STATE U-NRTHRDGE	Bohlin, J. D.	HD-ST	Chapman, G.	NSG 7456	1305
13	CASE WESTERN RESERVE	Kosmahl, H. G.	LERC	Hazon, D.	NAG 3-24	3404
13	CASE WESTERN RESERVE	Evans, J.	LERC	Kapoor, V. J.	NAG 3-80	3412
13	CASE WESTERN RESERVE	Purvis, C. K.	LERC	Gordan, W. L.	NSG 3197	3442
13	CASE WESTERN RESERVE	Cochran, T. H.	LERC	Ostrach, S.	NSG 3221	3447
13	CASE WESTERN RESERVE	Schaefer, D. A.	MSFC	Ostrach, S.	NAS 8-33015	3427
13	CATHOLIC UNIVERSITY	Jones, F. C.	GSFC	Wernitz, C.	NGT 09-005-809	1960

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13	CATHOLIC UNIVERSITY	Dennis, B. R.	GSFC	Wernitz, C.	NSG 5066	1961
13	CATHOLIC UNIVERSITY	McAvoy, N	GSFC	Kelley, G. L.	NSG 5111	1962
13	CATHOLIC UNIVERSITY	Hedin, A. E.	HD-ST	Whang, Y. C.	NGR 09-005-063	1959
13	CATHOLIC UNIVERSITY	Chipman, E.	HD-ST	Whang, Y. C.	NSG 7422	1964
13	CHRISTPHR NEWPR T COL	Byvik, C. E.	LARC	Buoncrisiani, A. M.	NSG 1514	4115
13	CITY U N Y-GRAD SCHL	Temkin, A.	GSFC	Mittleman, M. H.	NSG 5334	3155
13	CLARKSON COL OF TECH	Barnes, C. M.	JSC	McNulty, P.	NSG 9059	3159
13	CLARKSON COL OF TECH	Fripp, A. L.	LARC	Carlson, F.	NSG 1572	3157
13	CLARKSON COL OF TECH	Williams, J. R.	MSFC	Subramanian, R. S.	NAS 8-32944	3156
13	CLEVELAND STATE UNIV	Baraona, C. R.	LERC	Goradia, C.	NAG 3-23	3464
13	COLLEGE OF WM & MARY	Stermer, R. L.	LARC	Moriarty, J. A.	NAG 1-33	4117
13	COLLEGE OF WM & MARY	Meador, W. E.	LARC	Zang, T. A.	NSG 1564	4131
13	COLLEGE OF WM & MARY	Fripp, A. L.	LARC	Sher, A.	NSG 1653	4134
13	COLORADO STATE UNIV	McKenzie, R. L.	ARC	She, C. Y.	NSG 2287	1835
13	COLORADO STATE UNIV	Exton, R. J.	LARC	She, C. Y.	NSG 1594	1833
13	COLORADO STATE UNIV	Nakanishi, S	LERC	Etters, R. D.	NAG 3-34	1813
13	COLORADO STATE UNIV	Jones, W. R.	LERC	Spain, I. L.	NAGW 8	1819
13	COLORADO STATE UNIV	Hendricks, R. C.	LERC	Etters, R. D.	NGR 06-002-159	1831
13	COLORADO STATE UNIV	Mirtich, M. J.	LERC	Kaufman, H. R.	NSG 3086	1837
13	COLORADO STATE UNIV	Staskus, J. V.	LERC	Yadlowsky, E. J.	NSG 3145	1839
13	COLORADO STATE UNIV	Grier, N. T.	LERC	Kaufman, H. R.	NSG 3196	1840
13	CONCORDIA COL-MOORHD	Donn, B.	GSFC	Bailey, C. L.	NAS 5-26221	2930
13	CORNELL UNIVERSITY	Conrath, B. J.	GSFC	Gierasch, P. J.	NAS 5-23236	3203
13	CORNELL UNIVERSITY	Brown, G. V.	LERC	Ashcroft, N. W.	NSG 7487	3235
13	CORNELL UNIVERSITY	Birmingham, T. J.	HD-ST	Sudan, R. N.	NAGW 90	3202
13	CORNELL UNIVERSITY	Hedin, A. E.	HD-ST	Farley, D. T.	NGR 33-010-161	3217
13	DARTMOUTH COLLEGE	Cooper, D. M.	ARC	Christy, R. W.	NSG 2397	3041
13	DREXEL UNIVERSITY	Brooks, W. F.	ARC	Acquista, C.	NSG 2357	3664
13	DREXEL UNIVERSITY	Nelson, E. D.	GSFC	House, F. B.	NAS 5-22946	3657
13	DREXEL UNIVERSITY	Holland, A. C.	WFC	Acquista, C.	NSG 6019	3668
13	DREXEL UNIVERSITY	Whiting, E. E.	HD-RT	Rosen, G. H.	NSG 7491	3670
13	FISK UNIVERSITY	Stecker, F. W.	GSFC	Mickens, R. F.	NSG 5297	3812
13	FISK UNIVERSITY	Kroes, R. L.	MSFC	Silberman, F.	NSG 8060	3813
13	FLORIDA A&M UNIV	Temkin, A.	GSFC	Jones, H. W.	NSG 5307	2033
13	GEORGIA INST OF TECH	Fetler, C. E.	LERC	Wyvill, C.	NSG 3228	2137
13	GRAMBLING STATE UNIV	Hanssen, F. A.	MSFC	Cross, M. A.	NAG 8-2	2444
13	HAMPTON INSTITUTE	Jalufka, N. W.	LARC	Han, K. S.	NSG 1595	4151
13	HARVARD UNIVERSITY	Reed, E. I.	GSFC	Parkinson, W. H.	NSG 5176	2665
13	HARVARD UNIVERSITY	Snoddy, W. C.	MSFC	Vaiana, G. S.	NAS 8-31374	2649
13	HARVARD UNIVERSITY	Fallon, R. A.	MSFC	Turnbull, D.	NAS 8-32691	2650
13	HARVARD UNIVERSITY	Chipman, E.	HD-ST	Vaiana, G. S.	NAGW 2	2640
13	HARVARD UNIVERSITY	Birmingham, T. J.	HD-ST	Rosner, R.	NAGW 79	2641
13	HARVARD UNIVERSITY	Chipman, E.	HD-ST	Parkinson, W. H.	NGL 22 007-006	2654
13	HARVARD UNIVERSITY	Bohlin, J. D.	HD-ST	Parkinson, W. H.	NSG 5126	2664
13	HARVARD UNIVERSITY	Bohlin, J. D.	HD-ST	Vaiana, G. S.	NSG 7497	2679
13	HARVARD UNIVERSITY	Bohlin, J. D.	HD-ST	Vaiana, G. S.	NSG 7537	2681
13	HARVARD UNIVERSITY	Chipman, E.	HD-ST	Maxwell, A.	NSG 7648	2682
13	HOWARD UNIVERSITY	Miller, G. E.	GSFC	Halpern, J. B.	NAG 5-17	1995
13	HOWARD UNIVERSITY	Osantowski, J. F.	GSFC	Catchings, R. M.	NAG 5-79	1998
13	HOWARD UNIVERSITY	Yin, L. I.	GSFC	Tsang, T.	NGR 09-011-057	2008
13	HOWARD UNIVERSITY	Alcorn, G. E.	GSFC	Deloatch, E. M.	NSG 5158	2013
13	HOWARD UNIVERSITY	O'Keefe, J. A.	GSFC	Wallace, W. J.	NSG 5186	2014
13	JOHNS HOPKINS UNIV	Fowler, W. S.	GSFC	Fastie, W. G.	NAS 5-25358	2484
13	JOHNS HOPKINS UNIV	DeLoach, A. C.	MSFC	Roelof, E. C.	NAS 8-33106	2490
13	JOHNS HOPKINS UNIV	Huang, N. E.	WFC	Phillips, O.	NGT 21-001-980	2499
13	JOHNS HOPKINS UNIV	Roman, N. G.	HD-SC	Moos, H. W.	NAGW 16	2481
13	JOHNS HOPKINS UNIV	Wiskerchen, M. J.	HD-ST	Krimigis, S. M.	NSG 7055	2506
13	LEHIGH UNIVERSITY	Williams, J. R.	MSFC	VanDerhoff, J. W.	NAS 8-32951	3674

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13	MASS INST OF TECH	Davis, M A.	GSFC	Bridge, H S.	NAS 5-11062	2716
13	MASS INST OF TECH	Ha, Jin, J. C.	LARC	Young, J. E.	NAG 1-12	2685
13	MASS INST OF TECH	Crowell, W. F.	LARC	Hollister, W. M.	NAG 1-100	2690
13	MASS INST OF TECH	Singh, J. J.	LARC	Greytak, T. J.	NSG 1551	2773
13	MASS INST OF TECH	Greene, G. C.	LARC	Harris, W. I.	NSG 1583	2774
13	MASS INST OF TECH	Reeves, F. A.	MSFC	Hitt, A. F.	NAS 8-32994	2734
13	MASS INST OF TECH	DeLoach, A. C.	MSFC	Sullivan, J. D.	NAS 8-33137	2735
13	MASS INST OF TECH	DeLoach, A. C.	MSFC	Frankenthal, S.	NAS 8-33138	2736
13	MASS INST OF TECH	Cauffman, D. P.	HD-ST	Bridge, H. S.	NGL 22-009-015	2746
13	MIAMI UNIVERSITY	Jalufka, N. W.	LARC	Wells, W. F.	NCC 1-12	3485
13	MICHIGAN STATE UNIV	Chipman, E.	HD-ST	Stein, R. F.	NSG 7293	2851
13	NEW MEX ST U-LAS CR	Krishen, K.	JSC	Carver, K.	NAS 9-16092	3128
13	NEW YORK UNIVERSITY	Darden, C. M.	LARC	Ting, L.	NSG 1576	3258
13	NEW YORK UNIVERSITY	Weiler, F. J.	HD-SC	Glassgold, A. F.	NGR 33-016-196	3254
13	N CAR CENTRAL UNIV	McAvoy, N.	GSFC	J nes, C. R.	NSG 5120	3377
13	NO CAROLINA STATE U	Yu, J. C.	LARC	Hodgson, T. H.	NAG 1-29	3379
13	NO CAROLINA STATE U	Meador, W. F.	LARC	Hassan, H. A.	NSG 1058	3388
13	NO CAROLINA STATE U	Long, F. R., Jr	LARC	Fornes, R. E.	NSG 1562	3394
13	OHIO STATE UNIV	Boese, R. W.	ARC	Rao, K. N.	NSG 2175	3514
13	OKLAHOMA STATE UNIV	Seiner, J. M.	LARC	McLaughlin, D. K.	NAG 1-10	3590
13	OLD DOMINION UNIV	Fowler, W.	GSFC	Becher, J.	NSG 5289	4207
13	OLD DOMINION UNIV	Hoell, J. M.	LARC	Copeland, G. F.	NAG 1-1	4153
13	OLD DOMINION UNIV	Holmes, H. K.	LARC	Zuckerwar, A. J.	NAG 1-15	4154
13	OLD DOMINION UNIV	Browell, E. V.	LARC	Copeland, G. F.	NCC 1-32	4170
13	OLD DOMINION UNIV	Melfi, L. T.	LARC	Brock, I. J.	NSG 1271	4179
13	OLD DOMINION UNIV	Wilson, J. W.	LARC	Harries, W. I.	NSG 1568	4199
13	OREGON GRADUATE CTR	McKenzie, R. L.	ARC	Massey, G. A.	NAG 2-9	3619
13	OREGON GRADUATE CTR	McKenzie, R. L.	ARC	Elliott, R. A.	NSG 2387	3620
13	OREGON STATE UNIV	Harris, J. W.	JSC	Schmitt, R. A.	NGL 38-002-039	3628
13	PENN STATE U-UNIV PK	Mumma, M. J.	GSFC	Nisbet, J. S.	NGT 39-009-800	3718
13	PENN STATE U-UNIV PK	Spencer, N. W.	GSFC	Nisbet, J. S.	NSG 5212	3736
13	PENN STATE U-UNIV PK	Staskus, J. V.	IFRC	Robinson, J. W.	NSG 3166	3726
13	PENN STATE U-UNIV PK	Staskus, J. V.	IFRC	Kendall, B. R.	NSG 3301	3731
13	PENN STATE U-UNIV PK	Kaiser, M. L.	HD-ST	Nisbet, J. S.	NGL 39-009-003	3715
13	POLY INST OF NY	Hedin, A. E.	HD-ST	Gross, S. H.	NAGW 51	3267
13	PRINCETON UNIVERSITY	McKenzie, R. L.	ARC	Miles, R. B.	NSG 2366	3089
13	PRINCETON UNIVERSITY	Donnelly, R. F.	GSFC	York, D. G.	NSG 5277	3094
13	PRINCETON UNIVERSITY	Bannister, T. C.	MSFC	Saville, D. A.	NAS 8-32614	3078
13	RENSSELAER POLY-NY	Meador, W. F.	LARC	Schwarz, H. J.	NSG 1628	3293
13	RENSSELAER POLY-NY	Jones, W. R.	IFRC	Lauer, J. I.	NSG 3170	3295
13	RENSSELAER POLY-NY	Lacy, L. I.	MSFC	Ross, S.	NAS 8-33074	3284
13	RICE UNIVERSITY	Taylor, H. A., Jr	GSFC	Cloutier, P. A.	NAS 5-23338	3875
13	RICE UNIVERSITY	Mumma, M. J.	GSFC	Chamberlain, J. W.	NGT 44-006-800	3891
13	RICE UNIVERSITY	Talley, D. H.	MSFC	Anderson, H. R.	NAS 8-33771	3882
13	RICE UNIVERSITY	Cauffman, D. P.	HD-ST	Michel, F. C.	NGL 44-006-012	3888
13	RICE UNIVERSITY	Schmerling, F. R.	HD-ST	Dessler, A. J.	NGR 44-006-137	3890
13	SAN FRAN STATE UNIV	Barnes, A.	ARC	Kilpatrick, T.	NCA 2-660806	1318
13	SO UNIV-BATON ROUGE	McClure, J. C.	MSFC	Collins, W. F.	NAG 8-4	2457
13	STANFORD UNIVERSITY	Brooks, W. F.	ARC	Fairbanks, W. M.	NAG 2-62	1368
13	STANFORD UNIVERSITY	Caroff, L. J.	ARC	Petrosian, V.	NCA 2-745008	1401
13	STANFORD UNIVERSITY	Arnold, J. O.	ARC	Heinemann, K.	NCC 2-30	1416
13	STANFORD UNIVERSITY	Arnold, J. O.	ARC	Heinemann, K.	NCC 2-46	1420
13	STANFORD UNIVERSITY	Chackerians, C.	ARC	Byer, R. L.	NCC 2-50	1421
13	STANFORD UNIVERSITY	McKenzie, R. L.	ARC	Byer, R. L.	NSG 2289	1461
13	STANFORD UNIVERSITY	Fellerman, K. D.	GSFC	Helliwell, R. A.	NAS 5-24409	1378
13	STANFORD UNIVERSITY	Wales, R. O.	GSFC	Wilcox, J. M.	NAS 5-24420	1379
13	STANFORD UNIVERSITY	Guidotti, J.	GSFC	Walker, A. B.	NSG 5131	1468
13	STANFORD UNIVERSITY	Potter, R. A.	MSFC	Everitt, C. W.	NAS 8-32355	1386

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13	STANFORD UNIVERSITY	Urban, E. W.	MSFC	Everitt, C. W.	NAS 8-32605	1387
13	STANFORD UNIVERSITY	Schwenk, F.	HD-RT	Harns, S. E.	NSG 7619	1477
13	STANFORD UNIVERSITY	Birmingham, T. J.	HD-ST	Sturrock, P. A.	NAGW 92	1374
13	STANFORD UNIVERSITY	Hedin, A. E.	HD-ST	Helliwell, R. A.	NGI 05-020-008	1437
13	STANFORD UNIVERSITY	Bohlin, J. D.	HD-ST	Sturrock, P. A.	NGL 05-020-272	1442
13	STANFORD UNIVERSITY	Chipman, E.	HD-ST	Tyler, G. L.	NSG 7552	1475
13	STATE U NY-STONY BRK	Harris, J. W.	JSC	Bence, A. E.	NGL 33-015-130	3332
13	STATE U NY-STONY BRK	Harris, J. W.	JSC	Papike, J. J.	NSG 9044	3347
13	STATE U NY-STONY BRK	Cochran, T. H.	LERC	Berlad, A. U.	NSG 3298	3339
13	TALLADEGA COLLEGE	Whitten, R. C.	ARC	Morrison, R. A.	NSG 2217	1023
13	TEXAS A&M UNIVERSITY	Matthews, R. E.	JSC	Rouse, J. W.	NAS 9-15451	3925
13	TEXAS A&M UNIVERSITY	Kennedy, R.	JSC	Thomas, R. E.	NAS 9-16059	3928
13	TEXAS A&M UNIVERSITY	Brown, G. V.	LERC	Ford, A. L.	NSG 3201	3944
13	TEXAS A&M UNIVERSITY	Nowakowski, M.	MSFC	Parker, D. L.	NAS 8-32527	3917
13	UNIV ALA-HUNTSVILLE	Hanssen, T.	MSFC	Wu, S. T.	NAS 8-28097	1040
13	UNIV ALA-HUNTSVILLE	Chappell, C. R.	MSFC	Comfort, R. H.	NAS 8-30563	1042
13	UNIV ALA-HUNTSVILLE	Parnell, T. A.	MSFC	Gregory, J. C.	NAS 8-31170	1043
13	UNIV ALA-HUNTSVILLE	Price, J. M.	MSFC	Christensen, D.	NAS 8-31293	1045
13	UNIV ALA-HUNTSVILLE	Vaughn, O. H.	MSFC	Hung, R. J.	NAS 8-31729	1046
13	UNIV ALA-HUNTSVILLE	Parnell, T. A.	MSFC	Gregory, J. C.	NAS 8-31895	1047
13	UNIV ALA-HUNTSVILLE	Urban, E. W.	MSFC	Karr, G. R.	NAS 8-32818	1048
13	UNIV ALA-HUNTSVILLE	DeLoach, A. C.	MSFC	Steinolfson, R. S.	NAS 8-33216	1051
13	UNIV ALA-HUNTSVILLE	Ross, B. B.	MSFC	Rush, J. E.	NAS 8-33731	1060
13	UNIV ALA-HUNTSVILLE	Fishman, G. J.	MSFC	Gregory, J. C.	NAS 8-33975	1062
13	UNIV ALA-HUNTSVILLE	Chappell, C. R.	MSFC	Comfort, R. H.	NAS 8-33982	1065
13	UNIV ALA-HUNTSVILLE	Green, J. L.	MSFC	Horwitz, J. L.	NGT 01-002-082	1069
13	UNIV ALA-HUNTSVILLE	Chipman, E.	HD-ST	Wu, S. T.	NAGW 9	1039
13	UNIV ALASKA-FAIRBANKS	Spencer, N. W.	GSFC	Rees, M. H.	NSG 5219	1084
13	UNIV OF ARIZONA	Pearl, J. C.	GSFC	Fink, U.	NCA 5-94	1149
13	UNIV OF ARIZONA	McAvoy, N.	GSFC	Lamb, W. E., Jr.	NSG 5302	1171
13	UNIV OF ARIZONA	Hedin, A. E.	HD-ST	Hsieh, K. C.	NGR 03-002-107	1156
13	UNIV OF ARIZONA	Williamson, P. R.	HD-ST	Sonett, C. P.	NSG 7024	1174
13	UNIV CALIF-BERKELEY	Kowalski, G. E.	GSFC	Anderson, K. A.	NAS 5-20079	1504
13	UNIV CALIF-BERKELEY	Davis, M. A.	GSFC	Mozer, F. S.	NAS 5-20080	1505
13	UNIV CALIF-BERKELEY	Wales, R. O.	GSFC	Heckman, H. K.	NAS 5-20995	1506
13	UNIV CALIF-BERKELEY	Guidotti, J.	GSFC	Mozer, F. S.	NGR 05-003-239	1539
13	UNIV CALIF-BERKELEY	Harris, J. W.	JSC	Reynolds, J. H.	NGL 05-003-409	1537
13	UNIV CALIF-BERKELEY	Sachse, G. W.	LARC	Chao, R. Y.	NSG 1637	1549
13	UNIV CALIF-BERKELEY	Anderson, L. M.	LERC	Gustafson, T. K.	NAG 3-88	1479
13	UNIV CALIF-BERKELEY	Birmingham, T. J.	HD-ST	Hudson, M. K.	NAGW 75	1499
13	UNIV CALIF-BERKELEY	Bohlin, J. D.	HD-ST	Lin, R. P.	NSG 7527	1564
13	UNIV CALIF-DAVIS	Hansen, C. F.	ARC	Fong, C. Y.	NAS 2-10258	1566
13	UNIV CALIF-DAVIS	Cooper, D. M.	ARC	Fong, C. Y.	NSG 2383	1574
13	UNIV CALIF-DAVIS	Nelson, D.	GSFC	Coulson, K. L.	NAS 5-22964	1567
13	UNIV CALIF-IRVINE	Whiting, E. E.	HD-RT	Wallis, R. F.	NSG 7472	1584
13	UNIV CALIF-IRVINE	Birmingham, T. J.	HD-ST	Vanhoven, G.	NAGW 93	1578
13	UNIV CALIF-IRVINE	Chipman, E.	HD-ST	VanHoven, G.	NSG 7375	1583
13	UNIV CALIF-L ANGELES	Kowalski, G. E.	GSFC	Russell, C. T.	NAS 5-20064	1598
13	UNIV CALIF-L ANGELES	Hoffman, R. A.	GSFC	Coroniti, F. V.	NAS 5-25039	1599
13	UNIV CALIF-L ANGELES	Harris, J. W.	JSC	Kaplan, I. R.	NGR 05-007-289	1618
13	UNIV CALIF-L ANGELES	Rice, E. J.	LERC	Charwat, A. F.	NSG 3236	1630
13	UNIV CALIF-L ANGELES	Birmingham, T. J.	HD-ST	Kennel, C. F.	NAGW 78	1592
13	UNIV CALIF-L ANGELES	Taylor, W. W.	HD-ST	Holzer, R. E.	NGR 05-007-276	1617
13	UNIV CALIF-L ANGELES	Bohlin, J. D.	HD-ST	Ulrich, R. K.	NSG 7407	1648
13	UNIV CALIF-SAN DIEGO	Cochran, T. H.	LERC	Williams, F. A.	NSG 3296	1702
13	UNIV CALIF-SAN DIEGO	DeLoach, A. C.	MSFC	Svestka, Z.	NAS 8-32984	1678
13	UNIV CALIF-SAN DIEGO	Kaluzienski, L. J.	HD-SC	Petersen, L. E.	NGL 05-005-003	1684
13	UNIV CALIF-SAN DIEGO	Hedin, A. E.	HD-ST	McIwain, C. E.	NGL 05-005-007	1686

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13	UNIV CALIF-SAN DIEGO	Chipman, E.	HD-ST	Peterson, L F	NSG 7161	1709
13	UNIV CALIF-SAN DIEGO	Chipman, E.	HD-ST	Canfield, R C.	NSG 7406	1712
13	UNIV CALIF-S BARBARA	Brooks, W F	ARC	Vanyo, J.	NAG 2-27	1742
13	UNIV CALIF-S BARBARA	McKenzie, R L.	ARC	Colson, W B	NAG 2-48	1743
12	UNIV CALIF-S BARBARA	Cassen, P.	ARC	Peale, S J	NCA 2-680805	1747
13	UNIV OF CHICAGO	Gallagher, W F.	GSFC	Meyer, P.	NAS 5-20674	2209
13	UNIV OF CHICAGO	Davis, M A	GSFC	Simpson, J. A	NAS 5-24430	2210
13	UNIV OF CHICAGO	Harris, J W	JSC	Anders, E.	NGL 14-001-167	2221
13	UNIV OF CHICAGO	Harris, J W	JSC	Smith, J V	NGL 14-001-171	2223
13	UNIV OF CINCINNATI	Blue, J W	IFRC	Selberg, B P	NSG 3091	3550
13	UNIV COLORADO-BOLDR	Bissell, E E	GSFC	Rottman, G T	NSG 5178	1887
13	UNIV COLORADO-BOLDR	Weiler, E J.	HD-SC	Timothy, G	NSG 7459	1902
13	UNIV COLORADO-BOLDR	Strickland, A T	HD-SL	Levine, J	NSG 7344	1900
13	UNIV COLORADO-BOLDR	Birmingham, T J	HD-ST	Dulk, G A.	NAGW 91	1863
13	UNIV COLORADO-BOLDR	Chipman, E.	HD-ST	Linsky, J L	NGL 06-003-057	1880
13	UNIV COLORADO-BOLDR	Bohlin, J. D	HD-ST	Chipman, E	NSG 7165	1895
13	UNIV COLORADO-BOLDR	Chipman, E	HD-ST	Dulk, G A	NSG 7287	1897
13	UNIV COLORADO-BOLDR	Chipman, E	HD-ST	Thomas, R N	NSG 7291	1898
13	UNIV COLORADO-BOLDR	Chipman, E	HD-ST	Smith, D. F	NSG 7507	1904
13	UNIV COLORADO-BOLDR	Chipman, E	HD-ST	Gebbie, K. B	NSG 7511	1905
13	UNIV DC-MT VERNON SQ	Mentall, J F	GSFC	Morgan, H D	NSG 5192	2023
13	UNIV OF DENVER	Goldberg, R	GSFC	Barcus, J	NAS 5-25862	1917
13	UNIV OF FLORIDA	Hohl, F	LARC	Schneider, R T	NSG 1586	2068
13	UNIV OF FLORIDA	Thom, K.	HD-RR	Schneider, R T	NGL 10-005-089	2062
13	UNIV OF HAWAII-MANOA	DeLoach, A C	MSFC	Heasley, J N	NAS 8-33219	2162
13	UNIV OF HAWAII-MANOA	Boyce, J M	HD-SL	Morrison, D	NSG 7633	2185
13	UNIV OF HAWAII-MANOA	Chipman, E.	HD-ST	Jeffries, J T	NSG 7536	2182
13	UNIV ILLINOIS-URBANA	Spencer, N W	GSFC	Sechrist, C F, Jr	NSG 5213	2263
13	UNIV ILLINOIS-URBANA	Jalufka, N W	LARC	Miley, G H	NSG 1547	2258
13	UNIV ILLINOIS-URBANA	Hohl, F	LARC	Verdeyen, J T	NSG 1609	2259
13	UNIV ILLINOIS-URBANA	Cochran, T H	IFRC	Strehlow, R A	NSG 3293	2261
13	UNIV OF IOWA	Stallcop, J R	ARC	Stwalley, W C	NSG 2327	2373
13	UNIV OF IOWA	Gemmell, J D	GSFC	Frank, L A	NAS 5-11064	2353
13	UNIV OF IOWA	Davis, M A	GSFC	Gurnett, D. A	NAS 5-20093	2356
13	UNIV OF IOWA	Wales, B	GSFC	Frank, L A.	NAS 5-20094	2357
13	UNIV OF IOWA	Fellerman, K D	GSFC	Frank, L A	NAS 5-24293	2358
13	UNIV OF IOWA	Fellerman, K D	GSFC	Shawhan, S. D	NAS 5-24294	2359
13	UNIV OF IOWA	Heppner, J P	GSFC	Gurnett, D. A.	NAS 5-24336	2360
13	UNIV OF IOWA	Gemmell, J D	GSFC	Frank, L A	NAS 5-25530	2361
13	UNIV OF IOWA	Guynes, B V	MSFC	Shawhan, S.	NAS 8-33770	2368
13	UNIV OF IOWA	Blue, J W	HD-RT	Stwalley, W C	NSG 7471	2377
13	UNIV OF IOWA	Hedin, A F	HD-ST	VanAllen, J A	NGL 16-001-002	2369
13	UNIV OF IOWA	Hedin, A F	HD-ST	Gurnett, D A	NGL 16-001-043	2370
13	UNIV OF KANSAS	Purvis, C K.	LERC	Armstrong, T P	NSG 3290	2412
13	UNIV MARYLAND-COL PK	Corrigan, J P	GSFC	Gloeckler, G	NAS 5-11063	2535
13	UNIV MARYLAND-COL PK	Corrigan, J P	GSFC	Gloeckler, G.	NAS 5-20062	2536
13	UNIV MARYLAND-COL PK	Conrath, B J	GSFC	Ponnamperuma, C	NAS 5-23237	2537
13	UNIV MARYLAND-COL PK	Hoffman, R A	GSFC	Coplan, M A	NGR 21-002-291	2567
13	UNIV MARYLAND-COL PK	Teegarden, B.	GSFC	Gloeckler, G	NGR 21-002-316	2568
13	UNIV MARYLAND-COL PK	McDonald, F	GSFC	McDonald, F	NGT 21-002-803	2576
13	UNIV MARYLAND-COL PK	Bissell, E E	GSFC	Moore, J H	NSG 5177	2586
13	UNIV MARYLAND-COL PK	Heaps, W S	GSFC	McIlrath, T J.	NSG 5313	2591
13	UNIV MARYLAND-COL PK	Simoneau, R J	LERC	Sengers, J V	NGR 21-002-344	2570
13	UNIV MARYLAND-COL PK	Urban, F W	MSFC	Geisler, J F	NAS 8-33557	2549
13	UNIV MARYLAND-COL PK	Toth, R A	HD-EB	Ginter, M L	NSG 7340	2604
13	UNIV MARYLAND-COL PK	Lundholm, J G, Jr	HD-RS	Spain, I L	NSG 7496	2609
13	UNIV MARYLAND-COL PK	Whiting, F E	HD-RT	Weber, J	NSG 7196	2601
13	UNIV MARYLAND-COL PK	Birmingham, T J	HD-ST	Papadopoulos, K	NAGW 81	2534

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13	UNIV MARYLAND-COL PK	Chipman, E	HD-ST	Kundu, M. R	NGR 21-002-199	2564
13	UNIV MARYLAND-COL PK	Bohlin, J. D.	HD-ST	Spicer, D. S.	NSG 7427	2606
13	UNIV OF MASS-AMHERST	Harris, J. W.	JSC	Haggerty, S. E.	NGL 22-010-089	2830
13	UNIV MICH-ANN ARBOR	Fellerman, K. D.	GSFC	Carignan, G. R.	NAS 5-24295	2874
13	UNIV MICH-ANN ARBOR	Fellerman, K. D.	GSFC	Hays, P. B.	NAS 5-24296	2875
13	UNIV MICH-ANN ARBOR	Hoffman, R. A.	GSFC	Nagy, A. F.	NAS 5-25038	2879
13	UNIV MICH-ANN ARBOR	Haykin, D.	GSFC	Carignan, G. R.	NAS 5-25158	2882
13	UNIV MICH-ANN ARBOR	Krehbiel, J. P.	GSFC	Carignan, G. R.	NAS 5-25409	2883
13	UNIV MICH-ANN ARBOR	Spencer, N. W.	GSFC	Carignan, G. R.	NAS 5-25916	2885
13	UNIV MICH-ANN ARBOR	Bissell, E. F.	GSFC	Sharp, W. E.	NGR 23-005-360	2902
13	UNIV MICH-ANN ARBOR	Hedin, A. E.	HD-ST	Samir, U.	NGR 23-005-320	2901
13	U MINN-MNPLS-ST PAUL	Brooks, W. F.	ARC	Scriven, L. F.	NAG 2-63	2934
13	U MINN-MNPLS-ST PAUL	Sugiura, M.	GSFC	Cahill, L. J., Jr	NAS 5-25389	2938
13	U MINN-MNPLS-ST PAUL	Guidotti, J.	GSFC	Winckler, J. R.	NSG 5088	2949
13	U MINN-MNPLS-ST PAUL	Guidotti, J.	GSFC	Kellogg, P. J.	NSG 5373	2950
13	U MINN-MNPLS-ST PAUL	Harris, J. W.	JSC	Pepin, R. O.	NGL 24-005-225	2943
13	U MINN-MNPLS-ST PAUL	Kerslake, W. R.	LERC	Wehner, G. K.	NSG 3041	2948
13	U MINN-MNPLS-ST PAUL	Lundholm, J. G., Jr	HD-RS	Scriven, L. F.	NSG 7296	2957
13	UNIV NEW HAMP-DURHAM	Birmingham, T. J.	GSFC	Fisk, L. A.	NAGW 76	3048
13	UNIV NEW HAMP-DURHAM	Trainor, J. H.	GSFC	Webber, W. R.	NAS 5-24354	3051
13	UNIV NEW HAMP-DURHAM	VonRosenvinge, T. T.	GSFC	Fisk, L. A.	NAS 5-25642	3053
13	UNIV NEW HAMP-DURHAM	Chipman, E.	HD-ST	Fisk, L. A.	NSG 7411	3060
13	UNIV OF NOTRE DAME	Scott, J. N.	LERC	Atassi, H.	NSG 3195	2328
13	UNIV OREGON-EUGENE	Brooks, W.	ARC	Donnelly, R.	NAG 2-7	3634
13	UNIV OREGON-EUGENE	Harris, J. W.	JSC	Weill, D. F.	NGL 38-003-022	3636
13	UNIV OF PACIFIC	Lee, G.	ARC	Perry, R. L.	NCA 2-588001	1764
13	UNIV OF PENNSYLVANIA	Hansen, C. F.	ARC	Rabin, S.	NAS 2-10070	3745
13	UNIV OF PITTSBURGH	Cooper, D. M.	ARC	Jordan, K. D.	NSG 2407	3766
13	UNIV OF PITTSBURGH	Kostuk, T.	GSFC	Falk, J.	NAS 5-25013	3757
13	UNIV OF ROCHESTER	Stallcop, J. R.	ARC	George, T. F.	NSG 2198	3358
13	UNIV OF ROCHESTER	Bohlin, J. D.	HD-ST	Thomas, J. H.	NSG 7562	3361
13	UNIV SAN FRANCISCO	Thirolf, R. G.	JSC	Benton, F. V.	NAS 9-15337	1769
13	UNIV SAN FRANCISCO	Parnell, T. A.	MSFC	Benton, F. V.	NAS 8-26758	1767
13	UNIV OF SANTA CLARA	Whitten, R. C.	ARC	McCormick, P. T.	NCA 2-685906	1780
13	UNIV OF SOUTHERN CAL.	Bissell, E. F.	GSFC	Judge, D. L.	NSG 5108	1803
13	UNIV OF SOUTHERN CAL.	Schmerling, E. R.	HD-ST	Intriligator, D. S.	NGR 05-018-181	1797
13	UNIV OF SOUTHERN CAL.	Cauuffman, D. P.	HD-ST	Intriligator, D. S.	NGR 05-018-185	1798
13	UNIV SO MISSISSIPPI	Jones, J. J.	LARC	Rayborn, G. H.	NAG 1-49	2981
13	UNIV TENNESSEE-KNOXV	Maguire, W. C.	GSFC	Fox, K.	NAS 5-25428	3827
13	UNIV TENNESSEE-KNOXV	Fichtl, G. H.	MSFC	Antar, B.	NAS 8-33447	3833
13	UNIV TENNESSEE-KNOXV	Parker, J. R.	MSFC	Hung, J. C.	NAS 8-33849	3835
13	UNIV TEXAS-AUSTIN	Rice, E. J.	LERC	Blackstock, D. T.	NSG 3198	4019
13	UNIV TEXAS-DALLAS	Hoffman, R. A.	GSFC	Heelis, R. A.	NAS 5-24297	4042
13	UNIV TEXAS-DALLAS	Hoffman, R. A.	GSFC	Hanson, W. B.	NAS 5-24298	4043
13	UNIV TEXAS-DALLAS	Fellerman, K. D.	GSFC	Winningham, J. D.	NAS 5-24299	4044
13	UNIV TEXAS-DALLAS	Caporale, A. J.	GSFC	Hanson, W. B.	NAS 5-25310	4045
13	UNIV TEXAS-DALLAS	Guidotti, J.	GSFC	Winningham, J. D.	NGR 44-004-124	4058
13	UNIV TEXAS-DALLAS	Chappell, C. R.	MSFC	Hanson, W. B.	NAS 8-32831	4052
13	UNIV TEXAS-S ANTONIO	Spencer, N. W.	GSFC	Burch, J. L.	NSG 5214	4078
13	UNIV OF VIRGINIA	Beatty, M. E.	LARC	Batchman, T. F.	NSG 1567	4228
13	UNIV OF WASHINGTON	Chai, A.	LERC	Hertzberg, A.	NAG 3-16	4303
13	UNIV OF WASHINGTON	Randolph, L.	HD-RT	Hertzberg, A.	NGL 48-002-044	4327
13	UNIV WISC-MADISON	Hedin, A. E.	HD-ST	Scherb, F.	NGR 50-002-162	4395
13	UTAH STATE UNIV	Eiband, A. M.	GSFC	Banks, P. M.	NAS 5-24455	4098
13	UTAH STATE UNIV	Spencer, N. W.	GSFC	St Maurice, J. P.	NSG 5215	4104
13	UTAH STATE UNIV	Spencer, N. W.	GSFC	Foster, J. C.	NSG 5216	4105
13	UTAH STATE UNIV	Chappell, C. R.	MSFC	Banks, P. M.	NAS 8-34003	4102
13	UTAH STATE UNIV	Birmingham, T. J.	HD-ST	Schunk, R. W.	NAGW 77	4097

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13	VANDERBILT UNIVERSTY	Jalufka, N. W.	LARC	Lee, J. H.	NCC 1-8	3849
13	VIRGINIA POLY INST	Cantrell, J. H.	LARC	Claus, R. O.	NAG 1-68	4743
13	VIRGINIA STATE UNIV	Singh, J. J.	LARC	Stronach, C. E.	NSG 1342	4299
13	VIRGINIA STATE UNIV	Wilson, J. W.	LARC	Stronach, C. E.	NSG 1646	4300
13	WASHINGTON ST UNIV	Poppa, H. R.	ARC	Dickinson, J. T.	NCA 2-840002	4353
13	WASHINGTON ST UNIV	Poppa, H. R.	ARC	Dickinson, J. T.	NCA 2-840901	4354
13	WASHINGTON ST UNIV	Poppa, H. R.	ARC	Dickinson, J. T.	NCC 2-69	4355
13	WASHINGTON UNIVERSITY	Harris, J. W.	JSC	Walker, R. M.	NGL 26-008-065	3009
13	WASHINGTON UNIVERSITY	Heyman, J. S.	LARC	Miller, J. G.	NSG 1601	3011
13	WEBER STATE COL	Chipman, E.	HD-ST	Tripp, D. A.	NAGW 19	4111
13	WILLIAMS COLLEGE	Reinhardt, V. S.	GSFC	Crompton, S. B.	NSG 5218	2838
13	WRIGHT STATE UNIV	Dicarlo, J. A.	LFRC	Bambakidis, G.	NSG 3240	3588
13	YALE UNIVERSITY	Hoppe, J. C.	LARC	Chang, R. K.	NAG 1-37	1937
13	YORK COLLEGE-NY	Quaide, W. L.	HD-SL	Spergel, M. S.	NSG 7454	3362
19	ARIZONA STATE UNIV	Pollack, J. B.	ARC	Greeley, R.	NSG 2284	1102
19	ATHENS STATE COLLEGE	Reaves, F. A.	MSFC	Workman, G. L.	NAS 8-32920	1012
19	BOWIE STATE COLLEGE	Mundy, J. R.	GSFC	Butler, O. B.	NCA 5-97	2471
19	BROOKLYN COLLEGE	Byvik, C. I.	LARC	Tomkiewicz, M.	NAG 1-44	3142
19	CALIF INST OF TECH	Harris, J. W.	JSC	Ahrens, T. J.	NSG 9019	1274
19	CASE WESTERN RESERVE	Weigand, A. J.	LFRC	Gibbons, D. F.	NAS 3-22259	3423
19	CASE WESTERN RESERVE	Smetana, J.	LFRC	Collins, R. F.	NAS 3-22342	3424
19	CASE WESTERN RESERVE	Mirtich, M. J.	LFRC	Smith, S.	NSG 3131	3439
19	CASE WESTERN RESERVE	Mirtich, M. J.	LFRC	Wallace, J. F.	NSG 3279	3457
19	CHRISTPHR NEWPRT COL	Wilson, J. W.	LARC	Chang, C. K.	NSG 1614	4116
19	COLLEGE OF WM & MARY	Kepley, B. M.	LARC	Aceto, H., Jr	NAS 1-9990	4119
19	COLLEGE OF WM & MARY	Cauuffman, D. P.	HD-ST	Montgomery, D. C.	NSG 7416	4135
19	COLORADO STATE UNIV	Rango, A.	GSFC	Boyne, H. S.	NAG 5-88	1817
19	COLORADO STATE UNIV	Mirtich, M. J.	LFRC	Robinson, R. S.	NAG 3-43	1815
19	COLUMBIA UNIVERSITY	Smith, D. F.	GSFC	Johnson, T. I.	NGR 33-008-146	3181
19	COLUMBIA UNIVERSITY	Seltzer, S. M.	MSFC	Likins, P. A.	NAS 8-32212	3173
19	CORNELL UNIVERSITY	Gray, J. W.	WFC	Kelley, M. C.	NSG 6020	3229
19	DRAKE UNIVERSITY	Fowles, W. W.	MSFC	Kopicky, K. J.	NAS 8-33728	2329
19	HAMPTON INSTITUTE	Frickson, W. D.	LARC	Darden, G. C.	NAS 1-14832	4143
19	HARVARD UNIVERSITY	Heninger, L. W.	HD-SP	Field, G. B.	NSG 7176	2675
19	HOUSTON BAPTIST UNIV	McCoy, J.	JSC	Warren, D. G.	NSG 9076	3866
19	KENT STATE UNIV-KENT	Wintucky, F. G.	LFRC	Gelerinter, F.	NAS 3-21945	3478
19	MASS INST OF TECH	Stephananides, C. C.	GSFC	Shapiro, I. I.	NAS 5-25833	2727
19	MASS INST OF TECH	Pepper, S. V.	LFRC	Johnson, K. H.	NCC 3-1	2742
19	MICHIGAN STATE UNIV	Nakanishi, S.	LFRC	Asmussen, J.	NSG 3299	2850
19	MICHIGAN TECH UNIV	Moore, W. W.	MSFC	Hellawell, A.	NAS 8-33727	2852
19	MIDDLEBURY COLLEGE	Hedin, A. F.	HD-ST	Wolfson, L. T.	NAGW 54	4113
19	MORGAN STATE UNIV	Pohly, J. G.	HD-LU	Proctor, N. K.	NGT 21-0*5-006	2512
19	NEW MEX ST U-LAS CR	Mayr, H. G.	HD-ST	Theimer, O. H.	NSG 7622	3132
19	NO CAR A&T STATE U	Hoell, J. M.	LARC	Yu, C.	NAG 1-82	3369
19	NORTHWESTERN UNIV	Moore, W. W.	MSFC	Davis, S. H.	NAS 8-33881	2199
19	OLD DOMINION UNIV	Fowler, W.	GSFC	Becher, J.	NSG 5053	4206
19	OLD DOMINION UNIV	Wilson, J. W.	LARC	Khandelwal, G. S.	NCC 1-42	4172
19	PENN STATE U-UNIV PK	Toon, O. B.	ARC	Anthes, R. A.	NGT 39-009-801	3719
19	PENN STATE U-UNIV PK	Early, L. J.	WFC	Mitchell, J. D.	NSG 6-7	3696
19	PENN STATE U-UNIV PK	Early, L. J.	WFC	Hale, L. C.	NSG 6004	3739
19	PRAIRIE VIEW A&M U	White, W. L.	ARC	Jackson, B. N.	NCA 2-598001	3869
19	RENSSELAER POLY-NY	Davidson, M. C.	MSFC	Wiedemeier, H.	NAS 8-32639	3281
19	RICE UNIVERSITY	McIntyre, B.	JSC	Berstein, W.	NAS 9-16166	3885
19	RICE UNIVERSITY	Kosmahl, H. G.	LFRC	Freeman, J. W.	NAG 3-29	3871
19	RICE UNIVERSITY	Early, L. J.	WFC	Anderson, H. R.	NAG 6-5	3872
19	RICE UNIVERSITY	Hedin, A. E.	HD-ST	Bernstein, W.	NAGW 69	3873
19	STANFORD UNIVERSITY	McKenzie, R. L.	ARC	Baganoff, D.	NAG 2-36	1363
19	STANFORD UNIVERSITY	McKenzie, R. L.	ARC	Harris, S. E.	NAG 2-44	1366



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19	STANFORD UNIVERSITY	Rubesin, M. W.	ARC	Reynolds, W. C.	NCC 2-15	1412
19	STANFORD UNIVERSITY	Chapman, G. T.	ARC	Karamcheti, K.	NCC 2-66	1427
19	STANFORD UNIVERSITY	Ostrow, H.	GSFC	Macovski, A.	NAS 5-25043	1381
19	STANFORD UNIVERSITY	Reeves, F. A.	MSFC	Tiller, W. A.	NAS 8-33110	1390
19	STANFORD UNIVERSITY	Hedin, A. E.	HD-ST	Crawford, F. W.	NGL 05-020-176	1440
19	STANFORD UNIVERSITY	Kaiser, M. L.	HD-ST	DaRosa, A. V.	NGR 05-020-001	1445
19	TEXAS A&M UNIVERSITY	Stonesifer, G. R.	GSFC	Harlan, J. C.	NAS 5-24383	3911
19	TUSKEGEE INSTITUTE	Kerslake, W. R.	LERC	Ray, P. K.	NAG 3-76	1027
19	UNIV ALA-HUNTSVILLE	Snoddy, W. C.	MSFC	Wu, S. T.	NAS 8-33132	1050
19	UNIV ALA-HUNTSVILLE	Morgan, S. H.	MSFC	Wu, S. T.	NAS 8-33443	1054
19	UNIV ALA-HUNTSVILLE	Carey, T.	MSFC	Carter, E.	NAS 8-34187	1067
19	UNIV ALA-HUNTSVILLE	Tandberghanssen, E.	MSFC	Wu, S. T.	NGT 01-002-081	1068
19	UNIV ALASKA-FAIRBNKS	Early, L. J.	WFC	Wescott, E. M.	NAG 6-1	1076
19	UNIV ALASKA-FAIRBNKS	Gray, J. W.	WFC	Hallinan, T. J.	NSG 6028	1086
19	UNIV ALASKA-FAIRBNKS	Hedin, A. E.	HD-ST	Akasofu, S. I.	NSG 7447	1087
19	UNIV ALASKA-FAIRBNKS	Hedin, A. E.	HD-ST	Swift, O. W.	NSG 7625	1088
19	UNIV CALIF-BERKELEY	Bauer, E. H.	ARC	Colwell, R. N.	NCC 2-54	1530
19	UNIV CALIF-BERKELEY	King, J. H.	HD-ST	Anderson, K. A.	NGL 05-003-017	1534
19	UNIV CALIF-BERKELEY	Schmerling, E. R.	HD-ST	Hudson, M. R.	NSG 7401	1561
19	UNIV CALIF-L ANGELES	Hedin, A. E.	HD-ST	Holzer, R. E.	NAGW 74	1591
19	UNIV CALIF-L ANGELES	Glaser, H.	HD-ST	Kennel, C. F.	NGL 05-007-190	1614
19	UNIV CALIF-L ANGELES	Schmerling, E. R.	HD-ST	Stenzel, R. L.	NSG 7616	1655
19	UNIV CALIF-SAN DIEGO	Rubesin, M. W.	ARC	Rosenblatt, M.	NSG 2376	1699
19	UNIV CALIF-SAN DIEGO	Holweck, E. C.	GSFC	Goodkind, J. M.	NSG 5331	1705
19	UNIV CALIF-SAN DIEGO	Quaide, W. L.	HD-SL	Suess, H. E.	NGL 05-009-005	1689
19	UNIV CALIF-SAN DIEGO	Schmerling, E. R.	HD-ST	Alfven, H.	NSG 7623	1714
19	UNIV CALIF-S BARBARA	Harris, J. W.	JSC	Fuller, M. D.	NSG 9020	1757
19	UNIV COLORADO-BOLDR	Hall, C. F.	ARC	Stewart, I. A.	NAS 2-9477	1864
19	UNIV COLORADO-BOLDR	Guidotti, J.	GSFC	Barth, C. A.	NSG 5103	1885
19	UNIV DC-VAN NESS	Chappelle, E. W.	GSFC	Wattlington, R. A.	NSG 5290	2027
19	UNIV OF HAWAII-MANOA	Finley, C. J.	HD-ER	Berg, E.	NSG 7179	2175
19	UNIV HOUSTON-HOUSTON	Schneider, H. J.	JSC	Middleditch, B. S.	NGT 44-005-800	3966
19	UNIV HOUSTON-HOUSTON	Schmerling, E. R.	HD-ST	Sheldon, W. R.	NSG 7609	3974
19	UNIV ILLINOIS-URBANA	Gray, J. W.	WFC	Bowhill, S. A.	NGR 14-005-181	2256
19	UNIV OF IOWA	Hedin, A. E.	HD-ST	Joyce, G.	NSG 7632	2378
19	UNIV OF KANSAS	Hedin, A. E.	HD-ST	Beard, D. B.	NAGW 71	2392
19	UNIV MARYLAND-COL PK	Hedin, A. E.	HD-ST	Wu, C. S.	NGL 21-002-005	2559
19	UNIV MICH-ANN ARBOR	Ruff, R. C.	MSFC	Cargnan, G. R.	NAS 8-31987	2891
19	UNIV MICH-ANN ARBOR	Chappell, C. R.	MSFC	Cargnan, G. R.	NAS 8-32332	2892
19	UNIV MICH-ANN ARBOR	Jones, C.	MSFC	Torr, M. R.	NAS 8-32569	2893
19	U MINN-MNPLS-ST PAUL	Early, L. J.	WFC	Nier, A. O.	NSG 6009	2952
19	U MINN-MNPLS-ST PAUL	Early, L. J.	WFC	Cahill, L. J., Jr.	NSG 6021	2953
19	U MINN-MNPLS-ST PAUL	Cauffman, D. P.	HD-ST	Cahill, L. J., Jr.	NSG 7237	2956
19	UNIV NEVADA-DRI	Smith, R. E.	MSFC	Telford, J. W.	NAS 8-31441	3029
19	UNIV NEW HAMP-DURHAM	Wende, C. D.	GSFC	Arnoldy, R. L.	NAS 5-24328	3050
19	UNIV NEW HAMP-DURHAM	Early, L. J.	WFC	Arnoldy, R. L.	NSG 6022	3059
19	UNIV OF PENNSYLVANIA	Singer, J.	LERC	Worrell, W. L.	NSG 3300	3751
19	UNIV OF PITTSBURGH	Early, L. J.	WFC	Zipf, E. C.	NAG 6-2	3755
19	UNIV OF PITTSBURGH	Gray, J. W.	WFC	Zipf, E. C.	NSG 6011	3771
19	UNIV STHN COLORADO	Lofgren, G.	JSC	Smith, R. K.	NSG 9051	1926
19	UNIV TEXAS-AUSTIN	Stephananides, C. C.	GSFC	Tapley, B. D.	NAS 5-25991	3991
19	UNIV TEXAS-AUSTIN	White, W.	GSFC	Shelus, P. J.	NSG 7162	4028
19	UNIV TEXAS-AUSTIN	Finley, C. J.	HD-ER	Dorman, J. H.	NSG 7159	4027
19	UNIV TEXAS-AUSTIN	Shirey, W. H.	HD-SM	Silverberg, E. C.	NASW 2974	4004
19	UNIV TEXAS-DALLAS	Chappell, C. R.	MSFC	Hanson, W. B.	NAS 8-31775	4050
19	UNIV TEXAS-DALLAS	Hedin, A. E.	HD-ST	Heikkila, W. J.	NAGW 53	4038
19	UTAH STATE UNIV	Early, L. J.	WFC	Williamson, P. R.	NSG 6027	4106
19	VIRGINIA POLY INST	Byvik, C. E.	LARC	Finklea, H. O.	NAG 1-89	4246

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19	VIRGINIA POLY INST	Parker, L. C.	WFC	Powell, N. L.	NSG 6029	4295
19	VIRGINIA POLY INST	Scott, J. H.	WFC	Powell, N. L.	NSG 6030	4296
19	VIRGINIA POLY INST	Parker, L. C.	WFC	Powell, N. L.	NSG 6031	4297
21	ALABAMA A&M UNIV	Smith, O. E.	MSFC	Temple, E. C.	NSG 8065	1008
21	ARIZONA STATE UNIV	Lee, G.	MSFC	Woodfin, M. A.	NAS 8-32230	1096
21	BOWIE STATE COLLEGE	Maury, J. L.	GSFC	Srivastava, S.	NGR 21-027-004	2473
21	CLEMSON UNIV-CLEMSON	Lallman, F. J.	LARC	Fennell, R. E.	NAG 1-81	3792
21	COLLEGE OF WM & MARY	Harris, J. L.	LARC	Donegan, M. K.	NSG 1435	4130
21	COLORADO STATE UNIV	Lomax, H.	ARC	Thomas, J. W.	NCA 2-165001	1827
21	COLORADO STATE UNIV	Murphy, J. D.	ARC	Prenter, P. M.	NCA 2-165901	1828
21	COLORADO STATE UNIV	Toll, D.	GSFC	Maxwell, E.	NAS 5-26127	1825
21	COOPER UNION COLLEGE	Evans, J. S.	LARC	Chintz, W.	NAG 1-18	3194
21	DUKE UNIVERSITY	Hallum, C. R.	JSC	Hartley, H. O.	NAS 9-16020	3364
21	DUKE UNIVERSITY	Ford, W. F.	LERC	Smith, D. A.	NSG 3160	3367
21	HAMPTON INSTITUTE	Haigler, G. W.	LARC	Shan, S. N.	NCC 1-7	4147
21	HARVARD UNIVERSITY	Quann, J.	GSFC	Teicholz, E.	NAS 5-25989	2647
21	HOWARD UNIVERSITY	Laughlin, C. R.	GSFC	Gill, T. L.	NSG 5295	2016
21	IOWA STATE UNIV	Shoosmith, J. N.	LARC	Funberg, R. B.	NSG 1538	2346
21	LEHIGH UNIVERSITY	Fichter, W. B.	LARC	Erdogan, F.	NGR 39-007-011	3677
21	MISSISSIPPI STATE U	Smith R. E., Jr.	LARC	Thompson, J. F.	NSG 1577	2978
21	MOREHOUSE COLLEGE	Campbell, W.	MSFC	Bozeman, R. E.	NAG 8-3	2143
21	NEW MEX ST U-LAS CR	Chapman, G. T.	ARC	McLeod, R. J.	NAG 2-23	3123
21	NEW YORK UNIVERSITY	Warming, R. F.	ARC	Herzen, A.	NCA 2-525001	3252
21	NEW YORK UNIVERSITY	South, J. C., Jr.	LARC	Garabedian, P. R.	NSG 1579	3259
21	NEW YORK UNIVERSITY	Knight, J. C.	LARC	Schwartz, J. T.	NSG 1610	3260
21	NO CAR A&T STATE U	Ramapriyan, H. K.	GSFC	Alexander, W. E.	NSG 5406	3375
21	OLD DOMINION UNIV	Harris, J. E.	LARC	Lakin, W. D.	NAG 1-25	4156
21	OREGON STATE UNIV	Lomax, H.	ARC	Jespersen, D. C.	NCA 2-586001	3627
21	PURDUE UNIVERSITY	Grenchik, T. J.	GSFC	Williams, T. J.	NAS 5-26196	2297
21	RENSSELAER POLY-NY	Pennington, J. E.	LARC	Shen, C. N.	NAG 1-61	3276
21	SAN JOSE STATE UNIV	Duval, R. W.	ARC	Wang, J. C.	NCC 2-83	1351
21	STANFORD UNIVERSITY	Warming, R. E.	ARC	Schreiber, R. S.	NCA 2-745002	1397
21	UNIV CALIF-L ANGELES	Ballhaus, W. F.	ARC	Osher, S.	NCA 2-390002	1608
21	UNIV DC-MT VERNON SQ	Lefferts, E.	GSFC	Baksh, J. S.	NSG 5122	2022
21	UNIV OF FLORIDA	Haigler, G. W.	LARC	Edwards, B. H.	NAG 1-39	2047
21	UNIV OF GEORGIA	Toll, D.	GSFC	Jensen, J. R.	NAS 5-26129	2146
21	UNIV ILLINOIS-URBANA	Foudnat, E. C.	LARC	Campbell, R. H.	NSG 1471	2257
21	UNIV MARYLAND-COL PK	Gevarter, W. B.	HD-RE	Minker, J.	NGR 21-002-270	2566
21	UNIV OF MIAMI	Tucker, J. H.	LARC	Tapia, M. A.	NSG 1436	2087
21	UNIV NEW HAMP-DURHAM	MacElroy, R. D.	ARC	Moore, B.	NCA 2-512901	3054
21	UNIV OF NEW ORLEANS	Lambiotte, J. J.	LARC	Ioup, G. E.	NSG 1648	2466
21	UNIV OF SO FLORIDA	Huck, F. O.	LARC	Tsokos, C. P.	NAG 1-9	2091
21	UNIV OF SOUTHERN CAL	Jaffee, R. L.	ARC	Segal, G. A.	NSG 2351	1801
21	UNIV TENNESSEE-KNOXV	Smith, R. E.	LARC	Baker, A. J.	NAG 1-32	3820
21	UNIV TEXAS-AUSTIN	Fuchs, A. J.	GSFC	Tapley, B. D.	NSG 5154	4020
21	UNIV TEXAS-AUSTIN	Krshen, K.	JSC	Griffin, C. R.	NAS 9-16171	4002
21	UNIV OF VIRGINIA	Bowles, R. L.	LARC	Brown, R. L., Jr.	NSG 1335	4226
21	WALLA WALLA COLLEGE	Schmidt, R.	GSFC	Heisler, R.	NAS 5-25994	4351
21	WESTERN ILLINOIS U	Loendorf, D. D.	LARC	McBride, W. E.	NAG 1-42	2271
21	WICHITA STATE UNIV	Smith, J. M.	LERC	Greywall, M. S.	NSG 3186	2423
21	XAVIER UNIV-LA	Wood, G. M.	LARC	Ioup, J.	NAG 1-16	2468
22	ARIZONA STATE UNIV	Milner, E. J.	LERC	Ogrady, E. P.	NAG 3-112	1091
22	CAL STATE U-FULLERTN	Tobias, L.	ARC	Dear, R. G.	NCA 2-253801	1288
22	COLLEGE OF WM & MARY	Harris, J. L.	LARC	Feyock, S.	NAG 1-62	4118
22	COLLEGE OF WM & MARY	Foudnat, E. C.	LARC	Feyock, S.	NSG 1626	4133
22	MASS INST OF TECH	Shoosmith, J. N.	LARC	Moses, J.	NSG 1323	2769
22	NO CAROLINA STATE U	Park, S. K.	LARC	Roulier, J. A.	NSG 1549	3393
22	OLD DOMINION UNIV	Foudnat, E. C.	LARC	Knapper, R. J.	NAG 1-47	4157

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22	PENN STATE U-UNIV PK	Dottavio, C L	GSFC	Turner, B.	NAS 5-26166	3702
22	SAN JOSE STATE UNIV	Chyu, W J.	ARC	Mitchem, J.	NCA 2-675901	1331
22	SO UNIV-BATON ROUGE	Smith, J. A.	HD-NS	Roquemore, L	NASW 3344	2459
22	STANFORD UNIVERSITY	Beam, R M	ARC	Oliger, J	NCA 2-745004	1398
22	ST UNIV SYSTM OF FLA	Harrison, J	HD-ET	Unavailable	NASW 3351	2041
22	TEXAS A&M UNIVERSITY	Broune, I. D	JSC	Sielken, R L	NAS 9-13894	3921
22	TEXAS A&M UNIVERSITY	Browne, I. D	JSC	Guseman, L F	NAS 9-14689	3922
22	TUSKEGEE INSTITUTE	Barker, L K	LARC	Bales, J W	NAG 1-31	1024
22	UNIV ALA-HUNTSVILLE	Jones, R E	MSFC	Shiva, S. G	NAS 8-33096	1049
22	UNIV CALIF-L ANGELES	Raby, J S	ARC	Karplus, W J	NAG 2-41	1585
22	UNIV DC-VAN NESS	Purves, L. R	GSFC	Finley, G T	NAG 5-91	2025
22	UNIV OF GEORGIA	Harrison, J. O	HD-ET	Hale, H	NASW 3247	2147
22	UNIV OF KENTUCKY	Harrison, J. O	HD-ET	Hackbarth, M	NASW 3367	2431
22	UNIV MARYLAND-COL PK	Desjardins, R L	GSFC	Rieger, C J	NAG 5-99	2527
22	UNIV MARYLAND-COL PK	Barker, L. K.	LARC	Minker, J	NAG 1-51	2519
22	UNIV MARYLAND-COL PK	Gevarter, W. B	HD-RT	Rieger, C J	NSG 7253	2602
22	UNIV OF PITTSBURGH	Bivins, R G	HD-ET	Thompson, J H	NASW 3403	3759
22	UNIV OF SANTA CLARA	Knauer, S C	ARC	Danielson, R L	NCA 2-685905	1779
22	UNIV OF SOUTHERN CAL	Pennington, J E	LARC	Heer, F	NCC 1-38	1794
22	UNIV TEXAS-AUSTIN	Schiess, J R	LARC	Cline, A K	NAG 1-79	3981
22	UNIV TEXAS-AUSTIN	Shipman, F S.	LARC	Browne, J. C	NSG 1446	4013
22	UNIV TEXAS-AUSTIN	Will, R W	LARC	Browne, J C	NSG 1479	4014
22	UNIV TEXAS-AUSTIN	Schiess, J R	LARC	Cline, A K	NSG 1544	4015
22	UNIV OF VIRGINIA	Will, R W	LARC	Berman, W J	NAS 1-14862	4214
31	ALCORN STATE UNIV	Grebowsky, J.	GSFC	Paul, M P	NGR 25-012-001	2959
31	ARIZONA STATE UNIV	Camp, D	MSFC	Logan, E., Jr	NAS 8-32357	1097
31	ARIZONA STATE UNIV	Boyce, J M	HD-SL	Greeley, R	NSG 7548	1108
31	AUGSBURG COLLEGE	Spencer, N W	GSFC	Engebretson, M J.	NSG 5285	2929
31	BOSTON UNIVERSITY	Guynes, B V	MSFC	Mendillo, M	NAS 8-32844	2623
31	BROWN UNIVERSITY	Oseoff, H	GSFC	Hermance, J F	NAS 5-26138	3779
31	CALIF INST OF TFCH	Pollack, J B	ARC	Yung, Y. L	NCC 2-61	1228
31	CALIF INST OF TFCH	Nelsen, F D	GSFC	Ingersoll, A P	NAS 5-22965	1218
31	CALIF INST OF TFCH	Hansen, J F	GSFC	Yung, Y L	NSG 5301	1255
31	CALIF INST OF TFCH	Donley, J L	GSFC	Zirn, H	NSG 5314	1256
31	CALIF INST OF TFCH	Donley, J L	GSFC	Zirn, H	NSG 5327	1257
31	CALIF INST OF TFCH	McDougal, D S	LARC	Seinfeld, J H	NAG 1-71	1201
31	CALIF INST OF TFCH	Murphy, R F	HD-SL	Ingersoll, A P	NAGW 58	1214
31	CALIF INST OF TFCH	Murphy, R F	HD-SL	Yung, Y L	NSG 7376	1266
31	CAL STATE U-FULLERTN	Murphy, R E	HD-SL	Ryan, J A	NSG 7614	1291
31	CAL STATE U-NRTHRDGE	Donley, J L	GSFC	Martin, S F	NSG 5324	1302
31	CAL STATE U-NRTHRDGE	Donley, J L	GSFC	Chapman, G A	NSG 5330	1303
31	CAL STATE U-NRTHRDGE	Donley, J L.	GSFC	Chapman, G A	NSG 5333	1304
31	CASE WESTERN RESERVE	Toth, R A	HD-EB	Nordstrom, R J	NAGW 31	3417
31	CITY COLLEGE OF N Y	Hansen, J E	GSFC	Spar, J	NGR 33-013-086	3150
31	CLEMSON UNIV-CLEMSON	Rodgers, F B	GSFC	Gentry, R C	NSG 5349	3798
31	CLEMSON UNIV-CLEMSON	Wexler, R	GSFC	Gentry, R C	NSG 5350	3799
31	COLLEGE OF WM & MARY	Sullivan, F M.	LARC	Schone, H	NCC 1-3	4125
31	COLLEGE OF WM & MARY	Sullivan, F M	LARC	Schone, H	NCC 1-16	4126
31	COLLEGE OF WM & MARY	Sullivan, F M	LARC	Schone, H.	NCC 1-43	4128
31	COLORADO STATE UNIV	King, M D	GSFC	McKee, T B	NAG 5-58	1816
31	COLORADO STATE UNIV	Rodgers, F B	GSFC	Vonderhaar, T H	NSG 5258	1841
31	COLORADO STATE UNIV	Arking, A	GSFC	Reiter, E R	NSG 5340	42
31	COLORADO STATE UNIV	Heymfield, G M	GSFC	Cotton, W R	NSG 5341	3
31	COLORADO STATE UNIV	Curran, R J	GSFC	Cox, S K	NSG 5357	1845
31	COLORADO STATE UNIV	MacDonald, R B	JSC	Smith, J A	NAS 9-16016	1826
31	COLORADO STATE UNIV	Harrison, I F	LARC	Vonderhaar, T H	NAS 1-15580	1820
31	COLORADO STATE UNIV	Lassiter, W S	LARC	Meroney, R N	NAS 1-15925	1821
31	COLORADO STATE UNIV	Hall, J B	LARC	Vonderhaar, T H	NAS 1-16465	1822

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31	COLUMBIA UNIVERSITY	Oseroff, H.	GSFC	Labreque, J.	NAS 5-25891	3170
31	COLUMBIA UNIVERSITY	Thaddeus, P.	GSFC	Broecker, W. S.	NCC 5-16	3178
31	COLUMBIA UNIVERSITY	Leroy, B	LERC	Stern, T. E.	NAS 5-25759	3169
31	COLUMBIA UNIVERSITY	West, G. S.	MSFC	Balachandran, N. K.	NAS 8-33378	3175
31	CORNELL UNIVERSITY	Pollack, J. B.	ARC	Burns, J. A.	NCA 2-175001	3205
31	CORNELL UNIVERSITY	Murphy, R. E.	HD-SL	Sagan, C. E.	NGL 33-010-082	3210
31	CORNELL UNIVERSITY	Murphy, R. E.	HD-SL	Gierasch, P. J.	NGL 33-010-186	3212
31	CORNELL UNIVERSITY	Quaide, W. L.	HD-SL	Burns, J. A.	NSG 7445	3234
31	CORNELL UNIVERSITY	Murphy, R. E.	HD-SL	Gierasch, P. J.	NSG 7612	3243
31	DARTMOUTH COLLEGE	Hansen, J. E.	GSFC	Self, S.	NSG 5145	3044
31	DREXEL UNIVERSITY	Farlow, N. H.	ARC	Friend, J. P.	NAG 2-10	3651
31	DREXEL UNIVERSITY	Ucellini, L. W.	GSFC	Kreitzberg, C.	NSG 5162	3666
31	DREXEL UNIVERSITY	McCormick, M. P.	LARC	Friend, J. P.	NAGW 84	3654
31	DREXEL UNIVERSITY	Reuell, J. M., III	LARC	House, F. B.	NAS 1-14393	3655
31	DREXEL UNIVERSITY	Hall, J. B.	LARC	House, F. B.	NAS 1-16428	3656
31	DREXEL UNIVERSITY	Allario, F.	LARC	Abbas, M. M.	NCC 1-33	3660
31	DREXEL UNIVERSITY	Smith, G. L.	LARC	House, F. B.	NSG 1545	3662
31	DREXEL UNIVERSITY	Schaefer, D. A.	MSFC	Lord, A. E.	NAS 8-33372	3658
31	DREXEL UNIVERSITY	Holland, A. C.	WFC	Bandy, A. R.	NSG 6007	3667
31	DUKE UNIVERSITY	Toth, R. A.	HD-FB	Delucia, F. C.	NSG 7540	3368
31	EMMANUEL COL-MASS	Spencer, N. W.	GSFC	Basu, S.	NSG 5419	2635
31	FURMAN UNIVERSITY	Mayr, H. G.	GSFC	Porter, H. S.	NAG 5-97	3800
31	FAIRFIELD UNIVERSITY	Heath, D. F.	GSFC	McFlaney, J. H.	NCC 5-6	1927
31	FAIRFIELD UNIVERSITY	Heath, D. F.	GSFC	McFlaney, J. H.	NGR 07-010-002	1928
31	FLORIDA STATE UNIV	Halem, M.	GSFC	Krishnamurti, T. N.	NAG 5-6	2034
31	FLORIDA STATE UNIV	McMaster, L. R.	LARC	Craig, R. A.	NAS 1-14930	2035
31	FLORIDA STATE UNIV	Toth, R. A.	HD-FB	Hunt, R. H.	NSG 7473	2038
31	FLORIDA STATE UNIV	Murphy, R. F.	HD-SL	Hess, S. L.	NSG 7629	2039
31	GEORGE WASHINGTON U	Orr, H. D.	LARC	Liebowitz, H.	NCC 1-1	1971
31	GEORGE WASHINGTON U	Callis, L. B.	LARC	Liebowitz, H.	NCC 1-19	1973
31	GEORGE WASHINGTON U	Callis, L. B.	LARC	Liebowitz, H.	NCC 1-39	1978
31	GEORGE WASHINGTON U	Callis, L. B.	LARC	Rogerson, A. C.	NSG 1026	1984
31	GEORGE WASHINGTON U	Smith, G. L.	LARC	Liebowitz, H.	NSG 1555	1987
31	GEORGIA INST OF TECH	Young, R. F.	ARC	Alyea, F. N.	NCC 2-9	2125
31	GEORGIA INST OF TECH	Ragent, B.	ARC	Grams, G. W.	NSG 2306	2131
31	GEORGIA INST OF TECH	Page, W. A.	ARC	Grams, G. W.	NSG 2363	2134
31	GEORGIA INST OF TECH	Levine, D. M.	GSFC	Saxena, S. K.	NAS 5-24148	2115
31	GEORGIA INST OF TECH	Reber, C. A.	GSFC	Cunnold, D. M.	NAS 5-26304	2118
31	GEORGIA INST OF TECH	Allario, F.	LARC	Davis, D. D.	NAG 1-50	2101
31	GEORGIA INST OF TECH	Reichle, H. G.	LARC	Chameides, W. L.	NAG 1-85	2102
31	GEORGIA INST OF TECH	Lawrence, G. F.	LARC	Zimmer, R. P.	NAS 1-14351	2108
31	GEORGIA INST OF TECH	McMaster, L. R.	LARC	Grams, G. W.	NAS 1-16356	2112
31	GEORGIA INST OF TECH	McMaster, L. R.	LARC	Cunnold, D. M.	NAS 1-16357	2113
31	GEORGIA INST OF TECH	McMaster, L. R.	LARC	Grams, G. W.	NSG 1493	2128
31	GEORGIA INST OF TECH	Master, L. R.	LARC	Cunnold, D. M.	NSG 1643	2130
31	GEORGIA INST OF TECH	Smith, O. F.	MSFC	Justus, C. G.	NAS 8-32897	2119
31	GEORGIA INST OF TECH	Murphy, R. E.	HD-SL	Edwards, H. D.	NGL 11-002-004	2127
31	HAMPTON INSTITUTE	Young, G. R.	LARC	Venable, D. D.	NAG 1-87	4142
31	HARVARD UNIVERSITY	Donley, J. L.	GSFC	Reeves, F. M.	NAS 5-23494	2644
31	HARVARD UNIVERSITY	Bullock, G. D.	GSFC	McElroy, M. B.	NAS 5-24134	2645
31	HARVARD UNIVERSITY	Fishman, J.	LARC	McElroy, M. B.	NAG 1-55	2636
31	HARVARD UNIVERSITY	Ballance, C. W.	WFC	Anderson, J. G.	NAS 6-3061	2648
31	HARVARD UNIVERSITY	Bogges, N. W.	HD-SC	Parkinson, W. H.	NSG 7304	2676
31	HARVARD UNIVERSITY	Murphy, R. E.	HD-SL	Goody, R. M.	NGL 22-007-228	2656
31	HARVARD UNIVERSITY	Murphy, R. E.	HD-SL	Pipkin, F. M.	NSG 7095	2674
31	HARVARD UNIVERSITY	Seals, R. K., Jr	HD-ST	Anderson, J. G.	NASW 1	2652
31	HARVARD UNIVERSITY	Kakar, R. K.	HD-ST	McElroy, M. B.	NSG 1	2662
31	IOWA STATE UNIV	Pollack, J. B.	ARC	Grossman, A. S.	NCA 2-340002	2336

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31	IOWA STATE UNIV	Shukla, J.	GSFC	Chen, T. C.	NAG 5-104	2331
31	IOWA STATE UNIV	Halem, M.	GSFC	Chen, T. C.	NSG 5339	2350
31	JOHNS HOPKINS UNIV	Bullock, G. D.	GSFC	Doering, J. P.	NAS 5-11415	2482
31	KANSAS STATE UNIV	Baldwin, R. R.	JSC	Kanemasu, E. T.	NAS 9-14899	2380
31	KEARNEY STATE COL	Patterson, A. E.	JSC	Glasser, M. E.	NAS 9-16162	3022
31	LE MOYNE-OWEN COL	Woods, D. C.	LARC	Matthews, N	NSG 1593	3814
31	LA ST U&A&M COL-BRGE	Murphy, R. E.	HD-SL	Henry, J. W.	NAGW 48	2447
31	MASS INST OF TECH	Whitten, R. C.	ARC	Prinn, R. G.	NSG 2010	2775
31	MASS INST OF TECH	Susskind, J.	GSFC	Staelin, D. H.	NAG 5-10	2699
31	MASS INST OF TECH	Brandeen, W. R.	GSFC	Staelin, D. H.	NAS 5-21980	2717
31	MASS INST OF TECH	Halem, M.	GSFC	Charney, J.	NGR 22-009-727	2762
31	MASS INST OF TECH	Hansen, J. E.	GSFC	Stone, P. H.	NSG 5113	2798
31	MASS INST OF TECH	Halem, M.	GSFC	Charney, J. G.	NSG 5166	2799
31	MASS INST OF TECH	Reichle, H. G.	LARC	Newell, R. F.	NAG 1-92	2688
31	MASS INST OF TECH	Murphy, R. E.	HD-SL	James, E. L.	NAGW 68	2709
31	MASS INST OF TECH	Murphy, R. E.	HD-SL	Lewis, J. S.	NGL 22-009-521	2750
31	MASS INST OF TECH	Murphy, R. E.	HD-SL	McCord, T. B.	NSG 7638	2818
31	MORGAN STATE UNIV	Hwang, P. H.	GSFC	Knox, N	NAG 5-14	2510
31	MORGAN STATE UNIV	Duncan, C. H.	GSFC	Oliver, F. W.	NSG 5401	2515
31	MURRAY STATE U-KY	Atwell, B. H.	NSTL	Weber, N	NAS13-111	2426
31	NEW MEX INST MINING	Vaughan, O. H.	MSFC	Brooks, M.	NAS 8-33817	3119
31	NEW YORK UNIVERSITY	Halem, M.	GSFC	Schwartz, J. T.	NSG 5034	3262
31	NEW YORK UNIVERSITY	Halem, M.	GSFC	Isaacson, E.	NSG 5130	3263
31	NEW YORK UNIVERSITY	Murphy, R. E.	HD-SL	Hoffert, M. I.	NSG 7591	3265
31	OHIO STATE UNIV	Toth, R. A.	HD-EB	Shaw, J. H.	NSG 7479	3528
31	OHIO STATE UNIV	Tilford, S. G.	HD-ST	Seliga, T. A.	NASW 3149	3503
31	OKLAHOMA STATE UNIV	Vitale, J. A.	HD-ET	Walsh, S.	NSG 7640	3600
31	OLD DOMINION UNIV	Suttles, J. T.	LARC	Tiwari, S. N.	NAG 1-21	4155
31	OLD DOMINION UNIV	Reichle, H. G., Jr	LARC	Kindle, E. C.	NCC 1-2	4165
31	OLD DOMINION UNIV	Browell, E. V.	LARC	Kindle, E. C.	NCC 1-28	4168
31	OLD DOMINION UNIV	Levine, J. S.	LARC	Tiwari, S. N.	NCC 1-30	4169
31	OLD DOMINION UNIV	McMaster, L. R.	LARC	Chu, W. P.	NSG 1341	4182
31	OLD DOMINION UNIV	Beck, S. M.	LARC	Kindle, E. C.	NSG 1395	4186
31	OLD DOMINION UNIV	Suttles, J. T.	LARC	Tiwari, S. N.	NSG 1522	4195
31	OREGON GRADUATE CTR	Reichle, H. G.	LARC	Rasmussen, R. A.	NAG 1-35	3618
31	OREGON GRADUATE CTR	Toth, R. A.	HD-FB	Rasmussen, R. A.	NSG 7457	3621
31	OREGON STATE UNIV	Shukla, J.	GSFC	Deardorff, J. W.	NAG 5-51	3623
31	OREGON STATE UNIV	Halem, M.	GSFC	Esbensen, S.	NSG 5308	3630
31	OREGON STATE UNIV	Adler, R. F.	GSFC	Decker, F. W.	NSG 5343	3631
31	OREGON STATE UNIV	Halem, M.	GSFC	Gates, W. L.	NSG 5353	3632
31	PENN STATE U-UNIV PK	Oseroff, H.	GSFC	Carlson, T. N.	NAS 5-24264	3698
31	PENN STATE U-UNIV PK	Labovitz, M.	GSFC	McMurtry, G. J.	NAS 5-25702	3700
31	PENN STATE U-UNIV PK	Uccellini, L. W.	GSFC	Anthes, R. A.	NSG 5205	3735
31	PENN STATE U-UNIV PK	Greaves, J. R.	GSFC	Clark, J. H.	NSG 5347	3738
31	PENN STATE U-UNIV PK	Kaufman, J. W.	MSFC	Clark, J. H.	NAS 8-33794	3706
31	PENN STATE U-UNIV PK	Fichtl, G. H.	MSFC	Clark, J. H.	NAS 8-33797	3707
31	PENN STATE U-UNIV PK	Duke, J. R.	WFC	Olivero, J.	NAS 6-2726	3705
31	POLY INST OF NY	Spencer, N. W.	GSFC	Gross, S. H.	NSG 5284	3272
31	PURDUE UNIVERSITY	Curran, R. J.	GSFC	Avies, R. D.	NAG 5-101	2294
31	PURDUE UNIVERSITY	Shukla, T.	GSFC	Davies, P.	NAG 5-106	2295
31	RENSELAER POLY-NY	Yates, I. C.	MSFC	Wu, S. T.	NAS 4-33562	3285
31	RENSELAER POLY-NY	Gevarter, W. B.	HD-RT	Yerazunis, S.	NASW 3279	3287
31	RENSELAER POLY-NY	Murphy, R. E.	HD-SL	Harteck, P.	NGL 33-018-007	3289
31	RICE UNIVERSITY	Teegarden, B.	GSFC	Haymes, R. C.	NAS 5-25032	3876
31	RICE UNIVERSITY	Spencer, N. W.	GSFC	Reiff, P. H.	NSG 5286	3892
31	RICE UNIVERSITY	Vaughan, W. W.	MSFC	Few, A. A.	NAS 8-33715	3881
31	RICE UNIVERSITY	Quaide, W. L.	HD-SL	Michel, F. C.	NSG 7032	3894
31	RICE UNIVERSITY	Murphy, R. E.	HD-SL	Chamberlain, J. W.	NSG 7043	3895

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31	RICE UNIVERSITY	Murphy, R. E.	HD-SL	Chamberlain, J. W.	NSG 7386	3899
31	ST LOUIS UNIVERSITY	Hill, K.	MSFC	Fuelburg, H. E.	NAS 8-33370	2985
31	SAN DIEGO STATE UNIV	Levine, J. S.	LARC	Angione, R. J.	NSG 1430	1315
31	SAN JOSE STATE UNIV	Whitten, R. C.	ARC	Riegel, C. A.	NCA 2-675007	1328
31	SAN JOSE STATE UNIV	Pollack, J. B.	ARC	Riegel, C. A.	NCC 2-2	1334
31	SAN JOSE STATE UNIV	Whitten, R. C.	ARC	Riegel, C. A.	NCC 2-68	1346
31	SAN JOSE STATE UNIV	Danielsen, E. F.	ARC	Riegel, C. A.	NCC 2-73	1348
31	SO UNIV-BATON ROUGE	ONeal, R. L.	LARC	Scott, R. L.	NAS 1-15335	2458
31	STANFORD UNIVERSITY	Halem, M	GSFC	Spreiter, J. R.	NSG 5254	1469
31	STANFORD UNIVERSITY	Guynes, B. V.	MSFC	DaRosa, A. V	NAS 8-32852	1388
31	STANFORD UNIVERSITY	Decher, R.	MSFC	Everitt, C. W	NAS 8-33796	1392
31	STANFORD UNIVERSITY	Murphy, R. E.	HD-SL	Eshleman, V. R.	NGL 05-020-014	1438
31	STATE UNIV NY-ALBANY	Page, W. A.	ARC	Lazrus, A. L.	NSG 2386	3310
31	STATE UNIV NY-ALBANY	Holdeman, J. D.	LERC	Falconer, P.	NSG 3138	3312
31	STATE UNIV NY-ALBANY	Turner, R. E.	MSFC	Orville, R. F.	NAS 8-33380	3305
31	STATE UNIV NY-ALBANY	Murphy, R. E.	HD-SL	Weinberg, J. L.	NSG 7093	3314
31	ST U NY COL-PURCHASE	Halem, M	GSFC	Tenenbaum, J	NSG 5077	3352
31	STATE U NY-STONY BRK	Chang, S.	ARC	Owens, T	NCA 2-760001	3328
31	STATE U NY-STONY BRK	Stewart, R. W.	GSFC	Hogan, J. S.	NCC 5-7	3330
31	STATE U NY-STONY BRK	Hansen, J. E.	GSFC	Owen, T	NCC 5-23	3331
31	STATE U NY-STONY BRK	Hansen, J. E.	GSFC	Owen, T	NGR 33-015-165	3336
31	STATE U NY-STONY BRK	Hall, J B	LARC	Cess, R. D	NAS 1-16444	3325
31	STATE U NY-STONY BRK	Murphy, R. E.	HD-SL	Barghoorn, F. S	NGR 33-015-139	3334
31	TEXAS A&I UNIVERSITY	Krishen, K	JSC	Jean, B. R	NAS 9-16102	3903
31	TEXAS A&M UNIVERSITY	Schmugge, T. J	GSFC	McFarland, M. J	NSG 5193	3947
31	TEXAS A&M UNIVERSITY	Hill, C. K	MSFC	Scoggins, J. R.	NAS 8-31773	3916
31	TEXAS A&M UNIVERSITY	Turner, R. F.	MSFC	Scoggins, J. R.	NAS 8-33776	3920
31	TEXAS A&M UNIVERSITY	Murphy, R. E.	HD-SL	Kattawar, G. W.	NGR 44-001-117	3936
31	UNIV ALA-HUNTSVILLE	Hanssen, E.	MSFC	Krall, K. R.	NAS 8-33525	1055
31	UNIV ALA-HUNTSVILLE	Tandberghanssen, F.	MSFC	Wu, S. T.	NAS 8-33526	1056
31	UNIV ALA-UNIVERSITY	Peters, P. N.	MSFC	Bertsch, W.	NAS 8-33507	1074
31	UNIV ALASKA-FAIRBANKS	Milliner, C. F.	WFC	Brown, N. B., Jr	NAS 6-3065	1079
31	UNIV OF ARIZONA	Fimmel, R. O.	ARC	Hunter, D. M.	NAS 2-9487	1129
31	UNIV OF ARIZONA	Spencer, N. W.	GSFC	Tomasko, M. G.	NAG 5-76	1119
31	UNIV OF ARIZONA	Sours, W. T.	GSFC	Smith, B. A.	NAS 5-25484	1132
31	UNIV OF ARIZONA	Wolff, C. L.	GSFC	Hill, H. A.	NAS 5-26176	1135
31	UNIV OF ARIZONA	Donn, B.	GSFC	Martineck, S.	NCA 5-93	1148
31	UNIV OF ARIZONA	LeVine, D. M.	GSFC	Ragudell, K. M.	NSG 5023	1168
31	UNIV OF ARIZONA	Jaffers, W.	KSC	Krider, E. P.	NAS10-8518	1146
31	UNIV OF ARIZONA	McCormick, M. P.	LARC	Herman, B. M.	NAS 1-14332	1126
31	UNIV OF ARIZONA	McMaster, L. R.	LARC	Herman, B. M.	NAS 1-14928	1127
31	UNIV OF ARIZONA	Fowles, W. W.	MSFC	Gall, R. L.	NAS 8-33815	1143
31	UNIV OF ARIZONA	Murphy, R. E.	HD-SL	Sill, G. T.	NAGW 67	1125
31	UNIV OF ARIZONA	Fellows, R. F.	HD-SL	Hoening, S. A.	NGL 03-002-019	1151
31	UNIV OF ARIZONA	Murphy, R. E.	HD-SL	Hunten, D. M.	NSG 7558	1189
31	UNIV OF ARIZONA	Murphy, R. E.	HD-SL	Tomasko, M. G.	NSG 7573	1190
31	UNIV OF ARIZONA	Newton, G. P.	HD-ST	Hunten, D. M.	NSG 7485	1186
31	UNIV ARKANSAS-FAYETTE	Smith, O. E.	MSFC	Tubbs, J. D.	NAS 8-33224	1199
31	UNIV CALIF-BERKELEY	Wales, R. O.	GSFC	Mozier, F. S.	NAS 5-25958	1515
31	UNIV CALIF-DAVIS	Millard, J. P.	ARC	Hatfield, J. L.	NCA 2-180901	1568
31	UNIV CALIF-IRVINE	Seals, R. K., Jr	HD-EB	Molina, M. J.	NSG 7208	1582
31	UNIV CALIF-L ANGELES	Fimmel, R. O.	ARC	Russell, C. T.	NAS 2-9491	1597
31	UNIV CALIF-L ANGELES	Ehernberger, L. J.	DFRC	Pruppacher, H. R.	NAG 4-3	1587
31	UNIV CALIF-L ANGELES	Ehernberger, L. J.	DFRC	Wurtick, M. C.	NSG 4024	1632
31	UNIV CALIF-L ANGELES	Halem, M.	GSFC	Suarez, J.	NGR 05-007-328	1620
31	UNIV CALIF-L ANGELES	Reed, F. I.	GSFC	Thorne, R. M.	NSG 5190	1634
31	UNIV CALIF-L ANGELES	Murphy, R. E.	HD-SL	Siscoe, C. L.	NAGW 87	1594
31	UNIV CALIF-L ANGELES	Murphy, R. E.	HD-SL	Schubert, G.	NSG 7164	1641

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31	UNIV CALIF-L ANGELES	Murphy, R. E.	HD-SL	Allen, L. H.	NSG 7239	1642
31	UNIV CALIF-L ANGELES	Murphy, R. E.	HD-SL	Coleman, P. J.	NSG 7295	1644
31	UNIV CALIF-L ANGELES	Murphy, R. E.	HD-SL	Martin, T. Z.	NSG 7594	1654
31	UNIV CALIF-SAN DIEGO	Shukla, J.	GSFC	Roads, J. O.	NAG 5-105	1667
31	UNIV CALIF-SAN DIEGO	Donley, J. L.	GSFC	Hudson, H. S.	NSG 5321	1703
31	UNIV CALIF-SAN DIEGO	Donley, J. L.	GSFC	Hudson, H. S.	NSG 5322	1704
31	UNIV CALIF-SAN DIEGO	Sullivan, E. M.	LARC	Cicerone, R. J.	NAG 1-77	1659
31	UNIV CALIF-SAN DIEGO	Chappell, C. R.	MSFC	Canfield, R. C.	NAS 8-33795	1679
31	UNIV CALIF-SAN DIEGO	Toth, R. A.	HD-EB	Cicerow, R. J.	NAGW 45	1669
31	UNIV OF CENTRAL FLA	Rudolph, H. W.	KSC	Hudson, G. M.	NAS10-9897	2046
31	UNIV OF CENTRAL FLA	Smith, O. F.	MSFC	Somerville, P. N.	NAS 8-33071	2043
31	UNIV OF CHICAGO	Adler, R. F.	GSFC	Srivastava, R. C.	NSG 5402	2234
31	UNIV OF CHICAGO	Guynes, B. V.	MSFC	Meyer, P.	NAS 8-32828	2214
31	UNIV OF CHICAGO	Dodge, J. C.	HD-EB	Fujita, T. T.	NGR 14-001-008	2225
31	UNIV OF CHICAGO	Kaluzienski, L. J.	HD-SC	Muller, D.	NSG 7464	2239
31	UNIV OF CHICAGO	Seals, R. K., Jr.	HD-ST	Kaplan, I. D.	NSG 7356	2238
31	UNIV COLORADO-BOLDR	Bullock, G. D.	GSFC	Barth, C. A.	NAS 5-11405	1865
31	UNIV COLORADO-BOLDR	Corrigan, J. P.	GSFC	Illing, R. M.	NAS 5-22409	1866
31	UNIV COLORADO-BOLDR	Donley, J. L.	GSFC	Mount, G. H.	NAS 5-26170	1871
31	UNIV COLORADO-BOLDR	Donley, J. L.	GSFC	Rottman, G. J.	NAS 5-26172	1872
31	UNIV COLORADO-BOLDR	Reber, C. A.	GSFC	London, J.	NAS 5-26303	1873
31	UNIV COLORADO-BOLDR	Reber, C. A.	GSFC	London, J.	NSG 5153	1886
31	UNIV COLORADO-BOLDR	Donley, J. L.	GSFC	Gebbie, K. B.	NSG 5318	1890
31	UNIV COLORADO-BOLDR	Reed, F. I.	GSFC	Rusch, D. W.	NSG 5372	1893
31	UNIV COLORADO-BOLDR	Toth, R. A.	HD-EB	Thomas, R. J.	NSG 7231	1896
31	UNIV COLORADO-BOLDR	Toth, R. A.	HD-EB	Timothy, J. G.	NSG 7559	1906
31	UNIV COLORADO-BOLDR	Murphy, R. F.	HD-SL	Lamont, P. J.	NGL 06-003-052	1879
31	UNIV COLORADO-BOLDR	Murphy, R. F.	HD-SL	Barth, C. A.	NGR 06-003-127	1882
31	UNIV OF CONNECTICUT	Halem, M.	GSFC	Bock, P.	NSG 5075	1932
31	UNIV OF CONNECTICUT	Halem, M.	GSFC	Lin, J. D.	NSG 5346	1933
31	UNIV DC-VAN NESS	Curran, R. J.	GSFC	Dhurna, H.	NAG 5-75	2024
31	UNIV OF DAYTON	Camp, D. W.	MSFC	Leurs, J. K.	NAS 8-33369	3564
31	UNIV OF DAYTON	Duke, J. R.	WFC	Luers, J. K.	NAS 6-2456	3560
31	UNIV OF DAYTON	Rossi, L. C.	WFC	Luers, J. K.	NAS 6-3086	3561
31	UNIV OF DELAWARE	Shukla, J.	GSFC	Willmott, C. J.	NAG 5-107	1947
31	UNIV OF DENVER	Munoz, R. M.	ARC	Murcay, D. G.	NAS 2-10158	1915
31	UNIV OF DENVER	Kunde, V. G.	GSFC	Goldman, A.	NAS 5-25097	1916
31	UNIV OF DENVER	Goad, J. H.	LARC	Goldman, A.	NAG 1-56	1911
31	UNIV OF DENVER	Goad, J. H.	LARC	Murcay, D. G.	NAG 1-57	1912
31	UNIV OF DENVER	McMaster, L. R.	LARC	Murcay, D. G.	NAS 1-14929	1913
31	UNIV OF DENVER	McMaster, L. R.	LARC	Murcay, D. G.	NAS 1-16306	1914
31	UNIV OF DENVER	Goad, J. H.	LARC	Goldman, A.	NSG 1405	1920
31	UNIV OF FLORIDA	Wilhelmi, A. J.	ARC	Lanzerotti, L. J.	NAS 2-9576	2051
31	UNIV OF FLORIDA	Horn, F. W.	KSC	Martsoff, J. D.	NAS10-9611	2055
31	UNIV OF FLORIDA	Horn, F. W.	KSC	Martsoff, J. D.	NAS10-9876	2057
31	UNIV OF FLORIDA	Horn, F. W.	KSC	Martsoff, J. D.	NAS10-9892	2058
31	UNIV OF FLORIDA	Jaffers, W.	KSC	Uman, M. A.	NGR 10-005-169	2063
31	UNIV OF FLORIDA	Reichle, H. G., Jr.	LARC	Cnemoides, W. L.	NSG 1600	2069
31	UNIV OF FLORIDA	Murphy, R. E.	HD-SL	Green, A. S.	NGL 10-005-008	2061
31	UNIV OF HAWAII-MANOA	Greaves, J. R.	GSFC	Sadler, J. C.	NAS 5-25376	2161
31	UNIV OF HAWAII-MANOA	Theon, J. S.	GSFC	Ramage, C. S.	NSG 5159	2170
31	UNIV OF HAWAII-MANOA	Donley, J. L.	GSFC	Jefferes, J. T.	NSG 5317	2173
31	UNIV OF HAWAII-MANOA	Donley, J. L.	GSFC	Orrall, F. Q.	NSG 5326	2174
31	UNIV OF HAWAII-MANOA	Quaide, W. L.	HD-SL	McCord, T. B.	NSG 7590	2183
31	UNIV HOUSTON-HOUSTON	Murphy, R. F.	HD-SL	Smith, R. S.	NAGW 39	3956
31	UNIV HOUSTON-CL LAKE	Clark, J.	MSFC	Samfield, E.	DEN 8-1	3977
31	UNIV ILLINOIS-URBANA	Donley, J. L.	GSFC	Mouschovias, T. C.	NSG 5319	2267
31	UNIV ILLINOIS-URBANA	Toth, R. A.	HD-EB	Bowhill, S. A.	NSG 7506	2266

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31	UNIV OF IOWA	Davis, M. A.	GSFC	Gurnett, D. A.	NAS 5-11431	2355
31	UNIV OF IOWA	Wales, R. O.	GSFC	Frank, L. A.	NAS 5-26257	2366
31	UNIV OF IOWA	Guynes, B. V.	MSFC	Shawhan, S. D.	NAS 8-32807	2367
31	UNIV OF KANSAS	Schmugge, T. J.	GSFC	Ulaby, F. T.	NAS 5-25807	2397
31	UNIV OF KANSAS	Demel, K. J.	JSC	Ulaby, F. T.	NAS 9-15421	2398
31	UNIV OF KENTUCKY	Reichle, H. G., Jr.	LARC	Peters, L. K.	NSG 1424	2432
31	UNIV OF KENTUCKY	Reichle, H. G., Jr.	LARC	Peters, L. K.	NSG 1501	2433
31	UNIV MARYLAND-COL PK	Page, W. A.	ARC	Zoller, W. H.	NAG 2-28	2520
31	UNIV MARYLAND-COL PK	Halem, M.	GSFC	Baer, F.	NAG 5-26	2522
31	UNIV MARYLAND-COL PK	Donley, J. L.	GSFC	Schmadl, E. J.	NAG 5-29	2523
31	UNIV MARYLAND-COL PK	Friskey, J. L.	GSFC	Currie, D. G.	NAG 5-90	2526
31	UNIV MARYLAND-COL PK	Sours, W. T.	GSFC	Currie, D. G.	NAS 5-25486	2541
31	UNIV MARYLAND-COL PK	Donn, B. D.	GSFC	Trasco, J. D.	NGL 21-002-033	2560
31	UNIV MARYLAND-COL PK	Hartle, R. E.	GSFC	Matthews, D. L.	NGR 21-002-096	2563
31	UNIV MARYLAND-COL PK	Neil, E. A.	GSFC	Thompson, O. E.	NSG 5209	2587
31	UNIV MARYLAND-COL PK	Friskey, J. L.	GSFC	Currie, D. G.	NSG 5234	2588
31	UNIV MARYLAND-COL PK	Winston, G. C.	GSFC	Currie, D. G.	NSG 5287	2589
31	UNIV MARYLAND-COL PK	Donley, J. L.	GSFC	Kundu, M. R.	NSG 5320	2592
31	UNIV MARYLAND-COL PK	Donley, J. L.	GSFC	Tidman, D. A.	NSG 5323	2593
31	UNIV MARYLAND-COL PK	Spencer, N. W.	GSFC	Lin, C. S.	NSG 5404	2596
31	UNIV MARYLAND-COL PK	Browell, E. V.	LARC	Wilkerson, T. D.	NCC 1-25	2556
31	UNIV MARYLAND-COL PK	Decher, R.	MSFC	Alley, C. O.	NAS 8-33798	2550
31	UNIV MARYLAND-COL PK	Urban, E. W.	MSFC	Paik, H. J.	NAS 8-33822	2551
31	UNIV MD-EASTRN SHORE	Trafford, G. H.	WFC	Chapin, E. W.	NAG 6-6	2613
31	UNIV OF MIAMI	Nelsen, E. D.	GSFC	Gordon, H. R.	NAS 5-22963	2076
31	UNIV OF MIAMI	Greaves, J. R.	GSFC	Krause, E. B.	NAS 5-25374	2077
31	UNIV OF MIAMI	Fraser, R.	GSFC	Prospero, J. M.	NAS 5-26241	2079
31	UNIV OF MIAMI	Halem, M.	GSFC	Estoque, M. A.	NSG 5342	2088
31	UNIV OF MIAMI	Fowlis, W. W.	MSFC	Geisler, J. E.	NAS 8-32898	2080
31	UNIV OF MIAMI	Fowlis, W. W.	MSFC	Geisler, J. E.	NAS 8-33523	2081
31	UNIV OF MIAMI	Fowlis, W. W.	MSFC	Geisler, J. E.	NAS 8-33558	2082
31	UNIV MICH-ANN ARBOR	Hedin, A. E.	GSFC	Carignan, G. R.	NAS 5-11376	2871
31	UNIV MICH-ANN ARBOR	Spencer, N. W.	GSFC	Carignan, G. R.	NAS 5-11380	2872
31	UNIV MICH-ANN ARBOR	Rice, C.	GSFC	Hays, P. B.	NAS 5-23006	2873
31	UNIV MICH-ANN ARBOR	Bullock, G. D.	GSFC	Walker, J.	NAS 5-24331	2876
31	UNIV MICH-ANN ARBOR	Spencer, N. W.	GSFC	Carignan, G. R.	NAS 5-25002	2877
31	UNIV MICH-ANN ARBOR	Spencer, N. W.	GSFC	Carignan, G. R.	NAS 5-25031	2878
31	UNIV MICH-ANN ARBOR	Niemann, H. B.	GSFC	Carignan, G. R.	NAS 5-25145	2880
31	UNIV MICH-ANN ARBOR	Niemann, H. B.	GSFC	Carignan, G. R.	NAS 5-25153	2881
31	UNIV MICH-ANN ARBOR	Brace, L. H.	GSFC	Nagy, A. F.	NAS 5-25939	2886
31	UNIV MICH-ANN ARBOR	Donley, J. L.	GSFC	Hays, P. B.	NAS 5-26169	2888
31	UNIV MICH-ANN ARBOR	Sing, M. J.	GSFC	Hays, P. B.	NAS 5-26189	2889
31	UNIV MICH-ANN ARBOR	Reed, E. I.	GSFC	Stedman, D. H.	NSG 5189	2914
31	UNIV MICH-ANN ARBOR	Spencer, N. W.	GSFC	Fontheim, E. G.	NSG 5281	2915
31	UNIV MICH-ANN ARBOR	Spencer, N. W.	GSFC	Nagy, A. F.	NSG 5282	2916
31	UNIV MICH-ANN ARBOR	Smith, G. L.	LARC	Bartman, F. L.	NAG 1-67	2854
31	UNIV MICH-ANN ARBOR	Sullivan, E. M.	LARC	Davidson, S. R.	NAG 1-93	2856
31	UNIV MICH-ANN ARBOR	Russell, J. M., III	LARC	Drayson, S. R.	NAS 1-14394	2864
31	UNIV MICH-ANN ARBOR	Pellett, G. L.	LARC	Dingle, A. N.	NSG 1243	2906
31	UNIV MICH-ANN ARBOR	Smith, G. L.	LARC	Bartman, F. L.	NSG 1482	2908
31	UNIV MICH-ANN ARBOR	Frostrom, R. J., Jr.	WFC	Horvath, J. J.	NAS 6-2794	2890
31	UNIV MICH-ANN ARBOR	Toth, R. A.	HD-EB	Menwether, J. W.	NAGW 32	2862
31	UNIV MICH-ANN ARBOR	Watson, R. T.	HD-EB	Cochran, J. L.	NSG 7209	2918
31	UNIV MICH-ANN ARBOR	Devincenzi, D. L.	HD-SB	Kuhn, W. R.	NSG 7308	2919
31	UNIV MICH-ANN ARBOR	Murphy, R. E.	HD-SL	Cravens, T. E.	NAGW 15	2860
31	UNIV MICH-ANN ARBOR	Murphy, R. E.	HD-SL	Liu, V. C.	NGR 23-005-094	2900
31	UNIV MICH-ANN ARBOR	Murphy, R. E.	HD-SL	Atreya, S. K.	NSG 7404	2920
31	UNIV MICH-ANN ARBOR	Murphy, R. E.	HD-SL	Carignan, G. R.	NSG 7587	2923

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31	UNIV MICH-ANN ARBOR	Hedin, A. E.	HD-ST	Nagy, A. F.	NGR 23-005-015	2899
31	UNIV MICH-ANN ARBOR	Schmerling, E. R.	HD-ST	Hays, P. B.	NSG 7492	2922
31	U MINN-MNPLS-ST PAUL	Page, W. A.	ARC	Liu, B. Y.	NAG 2-31	2933
31	U MINN-MNPLS-ST PAUL	Rice, C.	GSFC	Nier, A. O.	NAS 5-11438	2936
31	U MINN-MNPLS-ST PAUL	Wende, C. D.	GSFC	Winckler, J. R.	NAS 5-23703	2937
31	U MINN-MNPLS-ST PAUL	Beswick, A. G.	LARC	Mauersberger, K.	NSG 1431	2946
31	U MINN-MNPLS-ST PAUL	Toth, R. A.	HD-EB	Mauersberger, K.	NSG 7221	2955
31	U MINN-MNPLS-ST PAUL	Murphy, R. E.	HD-SL	Nier, A. O.	NGL 24-005-009	2942
31	U MINN-MNPLS-ST PAUL	Murphy, R. E.	HD-SL	Nier, A. O.	NSG 7575	2958
31	UNIV MO-COLUMBIA	Smith, R. E.	MSFC	Tung, C.	NAS 8-31150	2987
31	UNIV MO-COLUMBIA	Smith, R. C.	MSFC	Kassner, J. I., Jr.	NAS 8-31849	2988
31	UNIV MO-ROLLA	Fallon, R. A.	MSFC	Hagen, D. F.	NAS 8-32976	2994
31	UNIV NEBRASKA-LINCOLN	Murphy, R. E.	HD-SL	Samson, J. A.	NGR 28-004-021	3025
31	UNIV NEVADA-DRI	Fallon, R. A.	MSFC	Kocmond, W. C.	NAS 8-32975	3030
31	UNIV NEVADA-DRI	Fallon, R. A.	MSFC	Hallett, J.	NAS 8-32977	3031
31	UNIV NEVADA-DRI	Fallon, R. A.	MSFC	Kocmond, W. C.	NAS 8-33273	3032
31	UNIV NEVADA-DRI	Anderson, B. J.	MSFC	Hallett, J.	NAS 8-33295	3033
31	UNIV NEVADA-DRI	Smith, R. E.	MSFC	Kocmond, W. C.	NAS 8-33820	3034
31	UNIV OF NEVADA-RENO	Schrack, B. J.	MSFC	Kocmond, W. C.	NAS 8-32313	3036
31	UNIV NEW HAMP-DURHAM	Donley, J. L.	GSFC	Chupp, F. I.	NAS 5-23761	3049
31	UNIV NEW HAMP-DURHAM	Donley, J. L.	GSFC	Fisk, L. A.	NSG 5316	3058
31	UNIV OF NEW MEXICO	Quaide, W. L.	HD-SI	Keil, K.	NSG 7579	3141
31	UNIV OKLAHOMA-NORMAN	Greaves, J. R.	GSFC	Sasaki, Y. K.	NAS 5-25375	3609
31	UNIV OKLAHOMA-NORMAN	Camp, D. W.	MSFC	McCarthy, J.	NAS 8-31377	3610
31	UNIV OREGON-EUGENE	Kakar, R. K.	HD-ST	Nolt, I. G.	NSG 7360	3638
31	UNIV OF PITTSBURGH	Murphy, R. F.	HD-SL	Fite, W. I.	NGL 39-011-013	3761
31	UNIV OF PITTSBURGH	Murphy, R. F.	HD-SL	Zipf, F. C.	NGL 39-011-030	3762
31	UNIV OF PITTSBURGH	Murphy, R. F.	HD-SL	Biondi, M. A.	NGR 39-011-137	3764
31	UNIV OF SOUTHERN CAL	Murphy, R. F.	HD-SL	Kumar, S.	NAGW 57	1789
31	UNIV OF SOUTHERN CAL	Murphy, R. F.	HD-SL	Maxworthy, T.	NGR 05-018-178	1795
31	UNIV OF SOUTHERN CAL	Murphy, R. F.	HD-SL	Judge, D. I.	NGR 05-018-180	1796
31	UNIV OF SOUTHERN CAL	Murphy, R. F.	HD-SL	Shemansky, D. F.	NSG 7595	1809
31	UNIV OF SOUTHERN CAL	Murphy, R. F.	HD-SL	Broadfoot, A. I.	NSG 7644	1810
31	UNIV TENNESSEE-KNOXV	Vaughan, O. H.	MSFC	Connett, J. R.	NAS 8-32031	3829
31	UNIV TENNESSEE-KNOXV	Camp, D. W.	MSFC	Frost, W.	NAS 8-32692	3831
31	UNIV TENNESSEE-KNOXV	Fowles, W. W.	MSFC	Antar, B. N.	NAS 8-33386	3832
31	UNIV TENNESSEE-KNOXV	Murphy, R. F.	HD-SL	Gallar, N. M.	NGL 43-001-006	3839
31	UNIV TEXAS-AUSTIN	Seyl, J. W.	JSC	Clynch, J.	NAS 9-16086	4000
31	UNIV TEXAS-DALLAS	Bullock, G. D.	GSFC	Hoffman, J. H.	NAS 5-11406	4040
31	UNIV TEXAS-DALLAS	Bullock, G. D.	GSFC	Hanson, W. B.	NAS 5-11407	4041
31	UNIV TEXAS-DALLAS	Brace, I. H.	GSFC	Heikkila, W. J.	NSG 5085	4059
31	UNIV TEXAS-DALLAS	Brace, I. H.	GSFC	Hoffman, J. H.	NSG 5087	4060
31	UNIV TEXAS-DALLAS	Spencer, N. W.	GSFC	Kiumpar, D. M.	NSG 5280	4061
31	UNIV TEXAS-DALLAS	Moore, W. W.	MSFC	Hoffman, J. H.	NAS 8-32689	4051
31	UNIV TEXAS-DALLAS	Jones, C. T.	MSFC	Tinsley, B. A.	NAS 8-33827	4053
31	UNIV TEXAS-DALLAS	Murphy, R. F.	HD-SL	Hoffman, J. H.	NAGW 64	4039
31	UNIV TEXAS-DALLAS	Murphy, R. F.	HD-SL	Hanson, W. B.	NGL 44-004-026	4055
31	UNIV TEXAS-DALLAS	Quaide, W. L.	HD-SL	Hodges, R. R.	NSG 7034	4062
31	UNIV TEXAS-DALLAS	Murphy, R. F.	HD-SL	Hanson, W. B.	NSG 7599	4063
31	UNIV TEXAS-DALLAS	Wiskerchen, M. J.	HD-ST	Hanson, W. B.	NGR 44-004-120	4057
31	UNIV TEXAS-ANTONIO	Spencer, N. W.	GSFC	Burch, J. I.	NSG 5418	4079
31	UNIV OF UTAH	Pollack, J. B.	ARC	Liou, K.	NCA 2-821001	4091
31	UNIV OF UTAH	Greaves, J. R.	GSFC	Kao, S. K.	NAS 5-25373	4087
31	UNIV OF UTAH	Donley, J. L.	GSFC	Torr, D. G.	NAS 5-26171	4088
31	UNIV OF UTAH	Jones, C. T.	MSFC	Torr, M. R.	NAS 8-33992	4090
31	UNIV OF UTAH	Duke, J. R.	WFC	Staffanson, F. I.	NAS 6-2627	4089
31	UNIV OF UTAH	Murphy, R. F.	HD-SL	Sassen, K.	NAGW 82	4084
31	UNIV OF VIRGINIA	Rodgers, E. B.	GSFC	Frank, W. M.	NAG 5-102	4211

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FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
31	UNIV OF WASHINGTON	Young, R. E.	ARC	Holton, J. R.	NSG 2228	4332
31	UNIV OF WASHINGTON	Page, W. A.	ARC	Charlson, R. J.	NSG 2362	4333
31	UNIV OF WASHINGTON	Nelson, D.	GSFC	Katsaros, K. B.	NAS 5-26262	4315
31	UNIV OF WASHINGTON	Reber, C. A.	GSFC	Holton, J. R.	NAS 5-26301	4316
31	UNIV OF WASHINGTON	Spencer, N. W.	GSFC	Lin, C. S.	NSG 5283	4338
31	UNIV OF WASHINGTON	Harris, J. W.	JSC	Brownlee, D. F.	NSG 9052	4350
31	UNIV OF WASHINGTON	Russell, J. M., III	LARC	Leovy, C. B.	NAS 1-14341	4313
31	UNIV OF WASHINGTON	Hall, J. B.	LARC	Hartman, D. L.	NAS 1-16462	4314
31	UNIV OF WASHINGTON	Smith, R. E.	MSFC	Hobbs, P. V.	NAS 8-33148	4318
31	UNIV OF WASHINGTON	Smith, R. E.	MSFC	Ely, J. T.	NAS 8-33884	4322
31	UNIV OF WASHINGTON	Murphy, R. E.	HD-SL	Tiltman, J. F.	NAGW 36	4311
31	UNIV OF WASHINGTON	Murphy, R. E.	HD-SL	Leovy, C. B.	NSG 7085	4343
31	UNIV OF WASHINGTON	Murphy, R. E.	HD-SL	Leovy, C. B.	NSG 7611	4348
31	UNIV WISC-MADISON	Adler, R. F.	GSFC	Schlesinger, R. F.	NAG 5-23	4362
31	UNIV WISC-MADISON	Atlas, R. M.	GSFC	Johnson, D. R.	NAG 5-81	4363
31	UNIV WISC-MADISON	Montgomery, H. E.	GSFC	Suomi, V. F.	NAS 5-21965	4369
31	UNIV WISC-MADISON	Gemmell, J. D.	GSFC	Kraushaar, W. I.	NAS 5-22410	4371
31	UNIV WISC-MADISON	Greaves, J. R.	GSFC	Suomi, V. F.	NAS 5-23462	4372
31	UNIV WISC-MADISON	Hastler, A. F.	GSFC	Suomi, V. F.	NAS 5-23706	4373
31	UNIV WISC-MADISON	Greaves, J. R.	GSFC	Suomi, V. F.	NAS 5-25148	4376
31	UNIV WISC-MADISON	Greaves, J. R.	GSFC	Suomi, V. F.	NAS 5-25377	4377
31	UNIV WISC-MADISON	Greaves, J. R.	GSFC	Johnson, D. R.	NAS 5-25399	4378
31	UNIV WISC-MADISON	Hurley, F. J.	GSFC	Smith, W. I.	NAS 5-26142	4385
31	UNIV WISC-MADISON	Halem, M.	GSFC	Kutzbach, J. F.	NSG 5152	4399
31	UNIV WISC-MADISON	Halem, M.	GSFC	Herman, G. F.	NSG 5223	4401
31	UNIV WISC-MADISON	Minzner, R. A.	GSFC	Suomi, V. F.	NSG 5251	4404
31	UNIV WISC-MADISON	Halem, M.	GSFC	Horn, L. H.	NSG 5252	4405
31	UNIV WISC-MADISON	Browell, F. V.	LARC	Floranta, F.	NAS 1-14136	4367
31	UNIV WISC-MADISON	Turner, R. F.	MSFC	Johnson, D. R.	NAS 8-33222	4387
31	UNIV WISC-MADISON	Turner, R. F.	MSFC	Suchman, D.	NAS 8-33799	4389
31	UNIV WISC-MADISON	Murphy, R. F.	HD-SL	Suomi, V. F.	NAGW 47	4366
31	UNIV WISC-MADISON	Murphy, R. F.	HD-SL	Suomi, V. F.	NGR 50-002-189	4396
31	UNIV OF WYOMING	Page, W. A.	ARC	Hofmann, D. J.	NAG 2-33	4410
31	UNIV OF WYOMING	McCormick, M. P.	LARC	Pepin, T. J.	NAS 1-14373	4411
31	UNIV OF WYOMING	McMaster, L. R.	LARC	Pepin, T. J.	NAS 1-14931	4412
31	UNIV OF WYOMING	McMaster, L. R.	LARC	Hofmann, D. J.	NAS 1-15377	4413
31	UNIV OF WYOMING	McMaster, L. R.	LARC	Pepin, T. J.	NAS 1-16305	4414
31	UNIV OF WYOMING	McMaster, L. R.	LARC	Pepin, T. J.	NSG 1518	4417
31	UNIV OF WYOMING	Smith, R. E.	MSFC	Vali, G.	NAS 8-33150	4416
31	UNIV OF WYOMING	Kakar, R. K.	HD-FB	Hofmann, D. J.	NSG 7349	4419
31	UTAH STATE UNIV	Chappell, C. R.	MSFC	Raitt, W. J.	NAS 8-32636	4099
31	UTAH STATE UNIV	Johnson, W. G.	MSFC	Williamson, P. R.	NAS 8-33381	4100
31	UTAH STATE UNIV	Johnson, W. G.	MSFC	Banks, P. M.	NAS 8-33383	4101
31	UTAH STATE UNIV	Tilford, S. G.	HD-ST	Baker, K. D.	NSG 7210	4108
31	UTAH STATE UNIV	Hedin, A. F.	HD-ST	Banks, P. M.	NSG 7289	4109
31	VIRGINIA POLY INST	Argentiero, P. D.	GSFC	Havlicek, R. M.	NAS 5-25839	4257
31	VIRGINIA POLY INST	Schmidlin, F. J.	WFC	Tieleman, H. W.	NGI 47-004-067	4269
31	VIRGINIA POLY INST	Freibaum, J.	HD-SC	Krebs, A. H.	NASW 3357	4263
31	WASHINGTON ST UNIV	Toth, R. A.	HD-FB	Cronn, D.	NSG 7214	4357
31	WASHINGTON UNIVERSTY	Cuzzi, J. N.	ARC	Smith, W. H.	NCA 2-841001	3008
31	WASHINGTON UNIVERSTY	Harris, J. W.	JSC	Hohenberg, C. N.	NAG 9-7	3004
31	WASHINGTON UNIVERSTY	Boughner, R. F.	LARC	Smith, W. H.	NAG 1-38	3002
31	WAYNE STATE UNIV	Munoz, R. M.	ARC	Wang, C. C.	NAG 2-39	2926
31	WEBER STATE COL	DeLoach, A. C.	MSFC	Tripp, D. A.	NAS 8-33113	4112
31	YALE UNIVERSITY	Toon, O. B.	ARC	Wegner, P. P.	NAG 2-15	1938
31	YALE UNIVERSITY	Murphy, R. E.	HD-SL	Cross, R. J., Jr	NGI 07-004-043	1942
31	YORK UNIVERSITY	Cooper, D. M.	ARC	Nicholls, R. W.	NSG 7223	4423
32	ARIZONA STATE UNIV	Pollack, J. B.	ARC	Krinsley, D.	NCA 2-35001	1099

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			OFF LOC	FIRST PRINCIPAL INVESTIGATOR		
32	ARIZONA STATE UNIV	Harris, J. W.	JSC	Buseck, P. R.	NAG 9-4	1092
32	ARIZONA STATE UNIV	Devincenzi, D. L.	HD-SB	Cronin, J. R.	NSG 7255	1105
32	ARIZONA STATE UNIV	Boyce, J. M.	HD-SL	Malin, M. C.	NAGW 1	1093
32	ARIZONA STATE UNIV	Boyce, J. M.	HD-SL	Krinsley, D.	NAGW 24	1094
32	ARIZONA STATE UNIV	Quaide, W. L.	HD-SL	Greeley, R.	NAGW 56	1095
32	ARIZONA STATE UNIV	French, B. M.	HD-SL	Moore, C. B.	NGL 03-001-001	1100
32	ARIZONA STATE UNIV	French, B. M.	HD-SL	Larimer, J. W.	NSG 7040	1104
32	ARIZONA STATE UNIV	Boyce, J. M.	HD-SL	Greeley, R.	NSG 7415	1106
32	ARIZONA STATE UNIV	Dwornik, S. E.	HD-SL	Greeley, R.	NSG 7429	1107
32	ARIZONA STATE UNIV	Boyce, J. M.	HD-SL	Rankin, R. L.	NSG 7630	1109
32	ARIZONA STATE UNIV	Dwornik, S. E.	HD-SL	Sheridan, M.	NSG 7642	1110
32	AUBURN UNIV-AUBURN	Slaby, J. A.	MSFC	Johnson, R. C.	NAS 8-34130	1018
32	BOSTON UNIVERSITY	Devincenzi, D. L.	HD-SB	Margulis, L.	NGR 22-004-025	2624
32	BROWN UNIVERSITY	Holweck, E. C.	GSFC	Parmentier, E. M.	NAG 5-50	3777
32	BROWN UNIVERSITY	Quaide, W. L.	HD-SL	Head, J. W.	NAGW 28	3778
32	BROWN UNIVERSITY	Dwornik, S. E.	HD-SL	Head, J. W.	NASW 3285	3780
32	BROWN UNIVERSITY	Boyce, J. M.	HD-SL	Head, J. W.	NGR 40-002-088	3781
32	BROWN UNIVERSITY	Boyce, J. M.	HD-SL	Head, J. W.	NGR 40-002-116	3782
32	BROWN UNIVERSITY	Boyce, J. M.	HD-SL	Head, J. W.	NSG 7569	3785
32	BROWN UNIVERSITY	Boyce, J. M.	HD-SL	Head, J. W.	NSG 7570	3786
32	BROWN UNIVERSITY	Quaide, W. L.	HD-SL	Rutherford, M. J.	NSG 7589	3787
32	BROWN UNIVERSITY	Quaide, W. L.	HD-SL	Parmentier, E. M.	NSG 7605	3788
32	CALIF INST OF TECH	Cohen, S. C.	GSFC	Melosh, H. J.	NCC 5-17	1229
32	CALIF INST OF TECH	Allenby, R. J.	GSFC	Whitcomb, J. H.	NSG 5224	1251
32	CALIF INST OF TECH	Allenby, R. J.	GSFC	Melosh, H. J.	NSG 5267	1254
32	CALIF INST OF TECH	Vitale, J. A.	HD-ET	Anderson, D. L.	NSG 7610	1272
32	CALIF INST OF TECH	Quaide, W. L.	HD-SL	Anderson, D. L.	NGL 05-002-069	1232
32	CALIF INST OF TECH	Quaide, W. L.	HD-SL	Ahrens, T. J.	NGL 05-002-105	1233
32	CALIF INST OF TECH	Boyce, J. M.	HD-SL	Shoemaker, E. M.	NGR 05-002-303	1245
32	CALIF INST OF TECH	Quaide, W. L.	HD-SL	Ahrens, T. J.	NSG 7129	1262
32	CALIF INST OF TECH	Quaide, W. L.	HD-SL	Burnett, D. S.	NSG 7202	1263
32	CALIF INST OF TECH	Quaide, W. L.	HD-SL	Melosh, H. J.	NSG 7316	1264
32	CALIF INST OF TECH	Boyce, J. M.	HD-SL	Albee, A. L.	NSG 7442	1267
32	CALIF INST OF TECH	Quaide, W. L.	HD-SL	Muhleman, D. O.	NSG 7565	1271
32	CAL STATE U-FULLERTN	French, B. M.	HD-SL	Woolum, D. S.	NSG 7314	1290
32	CARNEGIE-MELLON UNIV	French, B. M.	HD-SL	Kohman, T. P.	NSG 7585	3649
32	CITY COLLEGE OF N Y	Boyce, J. M.	HD-SL	Weiss, D.	NAGW 22	3145
32	CITY COLLEGE OF N Y	Quaide, W. L.	HD-SL	Saxena, S. K.	NAGW 59	3146
32	COLUMBIA UNIVERSITY	Holweck, E. C.	GSFC	Haxby, W. F.	NAG 5-33	3162
32	COLUMBIA UNIVERSITY	Harper, E. L.	GSFC	Watts, T. S.	NAG 5-98	3163
32	COLUMBIA UNIVERSITY	Smith, D. E.	GSFC	Watts, A. B.	NCC 5-3	3177
32	COLUMBIA UNIVERSITY	Ungar, S. G.	GSFC	Lewis, R. A.	NCC 5-20	3179
32	COLUMBIA UNIVERSITY	Allenby, R. J.	GSFC	Bilham, R. G.	NSG 5072	3184
32	COLUMBIA UNIVERSITY	Ungar, S. G.	GSFC	High, C. J.	NSG 5080	3185
32	COLUMBIA UNIVERSITY	Labovitz, M.	GSFC	Kuo, J. T.	NSG 5222	3188
32	COLUMBIA UNIVERSITY	Smith, D. E.	GSFC	Talwani, M.	NSG 5273	3189
32	COLUMBIA UNIVERSITY	Quaide, W. L.	HD-SL	Keith, S. J.	NSG 7194	3191
32	COLUMBIA UNIVERSITY	Quaide, W. L.	HD-SL	Takahashi, T.	NSG 7434	3192
32	COLUMBIA UNIVERSITY	French, B. M.	HD-SL	Zindler, A.	NSG 7466	3193
32	CORNELL UNIVERSITY	Holweck, E. C.	GSFC	Turcotte, D. L.	NAG 5-39	3199
32	CORNELL UNIVERSITY	Harper, E. L.	GSFC	Oliver, J.	NAG 5-40	3200
32	CORNELL UNIVERSITY	Allenby, R. J.	GSFC	Oliver, J.	NCC 5-4	3209
32	CORNELL UNIVERSITY	Cohen, S. C.	GSFC	Turcotte, D. L.	NSG 5060	3228
32	CORNELL UNIVERSITY	Boyce, J. M.	HD-SL	Veverka, J.	NASW 3342	3204
32	CORNELL UNIVERSITY	Quaide, W. L.	HD-SL	Turcotte, D. L.	NGR 33-010-108	3215
32	CORNELL UNIVERSITY	Boyce, J. M.	HD-SL	Sagan, C. E.	NGR 33-010-220	3219
32	CORNELL UNIVERSITY	Boyce, J. M.	HD-SL	Veverka, J.	NSG 7156	3231
32	CORNELL UNIVERSITY	Boyce, J. M.	HD-SL	Veverka, J.	NSG 7498	3237

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32	CORNELL UNIVERSITY	Boyce, J. M.	HD-SL	Veverka, J.	NSG 7546	3239
32	CORNELL UNIVERSITY	Boyce, J. M.	HD-SL	Veverka, J.	NSG 7547	3240
32	CORNELL UNIVERSITY	Quaide, W. L.	HD-SL	Burns, J. A.	NSG 7593	3241
32	CORNELL UNIVERSITY	Quaide, W. L.	HD-SL	Veverka, J.	NSG 7606	3242
32	DARTMOUTH COLLEGE	Ungar, S. G.	GSFC	Stoiber, R. E.	NCC 5-22	3040
32	DARTMOUTH COLLEGE	Corrigan, J. P.	GSFC	Sonnerup, B. U.	NSG 5348	3045
32	GEORGIA INST OF TECH	Kassak, J. E.	KSC	Steinway, W. J.	NAS10-9757	2124
32	HARVARD UNIVERSITY	Devincenzi, D. L.	HD-SB	Barghoorn, F. S.	NGL 22-007-069	2655
32	HARVARD UNIVERSITY	Quaide, W. L.	HD-SL	Cameron, A. G.	NGR 22-007-269	2659
32	HARVARD UNIVERSITY	Quaide, W. L.	HD-SL	OConnell, R. J.	NSG 7513	2680
32	HUNTER COLLEGE	Ungar, S. G.	GSFC	Coiner, J. C.	NSG 5325	3246
32	INDIANA U-BLOOMINGTN	McKay, D. S.	JSC	Basu, A.	NSG 9072	2284
32	INDIANA U-BLOOMINGTN	Harris, J. W.	JSC	Basu, A.	NSG 9077	2285
32	INDIANA U-BLOOMINGTN	Devincenzi, D. L.	HD-SB	Hayes, J. M.	NGR 15-003-118	2281
32	INDIANA U-BLOOMINGTN	Young, R. S.	HD-SB	Ripley, E. M.	NSG 7389	2282
32	INDIANA U-BLOOMINGTN	Devincenzi, D. L.	HD-SB	Ripley, E. M.	NSG 7520	2283
32	JACKSON STATE UNIV	Atwell, B. H.	NSTL	Lang, M.	NSG 736	2961
32	JOHNS HOPKINS UNIV	Holweck, E. C.	GSFC	Marsh, B. D.	NAG 5-32	2479
32	JOHNS HOPKINS UNIV	Thomas, H. H.	GSFC	Marsh, B. D.	NAG 5-35	2480
32	JOHNS HOPKINS UNIV	Marsh, J.	GSFC	Marsh, B. D.	NCC 5-1	2493
32	JOHNS HOPKINS UNIV	Taylor, P. T.	GSFC	Marsh, B. D.	NCC 5-13	2494
32	JOHNS HOPKINS UNIV	Langel, R. A.	GSFC	Marsh, B. D.	NCC 5-18	2495
32	JOHNS HOPKINS UNIV	Langel, R. A.	GSFC	Marsh, B. D.	NSG 5269	2503
32	KANSAS STATE UNIV	Quaide, W. L.	HD-SL	Underwood, J. R.	NSG 7580	2381
32	KANSAS STATE UNIV	Boyce, J. M.	HD-SL	Underwood, J. R.	NSG 7613	2382
32	KENT STATE UNIV-KENT	Toll, D.	GSFC	Craig, R.	NAS 5-26111	3479
32	LEHIGH UNIVERSITY	French, B. M.	HD-SL	Goldstein, J. I.	NGR 39-007-043	3678
32	LA ST U&A&M COL-BRGE	Atwell, B. H.	NSTL	Whitehurst, C. A.	NAS13-142	2448
32	LA ST U&A&M COL-BRGE	Ivey, J. H.	NSTL	Whitehurst, C. A.	NAS13-148	2449
32	LA STATE U-SHREVEPT	Boyce, J. M.	HD-SL	Nummedal, D.	NSG 7542	2452
32	MASS INST OF TECH	Chang, A. T.	GSFC	Kong, J. A.	NAG 5-16	2700
32	MASS INST OF TECH	Sullivan, W. B.	GSFC	Molnar, P.	NAG 5-19	2701
32	MASS INST OF TECH	Sullivan, W. B.	GSFC	Toksoz, M. N.	NAG 5-41	2702
32	MASS INST OF TECH	Sullivan, W. B.	GSFC	Solomon, S. C.	NAG 5-44	2704
32	MASS INST OF TECH	Halem, M.	GSFC	Eagleson, P. S.	NAG 5-89	2705
32	MASS INST OF TECH	Mead, G. D.	GSFC	Molnar, P.	NCC 5-8	2744
32	MASS INST OF TECH	Mead, G. D.	GSFC	Solomon, S. C.	NCC 5-14	2745
32	MASS INST OF TECH	Clark, T. A.	GSFC	Counselman, C. C.	NGR 22-009-839	2767
32	MASS INST OF TECH	Smith, D. E.	GSFC	Sclater, J. G.	NSG 5253	2800
32	MASS INST OF TECH	Frey, H. V.	GSFC	Molnar, P.	NSG 5260	2801
32	MASS INST OF TECH	Halem, M.	GSFC	Eagleson, P. S.	NSG 5306	2802
32	MASS INST OF TECH	Flinn, E. A.	HD-ER	Counselman, C. C.	NSG 7428	2813
32	MASS INST OF TECH	Flinn, E. A.	HD-ES	Solomon, S. C.	NSG 7329	2808
32	MASS INST OF TECH	Quaide, W. L.	HD-SL	Uhlmann, D. R.	NAGW 49	2708
32	MASS INST OF TECH	Williams, R. J.	HD-SL	McCord, T. B.	NGR 22-009-790	2764
32	MASS INST OF TECH	Quaide, W. L.	HD-SL	Counselman, C. C.	NSG 7010	2803
32	MASS INST OF TECH	Quaide, W. L.	HD-SL	Toksoz, M. N.	NSG 7081	2804
32	MASS INST OF TECH	Dwornik, S. E.	HD-SL	Solomon, S. C.	NSG 7297	2806
32	MASS INST OF TECH	Quaide, W. L.	HD-SL	Burns, R. G.	NSG 7338	2810
32	MASS INST OF TECH	Quaide, W. L.	HD-SL	Pinson, W.	NSG 7467	2814
32	MASS INST OF TECH	Quaide, W. L.	HD-SL	Burns, R. G.	NSG 7604	2817
32	MISSISSIPPI STATE U	Atwell, B. H.	NSTL	Miller, W. F.	NAS13-158	2971
32	NC CAROLINA STATE U	Oseroff, H.	GSFC	Won, I. J.	NAS 5-26157	3382
32	NE LOUISIANA UNIV	Dwornik, S. E.	HD-SL	DeHon, R. A.	NSG 7357	2453
32	NE LOUISIANA UNIV	Quaide, W. L.	HD-SL	DeHon, R. A.	NSG 7420	2454
32	NE LOUISIANA UNIV	Boyce, J. M.	HD-SL	DeHon, R. A.	NSG 7534	2455
32	NE LOUISIANA UNIV	Boyce, J. M.	HD-SL	DeHon, R. A.	NSG 7628	2456
32	OHIO STATE UNIV	Stephanides, C. C.	GSFC	Mueller, I. I.	NAS 5-25888	3502

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32	OHIO STATE UNIV	Patterson, G. C.	GSFC	Rapp, R. H.	NGR 36-008-161	3507
32	OHIO STATE UNIV	Holweck, E. C.	GSFC	Mueller, I. I.	NSG 5265	3524
32	OHIO STATE UNIV	Smith, D. E.	GSFC	Schmidt, E. G.	NSG 5275	3525
32	OREGON STATE UNIV	Phinney, W. C.	JSC	Lawrence, R. D.	NAG 9-2	3624
32	OREGON STATE UNIV	Boyce, J. M.	HD-SL	Komar, P. D.	NSG 7178	3633
32	PENN STATE U-UNIV PK	Toon, O. B.	ARC	Anthes, R. A.	NCA 2-589001	3711
32	PENN STATE U-UNIV PK	Harper, E. L.	GSFC	Alexander, S. S.	NAG 5-49	3693
32	PENN STATE U-UNIV PK	Harper, E. L.	GSFC	Alexander, S. S.	NAG 5-77	3695
32	PENN STATE U-UNIV PK	Labovitz, M.	GSFC	Smith, C. B.	NAS 5-26215	3703
32	PENN STATE U-UNIV PK	Allenby, R. J.	GSFC	Alexander, S. S.	NCC 5-12	3713
32	PENN STATE U-UNIV PK	Allenby, R. J.	GSFC	Alexander, S. S.	NCC 5-19	3714
32	PENN STATE U-UNIV PK	Allenby, R. J.	GSFC	Alexander, S. S.	NSG 5185	3734
32	PENN STATE U-UNIV PK	Allenby, R. J.	GSFC	Alexander, S. S.	NSG 5276	3737
32	PENN STATE U-UNIV PK	Quaide, W. L.	HD-SL	Gold, D. P.	NGL 39-009-010	3717
32	PENN STATE U-UNIV PK	Quaide, W. L.	HD-SL	Eggler, D.	NSG 7465	3740
32	POMONA COLLEGE	Quaide, W. L.	HD-SL	Baird, A. K.	NSG 7566	1312
32	PRINCETON UNIVERSITY	Wilson, L.	GSFC	Jenkins, E. B.	NAS 5-22360	3072
32	PRINCETON UNIVERSITY	Stephanides, C. C.	GSFC	Morgan, W. J.	NAS 5-25896	3076
32	PRINCETON UNIVERSITY	Quaide, W. L.	HD-SL	Phinney, R. A.	NSG 7080	3098
32	PRINCETON UNIVERSITY	Boyce, J. M.	HD-SL	Judson, S.	NSG 7568	3102
32	PRINCETON UNIVERSITY	Quaide, W. L.	HD-SL	Hargraves, R. B.	NSG 7602	3104
32	PURDUE UNIVERSITY	Oseroff, H.	GSFC	Hinze, W. J.	NAS 5-26287	2298
32	PURDUE UNIVERSITY	Allenby, R. J.	GSFC	Braile, L. W.	NCC 5-21	2304
32	PURDUE UNIVERSITY	Amsbury, D. L.	JSC	Hoffer, R. M.	NAS 9-15889	2302
32	PURDUE UNIVERSITY	French, B. M.	HD-SL	Lipschutz, M. E.	NGL 15-005-140	2305
32	QUEENS COLLEGE	Quaide, W. L.	HD-SL	Takahashi, T.	NSG 7321	3273
32	RICE UNIVERSITY	Harris, J. W.	JSC	Ling, A. C.	NGL 44-006-127	3889
32	RICE UNIVERSITY	Quaide, W. L.	HD-SL	Clayton, D. D.	NSG 7361	3897
32	RICE UNIVERSITY	Quaide, W. L.	HD-SL	Debremaecker, J. C.	NSG 7362	3898
32	RICE UNIVERSITY	Quaide, W. L.	HD-ST	Freeman, J. W.	NSG 7157	3896
32	RUTGERS U-N BRUNSWK	Harris, J. W.	JSC	Klein, L. C.	NSG 9065	3113
32	RUTGERS U-N BRUNSWK	French, B. M.	HD-SL	Hewins, R. H.	NSG 7327	3111
32	RUTGERS U-N BRUNSWK	Boyce, J. M.	HD-SL	Zebib, A.	NSG 7601	3112
32	SAN DIEGO STATE UNIV	Blanchard, D. P.	JSC	Jiracek, G. R.	NAS 9-16143	1314
32	SOUTHERN METHODIST U	Blanchard, D. P.	JSC	Dungan, M. A.	NAS 9-16140	3900
32	SOUTHERN METHODIST U	Lofgren, G.	JSC	Dungan, M. A.	NGT 44-007-800	3901
32	STANFORD UNIVERSITY	Broderick, J.	GSFC	Lyon, R. J.	NAS 5-24232	1377
32	STANFORD UNIVERSITY	Broderick, J.	GSFC	Rich, E. I.	NAS 5-24479	1380
32	STANFORD UNIVERSITY	Boyce, J. M.	HD-SL	Howard, H. T.	NGR 05-020-649	1451
32	STANFORD UNIVERSITY	Boyce, J. M.	HD-SL	Levinthal, E.	NSG 7538	1474
32	STATE UNIV NY-ALBANY	Harper, E. L.	GSFC	Dewey, J. F.	NAG 5-24	3302
32	STATE UNIV NY-ALBANY	Frey, H. V.	GSFC	Burke, K.	NSG 5274	3313
32	STATE UNIV NY-ALBANY	Boyce, J. M.	HD-SL	Anderson, D. M.	NASW 3333	3309
32	STATE UNIV NY-BUFFAL	Boyce, J. M.	HD-SL	King, J. S.	NGR 33-015-108	3320
32	STATE U NY-STONY BRK	Cohen, S. C.	GSFC	Melosh, H. J.	NAG 5-7	3321
32	STATE U NY-STONY BRK	Harris, J. W.	JSC	Hartung, J. B.	NSG 9013	3346
32	STATE U NY-STONY BRK	French, B. M.	HD-SL	Schaeffer, O. A.	NAGW 25	3323
32	STATE U NY-STONY BRK	Quaide, W. L.	HD-SL	Melosh, H. J.	NAGW 50	3324
32	STATE U NY-STONY BRK	Dwormik, S. E.	HD-SL	Owen, T.	NSG 7553	3345
32	TEXAS A&M UNIVERSITY	Schmugge, T. J.	GSFC	Newton, R. W.	NAG 5-31	3907
32	TEXAS A&M UNIVERSITY	Harper, E. L.	GSFC	Jones, G. M.	NAG 5-94	3908
32	TEXAS A&M UNIVERSITY	Toll, D.	GSFC	Miller, L.	NAS 5-25846	3912
32	TEXAS A&M UNIVERSITY	Taylor, P. T.	GSFC	Jones, G. M.	NCC 5-11	3933
32	TEXAS A&M UNIVERSITY	Chang, A. T.	GSFC	Blanchard, B. J.	NSG 5134	3945
32	TEXAS A&M UNIVERSITY	Chang, A. T.	GSFC	Blanchard, B. J.	NSG 5156	3946
32	TEXAS A&M UNIVERSITY	Chahine, M.	JPL	McGrail, D. W.	NGT 44-001-801	3938
32	TEXAS A&M UNIVERSITY	MacDonald, R. B.	JSC	Guseman, L. F.	NAS 9-15964	3927
32	TEXAS A&M UNIVERSITY	Quaide, W. L.	HD-SL	Gangi, A. F.	NSG 7417	3950

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32	TEXAS TECH UNIV	Halstead, T. W.	HD-SB	Hartman, H. B.	NSG 7435	3958
32	UNIV ALA-HUNTSVILLE	West, G. W.	MSFC	Hung, R. J.	NAS 8-33726	1059
32	UNIV ALASKA-FAIRBANKS	Duke, M. B.	JSC	Forbes, R. B.	NAG 9-8	1077
32	UNIV ALASKA-FAIRBANKS	Duke, M. B.	JSC	Benson, C. S.	NAG 9-9	1078
32	UNIV OF ARIZONA	Devincenzi, D. L.	HD-SB	Nagy, B.	NGR 03-002-171	1157
32	UNIV OF ARIZONA	Bohlin, J. M.	HD-SL	Strom, R. G.	NGL 03-002-191	1154
32	UNIV OF ARIZONA	Quaide, W. L.	HD-SL	Sonett, C. P.	NGR 03-002-370	1161
32	UNIV OF ARIZONA	French, B. M.	HD-SL	Wilkening, L. L.	NSG 7011	1172
32	UNIV OF ARIZONA	Quaide, W. L.	HD-SL	Sonett, C. P.	NSG 7020	1173
32	UNIV OF ARIZONA	Boyce, J. M.	HD-SL	Strom, R. G.	NSG 7146	1179
32	UNIV OF ARIZONA	French, B. M.	HD-SL	Zellner, B. H.	NSG 7249	1180
32	UNIV OF ARIZONA	Quaide, W. L.	HD-SL	Levy, F. H.	NSG 7419	1184
32	UNIV OF ARIZONA	French, B. M.	HD-SL	Boynton, W. V.	NSG 7436	1185
32	UNIV OF ARIZONA	Boyce, J. M.	HD-SL	Woronow, A.	NSG 7544	1188
32	UNIV OF ARIZONA	Quaide, W. L.	HD-SL	Drake, M. J.	NSG 7576	1192
32	UNIV OF ARIZONA	Quaide, W. L.	HD-SL	Drake, M. J.	NSG 7577	1193
32	UNIV OF ARIZONA	Quaide, W. L.	HD-SL	Lebofsky, I.	NSG 7607	1194
32	UNIV ARKANSAS-FAYETTE	Duke, M. B.	JSC	MacDonald, H. C.	NAG 9-3	1198
32	UNIV CALIF-BERKELEY	Wales, R. O.	GSFC	Anderson, K. A.	NAS 5-22307	1507
32	UNIV CALIF-BERKELEY	Young, R. S.	HD-SB	Calvin, M.	NGL 05-003-003	1533
32	UNIV CALIF-L ANGELES	Holweck, I. C.	GSFC	Kaula, W. M.	NSG 5263	1635
32	UNIV CALIF-L ANGELES	Corrigan, J. P.	GSFC	Siscoe, G. I.	NSG 5351	1637
32	UNIV CALIF-L ANGELES	Page, M. A.	MSFC	Coleman, P. J.	NAS 8-32571	1602
32	UNIV CALIF-L ANGELES	Murphy, J. P.	HD-FR	Knopoff, L.	NASW 3416	1606
32	UNIV CALIF-L ANGELES	Devincenzi, D. L.	HD-SB	Kaplan, I. R.	NGR 05-007-221	1616
32	UNIV CALIF-L ANGELES	Devincenzi, D. L.	HD-SB	Schopf, J. W.	NGR 05-007-407	1623
32	UNIV CALIF-L ANGELES	Quaide, W. L.	HD-SL	Stevenson, D. J.	NAGW 41	1590
32	UNIV CALIF-L ANGELES	Quaide, W. L.	HD-SL	Kaula, W. M.	NGL 05-007-002	1612
32	UNIV CALIF-L ANGELES	Boyce, J. M.	HD-SL	Schubert, G.	NGR 05-007-317	1619
32	UNIV CALIF-L ANGELES	French, B. M.	HD-SL	Wasson, J. T.	NGR 05-007-329	1621
32	UNIV CALIF-L ANGELES	Quaide, W. L.	HD-SL	Coleman, P. J.	NGR 05-007-351	1622
32	UNIV CALIF-L ANGELES	Quaide, W. L.	HD-SL	Christie, J. M.	NSG 7052	1640
32	UNIV CALIF-L ANGELES	Quaide, W. L.	HD-SL	Kieffer, H. H.	NSG 7282	1643
32	UNIV CALIF-L ANGELES	Quaide, W. L.	HD-SL	Schubert, G.	NSG 7315	1645
32	UNIV CALIF-L ANGELES	French, B. M.	HD-SL	Boynton, W. V.	NSG 7335	1646
32	UNIV CALIF-L ANGELES	Quaide, W. L.	HD-SL	Busse, F. W.	NSG 7484	1649
32	UNIV CALIF-L ANGELES	Quaide, W. L.	HD-SL	Kieffer, H. H.	NSG 7581	1651
32	UNIV CALIF-L ANGELES	Quaide, W. L.	HD-SL	Kieffer, H. H.	NSG 7582	1652
32	UNIV CALIF-L ANGELES	Quaide, W. L.	HD-SL	Shubert, G.	NSG 7583	1653
32	UNIV CALIF-L ANGELES	Schmerling, F. R.	HD-ST	Schopf, J. W.	NSG 7489	1650
32	UNIV CALIF-SAN DIEGO	Patterson, G. C.	GSFC	Berger, J.	NAG 5-11	1660
32	UNIV CALIF-SAN DIEGO	Devincenzi, D. L.	HD-SB	Miller, S. I.	NAGW 20	1667
32	UNIV CALIF-SAN DIEGO	Quaide, W. L.	HD-SL	Arthenius, G.	NGL 05-009-002	1687
32	UNIV CALIF-SAN DIEGO	French, B. M.	HD-SL	Arnold, J. R.	NGL 05-009-004	1688
32	UNIV CALIF-SAN DIEGO	Quaide, W. L.	HD-SL	Arnold, J. R.	NGR 05-005-005	1693
32	UNIV CALIF-SAN DIEGO	Quaide, W. L.	HD-SL	Arnold, J. R.	NSG 7027	1706
32	UNIV CALIF-SAN DIEGO	Quaide, W. L.	HD-SL	Allven, H.	NSG 7102	1707
32	UNIV CALIF-SAN DIEGO	French, B. M.	HD-SL	MacDougall, J. D.	NSG 7121	1708
32	UNIV CALIF-S BARBARA	Chang, A.	GSFC	Estes, J. F.	NCC 5-5	1750
32	UNIV CALIF-S BARBARA	Amsbury, D. L.	JSC	Strahler, A. H.	NAS 9-15509	1744
32	UNIV CALIF-S BARBARA	MacDonald, R. B.	JSC	Estes, J. F.	NAS 9-16077	1745
32	UNIV CALIF-S BARBARA	Quaide, W. L.	HD-SL	Peale, S. J.	NGR 05-010-062	1751
32	UNIV CALIF-S BARBARA	Quaide, W. L.	HD-SL	Fuller, M. D.	NSG 7586	1756
32	UNIV OF CHICAGO	French, B. M.	HD-SL	Anders, F.	NGL 14-001-010	2220
32	UNIV OF CHICAGO	French, B. M.	HD-SL	Turkevich, A. L.	NGR 14-001-135	2226
32	UNIV OF CHICAGO	French, B. M.	HD-SL	Grossman, L.	NGR 14-001-249	2230
32	UNIV OF CHICAGO	Quaide, W. L.	HD-SL	Schramm, D. N.	NSG 7212	2236
32	UNIV OF CHICAGO	French, B. M.	HD-SL	Turkevich, A. L.	NSG 7532	2240

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32	UNIV OF CHICAGO	French, B. M.	HD-SL	Smith, J. V.	NSG 7550	2241
32	UNIV COLORADO-BOLDR	Harper, E. L.	GSFC	Whitcomb, J. H.	NAG 5-21	1851
32	UNIV COLORADO-BOLDR	Harper, E. L.	GSFC	Whitcomb, J. H.	NAG 5-22	1852
32	UNIV COLORADO-BOLDR	Stephames, C. C.	GSFC	Smith, M. L.	NAS 5-25887	1869
32	UNIV COLORADO-BOLDR	Oseroff, H.	GSFC	Benton, E. R.	NAS 5-25957	1870
32	UNIV COLORADO-BOLDR	Flinn, E. A.	HD-SL	Smith, M. L.	NSG 7319	1896
32	UNIV COLORADO-BOLDR	Quaide, W. L.	HD-SL	Spetzler, H. A.	NSG 7584	1907
32	UNIV OF DAYTON	Quaide, W. L.	HD-SL	Piekutowski, A. J.	NSG 7444	3566
32	UNIV OF FLORIDA	Atwell, B. H.	NSTL	Cross, C.	NAS13-106	2059
32	UNIV OF GEORGIA	Butera, M. K.	NSTL	Cooley, J. L.	NAS13-121	2148
32	UNIV OF GEORGIA	Atwell, B. H.	NSTL	Welch, R.	NAS13-123	2149
32	UNIV OF GEORGIA	Atwell, B. H.	NSTL	Welch, R.	NAS13-157	2151
32	UNIV OF GEORGIA	Boyce, J. M.	HD-SL	Howard, J. H.	NGR 11-003-037	2152
32	UNIV OF GEORGIA	Quaide, W. L.	HD-SL	Wenner, D. B.	NSG 7433	2153
32	UNIV OF GEORGIA	Boyce, J. M.	HD-SL	Brook, G.	NSG 7539	2154
32	UNIV OF HAWAII-MANOA	White, W.	GSFC	Jefferies, J. T.	NGR 12-001-127	2169
32	UNIV OF HAWAII-MANOA	Nava, D. F.	GSFC	Philpotts, J. A.	NSG 5203	2171
32	UNIV OF HAWAII-MANOA	Quaide, W. L.	HD-SL	McCord, T. B.	NAGW 37	2156
32	UNIV OF HAWAII-MANOA	Quaide, W. L.	HD-SL	Hawke, B. R.	NAGW 42	2157
32	UNIV OF HAWAII-MANOA	Quaide, W. L.	HD-SL	McCord, T. B.	NSG 7312	2176
32	UNIV OF HAWAII-MANOA	Boyce, J. M.	HD-SL	Pilcher, C. B.	NSG 7403	2178
32	UNIV OF HAWAII-MANOA	Quaide, W. L.	HD-SL	Russ, G. P.	NSG 7423	2179
32	UNIV OF HAWAII-MANOA	Dwornik, S. F.	HD-SL	McCord, T. B.	NSG 7443	2180
32	UNIV OF HAWAII-MANOA	Quaide, W. L.	HD-SL	Gaffey, M. J.	NSG 7462	2181
32	UNIV OF HAWAII-MANOA	Quaide, W. L.	HD-SL	Gaffey, M. J.	NSG 7597	2184
32	UNIV HOUSTON-HOUSTON	Devincenzi, D. I.	HD-SB	Oro, J.	NGR 44-005-002	3964
32	UNIV HOUSTON-HOUSTON	Dwornik, S. F.	HD-SL	Smith, R. S.	NSG 7410	3971
32	UNIV HOUSTON-HOUSTON	Boyce, J. M.	HD-SL	Smith, R. S.	NSG 7551	3973
32	UNIV HOUSTON-HOUSTON	French, B. M.	HD-SL	King, E. A.	NSG 7617	3975
32	UNIV OF KANSAS	Chang, A. T.	GSFC	Ulaby, F. T.	NSG 5335	2418
32	UNIV OF KANSAS	Atwell, B. H.	NSTL	Martino, F. A.	NAS13-131	2399
32	UNIV MARYLAND-COL PK	Rango, A.	GSFC	McCuen, R. H.	NGR 21-002-399	2571
32	UNIV MARYLAND-COL PK	Salomonson, V. V.	GSFC	Ragan, R. M.	NSG 5017	2581
32	UNIV MARYLAND-COL PK	Schmugge, T. J.	GSFC	Witczak, M. W.	NSG 5137	2584
32	UNIV MARYLAND-COL PK	Lowman, P. D.	GSFC	Siegrist, H. G.	NSG 5423	2598
32	UNIV MARYLAND-COL PK	Quaide, W. L.	HD-SL	Adler, I.	NSG 7046	2600
32	UNIV MARYLAND-COL PK	Quaide, W. L.	HD-SL	Pai, S. I.	NSG 7365	2605
32	UNIV MARYLAND-COL PK	Quaide, W. L.	HD-SL	Tossell, J.	NSG 7482	2608
32	UNIV OF MASS-AMHERST	Harris, J. W.	JSC	Rhodes, J. M.	NSG 9069	2836
32	UNIV OF MASS-AMHERST	Quaide, W. L.	HD-SL	Huguenin, R. L.	NAGW 40	2825
32	UNIV OF MASS-AMHERST	Boyce, J. M.	HD-SL	McGill, G. F.	NGR 22-010-076	2831
32	UNIV OF MASS-AMHERST	Boyce, J. M.	HD-SL	Huguenin, R. L.	NSG 7405	2833
32	UNIV OF MASS-AMHERST	French, B. M.	HD-SL	Haggerty, S. E.	NSG 7549	2834
32	UNIV OF MASS-AMHERST	Dwornik, S. F.	HD-SL	Wise, D.	NSG 7571	2835
32	UNIV OF MIAMI	Oseroff, H.	GSFC	Harrison, C. G.	NAS 5-26201	2078
32	UNIV OF MIAMI	Quaide, W. L.	HD-SL	Brass, G. B.	NSG 7510	2090
32	UNIV MICH-ANN ARBOR	Carter, C. H.	HD-LU	Olson, C. E.	NGT 23-005-800	2905
32	UNIV MO-COLUMBIA	Joyce, A. T.	NSTL	Johannsen, C. J.	NAS13-140	2991
32	UNIV MO-ROLLA	Atwell, B. H.	NSTL	Barr, D. J.	NAS13-150	2995
32	UNIV MO-ST LOUIS	Quaide, W. L.	HD-SL	James, P. B.	NSG 7563	3001
32	UNIV NEW HAMP-DURHAM	Hedin, A. E.	HD-ST	Moore, T. E.	NAGW 52	3047
32	UNIV OF NEW MEXICO	Atwell, B. H.	NSTL	Morain, S. R.	NAS13-109	3135
32	UNIV OF NEW MEXICO	Dwornik, S. F.	HD-SL	Fiston, W. F.	NGL 32-004-011	3136
32	UNIV OF NEW MEXICO	French, B. M.	HD-SL	Keil, K.	NGL 32-004-064	3138
32	UNIV OF NEW MEXICO	Boyce, J. M.	HD-SL	Fiston, W. F.	NGR 32-004-062	3139
32	UNIV OKLAHOMA-NORMAN	Atwell, B. H.	NSTL	Harrington, J. A.	NAS13-122	3612
32	UNIV OKLAHOMA-NORMAN	Atwell, B. H.	NSTL	Unavailable	NAS13-156	3613
32	UNIV OREGON-EUGENE	Quaide, W. L.	HD-SL	Weill, D. F.	NGR 38-003-020	3637

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32	UNIV OF PITTSBURGH	Thomas, H. H.	GSFC	Liadiak, E. G.	NSG 5270	3769
32	UNIV OF PITTSBURGH	Quaide, W. L.	HD-SL	Cassidy, W. A.	NGL 39-011-085	3763
32	UNIV OF PITTSBURGH	Quaide, W. L.	HD-SL	Hapke, B.	NSG 7631	3773
32	UNIV OF RHODE ISLAND	Boyce, J. M.	HD-SL	Boothroyd, J. C.	NSG 7414	3790
32	UNIV OF SANTA CLARA	Quaide, W. L.	HD-SL	Aggarwal, H. R.	NSG 7330	1785
32	UNIV SO CAROLINA-COL	Dalton, J.	GSFC	Cowen, D. J.	NAS13-144	3803
32	UNIV OF SOUTHERN CAL	Quaide, W. L.	HD-SL	Sammis, C. G.	NAGW 43	1788
32	UNIV OF SOUTHERN CAL	French, B. M.	HD-SL	Huth, G. C.	NSG 7535	1808
32	UNIV TENNESSEE-KNOXV	Williams, R.	JSC	Taylor, L. A.	NGT 43-001-800	3841
32	UNIV TENNESSEE-KNOXV	French, B. M.	HD-SL	McSween, H. Y.	NSG 7413	3846
32	UNIV TEXAS-AUSTIN	Stephanides, C. C.	GSFC	Shelus, P. J.	NAS 5-25898	3989
32	UNIV TEXAS-AUSTIN	White, W.	GSFC	Silverberg, E. C.	NGR 44-012-165	4010
32	UNIV TEXAS-AUSTIN	Kolenkiewicz, R.	GSFC	Tapley, B. D.	NGR 44-012-283	4012
32	UNIV TEXAS-AUSTIN	Blanchard, D. P.	JSC	Muehlberger, W. R.	NAG 9-11	3985
32	UNIV TEXAS-AUSTIN	Harris, J. W.	JSC	Gose, W. A.	NSG 9021	4036
32	UNIV TEXAS-AUSTIN	Dwornik, S. E.	HD-SL	Muehlberger, W. R.	NSG 7363	4030
32	UNIV TEXAS-AUSTIN	Quaide, W. L.	HD-SL	Smoluchowski, R.	NSG 7505	4034
32	UNIV TEXAS-AUSTIN	Boyce, J. M.	HD-SL	Baker, V.	NSG 7557	4035
32	UNIV TEXAS-DALLAS	Oseroff, H.	GSFC	Klumpar, D. M.	NAS 5-26309	4049
32	UNIV TEXAS-EL PASO	Blanchard, D. P.	JSC	Keller, G. R.	NAS 9-16142	4064
32	U TEX MED BRANCH-GAL	Stephanides, C. C.	GSFC	Dorman, H. J.	NAS 5-25897	4070
32	U TEX MED BRANCH-GAL	Quaide, W. L.	HD-SL	Makamura, Y.	NSG 7418	4073
32	U VERMONT & ST AGR C	Vitale, J. A.	HD-ET	John, H. H.	NSG 7453	4114
32	UNIV OF VIRGINIA	Dwornik, S. E.	HD-SL	Howard, A.	NGR 47-005-172	4225
32	UNIV OF VIRGINIA	Boyce, J. M.	HD-SL	Howard, A.	NSG 7572	4235
32	UNIV OF WASHINGTON	Harris, J. W.	JSC	Adams, J. B.	NSG 9032	4349
32	UNIV OF WASHINGTON	Vitale, J. A.	HD-ET	Adams, J. B.	NAGW 85	4312
32	UNIV OF WASHINGTON	Quaide, W. L.	HD-SL	Adams, J. B.	NSG 7173	4344
32	UNIV OF WASHINGTON	Quaide, W. L.	HD-SL	McCallum, I. S.	NSG 7313	4345
32	UNIV OF WASHINGTON	Quaide, W. L.	HD-SL	Adams, J. B.	NSG 7448	4347
32	UNIV WISC-MADISON	Oseroff, H.	GSFC	Bentley, C. R.	NAS 5-25977	4382
32	UNIV WISC-MADISON	Quaide, W. L.	HD-SL	Taylor, J. W.	NSG 7215	4408
32	UTAH STATE UNIV	Young, R. S.	HD-SB	Smith, G. G.	NSG 7038	4107
32	VA MILITARY INSTITUT	Quaide, W. L.	HD-SL	Schrieber, H. D.	NSG 7355	4238
32	VIRGINIA POLY INST	Costes, N. C.	MSFC	Storre, S.	NAS 8-33449	4262
32	WASHINGTON UNIVERSTY	Harris, J. W.	JSC	Haskin, L. A.	NSG 9055	3019
32	WASHINGTON UNIVERSTY	Quaide, W. L.	HD-SL	Hohenberg, C. M.	NSG 7016	3013
32	WASHINGTON UNIVERSTY	Boyce, J. M.	HD-SL	Arvidson, R. E.	NSG 7087	3014
32	WASHINGTON UNIVERSTY	Boyce, J. M.	HD-SL	Arvidson, R. E.	NSG 7545	3017
32	WASHINGTON UNIVERSTY	Quaide, W. L.	HD-SL	Goettal, K. A.	NSG 7578	3018
32	WOODSHOLE OCEAN INST	Patterson, G. C.	GSFC	Brown, C.	NAG 5-18	2841
33	CITY COLLEGE OF N Y	Schroeder, L. C.	LARC	Person, W. J.	NAS 1-15669	3147
33	HARVARD UNIVERSITY	Halem, M.	GSFC	Robinson, A. R.	NSG 5228	2667
33	HARVARD UNIVERSITY	Toth, R. A.	HD-EB	McElroy, M. B.	NASW 2952	2651
33	JOHNS HOPKINS UNIV	Huang, N. E.	WFC	Phillips, O. M.	NAS 6-2888	2487
33	JOHNS HOPKINS UNIV	Huang, N. E.	WFC	Phillips, O. M.	NAS 6-2993	2488
33	LA ST U&A&M COL-BRGE	Cahane, M.	JPL	Rouse, L. J.	NGT 19-001-800	2451
33	MASS INST OF TECH	Halem, M.	GSFC	Wunsch, C. I.	NGT 22-009-900	2768
33	NO CAROLINA STATE U	Huang, N. E.	WFC	Tung, C.	NAS 6-3018	3383
33	SAN JOSE STATE UNIV	Wngley, R. C.	ARC	Broenkow, W. W.	NSG 2239	1353
33	TEXAS A&M UNIVERSITY	Huang, N. E.	WFC	Ichiye, T.	NAS 6-2884	3914
33	UNIV CALIF-BERKELEY	Kim, H. H.	GSFC	Colwell, R. N.	NSG 5256	1552
33	UNIV CALIF-SAN DIEGO	Nelsen, D.	GSFC	Austin, R. W.	NAS 5-25450	1675
33	UNIV CALIF-SAN DIEGO	Nelsen, D.	GSFC	Austin, R. W.	NAS 5-26249	1676
33	UNIV CALIF-SAN DIEGO	Whitlock, C. H.	LARC	Smith, R. C.	NSG 1641	1698
33	UNIV OF KANSAS	Schroeder, L. C.	LARC	Moore, R. K.	NSG 1397	2407
33	UNIV MD-EASTRN SHORE	Huang, N. E.	WFC	Dudis, J. J.	NSG 6025	2615
33	UNIV OF MIAMI	McClain, C. R.	GSFC	Williams, F.	NSG 5344	2089



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33	UNIV OF RHODE ISLAND	Campbell, J. W.	LARC	Spaulding, M. L.	NSG 1495	3789
33	UNIV OF WASHINGTON	Huang, N. E.	WFC	Katsaros, K. B.	NAS 6-2996	4317
33	WEST CHESTER ST COL	Hoge, F. E.	WFC	Yungel, J.	NAS 6-3096	3776
33	WOODSHOLE OCEAN INST	Halem, M.	GSFC	Haidvogel, D. B.	NAG 5-8	2840
33	WOODSHOLE OCEAN INST	Croswell, W. F.	LARC	Joyce, T. M.	NAG 1-91	2839
39	ALABAMA A&M UNIV	Smith, A. D.	MSFC	Montgomery, O. L.	NAG 8-1	1000
39	ALABAMA A&M UNIV	Downs, S. W., Jr.	MSFC	Montgomery, O. L.	NSG 8062	1006
39	ALABAMA A&M UNIV	Smith, A. D.	MSFC	Montgomery, O. L.	NSG 8066	1009
39	BOSTON COLLEGE	Taylor, W. W.	HD-ST	Eather, R. H.	NSG 7385	2620
39	BOSTON COLLEGE	Tomayko, D. W.	HD-ST	Carovillano, R. L.	NSG 7468	2621
39	CAL POLY ST U-S LUIS	Peterson, D. L.	ARC	Pillsbury, N.	NCA 2-678001	1278
39	CITY COLLEGE OF N Y	Hess, R. V.	LARC	Tchen, C. M.	NSG 1485	3151
39	COLORADO STATE UNIV	Nelsen, E. D.	GSFC	Vonderhaar, T. H.	NAS 5-22959	1823
39	COLORADO STATE UNIV	Toll, D.	GSFC	Maxwell, E.	NAS 5-25696	1824
39	CORNELL UNIVERSITY	Wydeven, T.	ARC	Shuler, M. L.	NSG 2408	3225
39	CORNELL UNIVERSITY	Vitale, J. A.	HD-ET	Liang, T.	NGL 33-010-171	3211
39	DARTMOUTH COLLEGE	Ongar, S. G.	GSFC	Stoiber, R. E.	NSG 5014	3043
39	DARTMOUTH COLLEGE	King, J. H.	HD-ST	Sonnerup, B.	NSG 7292	3046
39	FORT VALLEY STATE C	Wolverton, B. C.	NSTL	Brown, N. B., Jr.	NSG 735	2098
39	GEORGIA INST OF TECH	Slajna, E. F.	GSFC	Cunnold, D. M.	NAS 5-25817	2116
39	HAMPTON INSTITUTE	Poole, L. R.	LARC	Venable, D. D.	NCC 1-11	4148
39	HOWARD UNIVERSITY	Okeefe, J.	GSFC	Thorpe, A. M.	NAS 5-25185	2004
39	HUMBOLDT STATE UNIV	Norman, S. M.	ARC	Fox, L.	NSG 2341	1311
39	JACKSON STATE UNIV	Wolverton, B. C.	NSTL	Shores, F.	NSG 8026	2962
39	LA ST U&A&M COL-BRGF	Vitale, J. A.	HD-ET	Whitehurst, C. A.	NGL 19-001-105	2450
39	MASS INST OF TECH	Argentiero, P. D.	GSFC	Oppenheim, A. V.	NAG 5-2	2698
39	MASS INST OF TECH	Shiue, J. C.	GSFC	Staelin, D. H.	NAS 5-26038	2728
39	MICHIGAN STATE UNIV	Vitale, J. A.	HD-ET	Boylan, M. G.	NGL 23-004-083	2849
39	MISSISSIPPI STATE U	Vitale, J. A.	HD-ET	Miller, W. F.	NGL 25-001-054	2972
39	MONTANA STATE UNIV	Ravet, F. W.	JSC	Caprio, J. M.	NAS 9-16007	3021
39	MORGAN STATE UNIV	Tucker, C. J.	GSFC	Fan, C. J.	NAG 5-12	2509
39	NEW MEX ST U-LAS CR	Fenner, R. G.	JSC	Carver, K.	NAS 9-95497	3129
39	OLD DOMINION UNIV	Reichle, H. G.	LARC	Kindle, E. C.	NCC 1-34	4171
39	OLD DOMINION UNIV	Browell, E. V.	LARC	Kindle, E. C.	NSG 1477	4188
39	OREGON STATE UNIV	Mueller, J.	GSFC	Zaneveld, R. V.	NAS 5-23738	3625
39	OREGON STATE UNIV	Vitale, J. A.	HD-ET	Schrumpf, B. J.	NGL 38-002-053	3629
39	PAN AMERICAN UNIV	Heydorn, R. P.	JSC	Lemaster, E. W.	NSG 9033	3867
39	PENN STATE U-UNIV PK	Alford, W.	GSFC	McMurtry, G. J.	NAS 5-23859	3697
39	PENN STATE U-UNIV PK	Irons, J.	GSFC	Petersen, G. W.	NAS 5-25667	3699
39	PENN STATE U-UNIV PK	Labovitz, M.	GSFC	Smith, C. B.	NAS 5-25996	3701
39	PRAIRIE VIEW A&M U	Browne, I. D.	JSC	Brams, E. A.	NSG 9006	3870
39	PURDUE UNIVERSITY	Joosten, R. E.	JSC	Mroczynski, R.	NAS 9-15325	2299
39	PURDUE UNIVERSITY	Erickson, J. D.	JSC	Bauer, M. E.	NAS 9-15466	2300
39	PURDUE UNIVERSITY	Amsbury, D. L.	JSC	Hoffer, R. M.	NAS 9-15508	2301
39	PURDUE UNIVERSITY	Vitale, J. A.	HD-ET	Weismiller, R. A.	NGL 15-005-186	2306
39	SAN JOSE STATE UNIV	Nishioka, K.	ARC	Ling, A. C.	NSG 2305	1354
39	SAN JOSE STATE UNIV	Johnson, R. D.	ARC	Funk, G. A.	NSG 2398	1357
39	SO DAKOTA STATE UNIV	Schmugge, T. J.	GSFC	Heilman, J. L.	NSG 5396	3811
39	SO DAKOTA STATE UNIV	Vitale, J. A.	HD-ET	Myers, V. I.	NGL 42-003-007	3810
39	STANFORD UNIVERSITY	Roberson, F.	HD-ET	Dunn, D.	NASW 3204	1395
39	STATE UNIV NY-ALBANY	Weinberg, I.	LERC	Corbett, J. W.	NSG 3095	3311
39	STATE UNIV NY-ALBANY	Vaughn, O. H., Jr	MSFC	Yonnegut, B.	NAS 8-32893	3303
39	ST U NY COL-ONEONTA	Austin, T. W.	GSFC	Baumann, P. R.	NAS 5-25967	3351
39	TEXAS A&M UNIVERSITY	Williams, D. L.	GSFC	Miller, L.	NAS 5-25941	3913
39	TEXAS A&M UNIVERSITY	Schmugge, T. J.	GSFC	Miller, L.	NCC 5-15	3934
39	TEXAS A&M UNIVERSITY	Wang, J. R.	GSFC	Newton, R. W.	NSG 5266	3948
39	TEXAS A&M UNIVERSITY	Blanchard, D. P.	JSC	Randall, J. D.	NAS 9-14828	3923
39	TEXAS A&M UNIVERSITY	Vitale, J. A.	HD-ET	Blanchard, B. J.	NGL 44-001-001	3935

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39	UNIV ALA-HUNTSVILLE	West, G. S.	MSFC	Hung, R. J.	NAS 8-31171	1044
39	UNIV ALA-HUNTSVILLE	Rutland, C. M.	MSFC	Proffitt, S.	NAS 8-33889	1061
39	UNIV ALASKA-FAIRBNKS	Johnson, R. D.	ARC	Stringer, W.	NCA 2-20001	107
39	UNIV ALASKA-FAIRBNKS	Wilson, D. E.	ARC	Jean, K. G.	NCA 2-20002	10
39	UNIV ALASKA-FAIRBNKS	Vitale, J. A.	HD-ET	Miller, J. M.	NGL 02-001-092	1083
39	UNIV OF ARIZONA	Vitale, J. A.	HD-ET	Johnson, J. D.	NGL 03-002-313	1155
39	UNIV ARKANSAS-FAYETY	Rango, A.	GSFC	Waite, W. P.	NAG 5-20	1197
39	UNIV CALIF-BERKELEY	Toon, O. B.	ARC	Granger, O.	NCA 2-50004	1526
39	UNIV CALIF-BERKELEY	Linlor, W. I.	ARC	Angelakos, D.	NCA 2-50006	1527
39	UNIV CALIF-BERKELEY	Brown, D.	JSC	Colwell, R. N.	NAS 9-14565	1522
39	UNIV CALIF-BERKELEY	Hancock, K. J.	JSC	Wensel, L. C.	NAS 9-15987	1523
39	UNIV CALIF-BERKELEY	Vitale, J. A.	HD-ET	Colwell, R. N.	NGL 05-003-404	1536
39	UNIV CALIF-BERKELEY	Vitale, J. A.	HD-ET	Colwell, R. N.	NSG 7220	1558
39	UNIV CALIF-BERKELEY	Quaide, W. L.	HD-SL	Anderson, K. A.	NSG 7127	1555
39	UNIV CALIF-DAVIS	Rango, A.	GSFC	Algazi, V. R.	NSG 5092	1576
39	UNIV CALIF-L ANGELES	Hedin, A. E.	HD-ST	Coleman, P. J.	NGL 05-007-004	1613
39	UNIV CALIF-SAN DIEGO	Smith, D. E.	GSFC	Berger, J.	NGR 05-009-246	1697
39	UNIV CALIF-SAN DIEGO	Purvis, C. K.	LERC	Whipple, E. C., Jr.	NSG 3150	1700
39	UNIV CALIF-S BARBARA	Norman, S.	ARC	Clayton, C.	NAG 2-20	1740
39	UNIV CALIF-S BARBARA	Norman, S.	ARC	Estes, J. E.	NAG 2-24	1741
39	UNIV CALIF-S BARBARA	Peterson, D.	ARC	Strahler, A. H.	NSG 2377	1753
39	UNIV CALIF-S BARBARA	Rango, A.	GSFC	Dozier, J.	NSG 5262	1755
39	UNIV CALIF-S BARBARA	Graybeal, G. E.	JSC	Strahler, A. H.	NGT 05-010-800	1752
39	UNIV OF CENTRAL FLA	Rudolph, H. W.	KSC	Madsen, B. C.	NAS10-9841	2045
39	UNIV COLORADO-BOLDR	Jones, C. T.	MSFC	Toomre, J.	NAS 8-31958	1874
39	UNIV COLORADO-BOLDR	Vitale, J. A.	HD-ET	Ives, J. D.	NGL 06-003-200	1881
39	UNIV DC-HARVARD GA	Ruitberg, A. P.	GSFC	Lessin, I.	NGR 09-053-003	2019
39	UNIV DC-MT VERNON SQ	Gross, F. C.	GSFC	Phelps, H. L.	NGR 09-050-019	2021
39	UNIV OF DELAWARE	Gervin, J. C.	GSFC	Klemas, V.	NAS 5-25934	1948
39	UNIV OF DELAWARE	Gervin, J. C.	GSFC	Klemas, V.	NAS 5-26254	1949
39	UNIV OF DENVER	Orr, H. D.	LARC	Murcray, D. G.	NSG 1432	1921
39	UNIV OF FLORIDA	Horn, F. W.	KSC	Martsoff, J. D.	NAS10-8920	2053
39	UNIV OF FLORIDA	Horn, F. W.	KSC	Martsoff, J. D.	NAS10-9168	2054
39	UNIV OF FLORIDA	Horn, F. W.	KSC	Blazquez, C. H.	NAS10-9666	2056
39	UNIV OF FLORIDA	Vitale, J. A.	HD-ET	Ruth, B. E.	NSG 7236	2074
39	UNIV OF GEORGIA	Butera, M. K.	NSTL	Cooley, J. L.	NAS13-137	2150
39	UNIV OF IOWA	Fishman, J.	LARC	Ragg, M. B.	NAG 1-36	2351
39	UNIV OF KANSAS	Rango, A.	GSFC	Ulaby, F. T.	NAG 5-30	2391
39	UNIV OF KANSAS	Vitale, J. A.	HD-ET	Barr, B. G.	NGL 17-004-024	2404
39	UNIV MARYLAND-COL PK	Rango, A.	GSFC	Ragan, R. M.	NAG 5-9	2521
39	UNIV MARYLAND-COL PK	Trombka, J. I.	GSFC	Sommer, S. E.	NAS 5-23457	2538
39	UNIV MARYLAND-COL PK	Vitale, J. A.	HD-ET	Ragan, R. M.	NAGW 33	2533
39	UNIV MD-EASTRN SHORE	Trafford, G. H.	WFC	Gupta, G. C.	NSG 6034	2617
39	UNIV MICH-ANN ARBOR	Ruff, R. C.	MSFC	Shyn, T. W.	NAS 8-32661	2894
39	U MINN-MNPLS-ST PAUL	Vitale, J. A.	HD-ET	Hobbie, R. K.	NGL 24-005-263	2944
39	U MINN-MNPLS-ST PAUL	King, J. H.	HD-ST	Winckler, J. R.	NSG 7005	2954
39	UNIV MO-COLUMBIA	Schmugge, T. J.	GSFC	Rouse, J. W.	NSG 5338	2992
39	UNIV MO-COLUMBIA	Harnage, M. J.	JSC	Rouse, J. W.	NAS 9-15896	2990
39	UNIV MO-COLUMBIA	Vitale, J. A.	HD-ET	Johannsen, C. J.	NAGW 46	2986
39	UNIV NEBRASKA-LINCLN	Thompson, D.	JSC	Blad, B. L.	NGT 28-004-800	3026
39	UNIV NEBRASKA-LINCLN	Vitale, J. A.	HD-ET	Carlson, M. P.	NGL 28-004-020	3024
39	UNIV OF PENNSYLVANIA	Barnes, C. M.	JSC	Shen, B. S.	NAS 9-15789	3748
39	UNIV SO CAROLINA-COL	Vitale, J. A.	HD-ET	Jankowski, M. D.	NSG 7504	3805
39	UNIV SO MISSISSIPPI	Wolverton, B. C.	NSTL	Stocks, P. K.	NAS13-81	2982
39	UNIV TENNESSEE-KNOXV	Anderson, B. J.	MSFC	Carter, J. M.	NAS 8-32611	3870
39	UNIV OF UTAH	Vitale, J. A.	HD-ET	Ursenbach, W. O.	NAGW 95	4085
39	UNIV OF UTAH	Vitale, J. A.	HD-ET	Ridd, M. K.	NSG 7226	4094
39	UNIV OF WASHINGTON	Wilson, D. E.	ARC	Shinn, R. D.	NCA 2-850001	4324

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39	UNIV OF WASHINGTON	Wilson, D. E.	ARC	Westerlund, F. V.	NCA 2-850002	4325
39	UNIV WISC-MADISON	Middleton, E.	GSFC	Scarpice, F. L.	NAS 5-25505	4380
39	UNIV WISC-MADISON	Thiele, O. W.	GSFC	Suomi, V. E.	NAS 5-26345	4386
39	UNIV WISC-MADISON	Vitale, J. A.	HD-ET	Clapp, J. L.	NGL 50-002-127	4393
39	VIRGINIA POLY INST	Gervin, J. C.	GSFC	Munday, J.	NAS 5-26199	4259
39	VIRGINIA POLY INST	Tenney, D. R.	LARC	Unnam, J.	NCC 1-10	4265
39	WASHINGTON ST UNIV	Wilson, D. E.	ARC	Krebs, L. T.	NCA 2-840001	4352
39	WASHINGTON UNIVERSITY	Weinstein, R. H.	HD-ET	Eastwood, L. F.	NAS 3331	3007
39	XAVIER UNIV-LA	Espy, P. N.	MSFC	Ioup, J.	NSG 8050	2469
41	ARIZONA STATE UNIV	Hippensteele, S. A.	LERC	Metzger, D. E.	NSG 3075	1103
41	BOSTON UNIVERSITY	Yates, E. C.	LARC	Morino, L.	NGR 22-004-030	2625
41	BOSTON UNIVERSITY	Yates, E. C.	LARC	Morino, L.	NGT 22-004-800	2626
41	BOSTON UNIVERSITY	Yates, E. C.	LARC	Morino, L.	NGT 22-004-801	2627
41	BOSTON UNIVERSITY	Yates, E. C.	LARC	Morino, L.	NGT 22-004-802	2628
41	BROWN UNIVERSITY	Yates, E. C.	LARC	Doepfner, T. W., Jr.	NGT 40-002-800	3783
41	BROWN UNIVERSITY	Townsend, J. C.	LARC	Sirovich, L.	NSG 1617	3784
41	CALIF INST OF TECH	Starnes, H. H., Jr.	LARC	Knauss, W. G.	NSG 1483	1248
41	CALIF INST OF TECH	Szamszlo, A. J.	LERC	Marble, F. E.	NAG 3-70	.203
41	CAL POLY ST U-S LUIS	Talbot, P. D.	ARC	Sandlin, D. R.	NAG 2-61	1275
41	CAL POLY ST U-S LUIS	Magee, J. P.	ARC	Grimes, J. E.	NAS 2-10364	1277
41	CAL POLY ST U-S LUIS	Koenig, D. G.	ARC	Hoffmann, J. A.	NSG 2391	1280
41	CAL POLY ST U-S LUIS	Myers, L. P.	DFRC	Carpenter, T. W.	NAG 4-4	1276
41	CAL POLY ST U-S LUIS	Kordes, E. E.	DFRC	Sandlin, D. R.	NCC 4-1	1279
41	CAL POLY ST U-S LUIS	Ayers, T. G.	DFRC	Sandlin, D. R.	NSG 4014	1281
41	CAL POLY ST U-S LUIS	Gee, S. W.	DFRC	Sandlin, D. R.	NSG 4020	1282
41	CAL POLY ST U-S LUIS	Gee, S. W.	DFRC	Sandlin, D. R.	NSG 4022	1283
41	CAL ST POLY U-POMONA	Christianson, R. S.	ARC	Lord, P. A.	NAG 2-49	1284
41	CASE WESTERN RESERVE	Hingst, W. R.	LERC	Greber, I.	NAG 3-61	3410
41	CASE WESTERN RESERVE	Hingst, W. R.	LERC	Greber, I.	NAG 3-102	34
41	CASE WESTERN RESERVE	Socket, P. M.	LERC	Reshotko, E.	NCC 3-4	34
41	CASE WESTERN RESERVE	Bishop, A. R.	LERC	Reshotko, E.	NGR 36-027-064	34
41	CASE WESTERN RESERVE	Anderson, B. H.	LERC	Lynch, W. C.	NSG 3115	34
41	CASE WESTERN RESERVE	Riddlebaugh, S. M.	LERC	Greber, I.	NSG 3206	344
41	CASE WESTERN RESERVE	Anderson, B. H.	LERC	Parke, F. I.	NSG 3207	3445
41	CASE WESTERN RESERVE	Hingst, W. R.	LERC	Greber, I.	NSG 3211	3446
41	CASE WESTERN RESERVE	Hingst, W. R.	LERC	Greber, I.	NSG 3271	3454
41	CLEMSON UNIV-CLEMSON	Doggett, R. V., Jr.	LARC	Rudisill, C. S.	NSG 1411	3796
41	COLORADO STATE UNIV	Socket, P. M.	LERC	Sadeh, W. Z.	NSG 3127	1838
41	COLUMBIA UNIVERSITY	Harris, R. L., Sr.	LARC	Galanter, E.	NCC 1-5	3176
41	COLUMBIA UNIVERSITY	Mixson, J. S.	LARC	Vaicaitis, R.	NSG 1450	3182
41	CORNELL UNIVERSITY	Tauber, M. E.	ARC	Caughy, D. A.	NAG 2-13	3196
41	CORNELL UNIVERSITY	Chapman, G. T.	ARC	Lumley, J. L.	NSG 2382	3223
41	CORNELL UNIVERSITY	Johnson, G. M.	LERC	Caughy, D. A.	NAG 3-19	3197
41	CORNELL UNIVERSITY	Marek, C. J.	LERC	Gouldin, F. C.	NSG 3019	3227
41	DREXEL UNIVERSITY	Price, D. B.	LARC	Calise, A. J.	NSG 1496	3661
41	DREXEL UNIVERSITY	Lyons, V. J.	LERC	Cernansky, N. P.	NAG 3-1	3652
41	EMBRY-RIDDLE AERO U	Houck, J. A.	LARC	Grandelman, J.	NAS 1-15724	2028
41	EMBRY-RIDDLE AERO U	Aaron, J. B.	WFC	Gandelman, J.	NAS 6-3040	2029
41	GEORGE WASHINGTON U	Chapman, G. T.	ARC	Hafez, M. M.	NAG 2-40	1966
41	GEORGE WASHINGTON U	Demaris, R. N.	LARC	Liebowitz, H.	NAG 1-13	1965
41	GEORGE WASHINGTON U	Duberg, J. E.	LARC	Liebowitz, H.	NAS 1-14605	1968
41	GEORGE WASHINGTON U	Lansing, D. L.	LARC	Liebowitz, H.	NCC 1-14	1972
41	GEORGE WASHINGTON U	Whitehead, A. H.	LARC	Liebowitz, H.	NCC 1-24	1974
41	GEORGE WASHINGTON U	Erickson, W. D.	LARC	Liebowitz, H.	NCC 1-27	1975
41	GEORGE WASHINGTON U	Sut, W. T.	LARC	Liebowitz, H.	NCC 1-29	1976
41	GEORGE WASHINGTON U	Erickson, W. D.	LARC	Liebowitz, H.	NCC 1-44	1979
41	GEORGE WASHINGTON U	Bobbitt, P. J.	LARC	Liebowitz, H.	NGR 09-010-074	1980
41	GEORGE WASHINGTON U	McComb, H. G.	LARC	Liebowitz, H.	NGR 09-010-078	1981

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41	GEORGE WASHINGTON U	Morgan, H. G.	LARC	Liebowitz, H.	NGR 09-010-085	1982
41	GEORGE WASHINGTON U	Kemp, W. B., Jr.	LARC	Liebowitz, H.	NSG 1585	1988
41	GEORGIA INST OF TECH	Scheiman, J.	LARC	McMahon, H. M.	NAG 1-40	2100
41	GEORGIA INST OF TECH	Young, W. H., Jr.	LARC	Gray, R. B.	NAS 1-15158	2109
41	GEORGIA INST OF TECH	Berry, J. D.	LARC	Pierce, G. A.	NAS 1-16222	2111
41	GEORGIA INST OF TECH	Lee, B. L.	LARC	Pierce, G. A.	NSG 1592	2129
41	GEORGIA INST OF TECH	Saule, A. V.	LERC	Zinn, B. T.	NAG 3-67	2105
41	GEORGIA INST OF TECH	Phillips, B. R.	LERC	Zinn, B. T.	NAG 3-96	2107
41	GEORGIA INST OF TECH	Baumeister, K. J.	LERC	Zinn, B. T.	NSG 3036	2135
41	GEORGIA INST OF TECH	Sockol, P. M.	LERC	Johnston, W. A.	NSG 3260	2138
41	GEORGIA INST OF TECH	McFarland, E. R.	LERC	Wu, J.	NSG 3307	2140
41	HAMPTON INSTITUTE	Shanks, R. E.	LARC	Wiggs, J. F.	NAG 1-69	4141
41	HAMPTON INSTITUTE	Knox, C. E.	LARC	Hargrove, A.	NAS 1-15445	4144
41	HAMPTON INSTITUTE	Beckwith, J. E.	LARC	Anywo, J. C.	NAS 1-15877	4145
41	HAMPTON INSTITUTE	Jewel, J. W.	LARC	Unavailable	NAS 1-16005	4146
41	HARVARD UNIVERSITY	Brown, T. J.	ARC	Caines, P. F.	NCC 2-39	2653
41	HARVARD UNIVERSITY	Doolin, B. F.	ARC	Byrnes, C. I.	NSG 2265	2663
41	HARVEY MUDD COLLEGE	Luebs, A. B.	ARC	Williams, H.	NCA 2-283801	1307
41	HARVEY MUDD COLLEGE	Bull, J. G.	ARC	Clary, G. R.	NCC 2-90	1308
41	HOWARD UNIVERSITY	Barrowman, J. S.	GSFC	Fan, D.	NAS 5-24242	2002
41	ILL INST OF TECH	Starnes, J. H., Jr.	LARC	Hafka, R. T.	NAG 1-5	2188
41	ILL INST OF TECH	Harvey, W. D.	LARC	Tan-atchat, J.	NAG 1-74	2189
41	ILL INST OF TECH	Adelman, H. M.	LARC	Hafka, R. T.	NSG 1266	2190
41	ILL INST OF TECH	Hefner, J. N.	LARC	Nagio, H. M.	NSG 1591	2191
41	ILL INST OF TECH	Groeneweg, J. F.	LERC	Nagib, H. M.	NSG 3220	2192
41	INDIANA INST OF TECH	Stockman, N. O.	LERC	Boles, M. A.	NAG 3-4	2272
41	IND U-PURDUE-INDAPLS	Sockol, P. M.	LERC	Bodonyi, R. J.	NSG 3183	2286
41	IND U-PURDUE-INDAPLS	Chima, R.	LERC	Focer, A.	NSG 3294	2287
41	IOWA STATE UNIV	Olson, L. E.	ARC	James, W. D.	NAG 2-30	2330
41	IOWA STATE UNIV	Corsiglia, V. R.	ARC	Vogel, J. M.	NCC 2-19	2340
41	IOWA STATE UNIV	Corsiglia, V. R.	ARC	Nogel, J.	NCC 2-22	2341
41	IOWA STATE UNIV	Pakich, J. U.	ARC	Tannehill, J. C.	NGR 16-002-038	2342
41	IOWA STATE UNIV	Malcolm, G. N.	ARC	James, W. D.	NSG 2091	2349
41	IOWA STATE UNIV	Salas, M. D.	LARC	Anderson, D. A.	NCC 1-17	2339
41	IOWA STATE UNIV	Morris, D. J.	LARC	Iversen, J. D.	NSG 1582	2347
41	IOWA STATE UNIV	Graves, R. A.	HD-RT	Anderson, D. A.	NGT 16-002-801	2344
41	ISRAEL INST OF TECH	Abel, I.	LARC	Nissim, F.	NSG 7373	4429
41	JOHNS HOPKINS UNIV	Rubesin, M. W.	ARC	Corriss, S.	NSG 2303	2501
41	JOHNS HOPKINS UNIV	Goldt, E. A.	GSFC	Davidson, A. F.	NGT 21-001-800	2498
41	LEHIGH UNIVERSITY	Batterton, P. G.	LERC	Rockwell, D. O.	NSG 3162	3681
41	MASS INST OF TECH	Dizialz, R. A.	ARC	Miller, R. H.	NAG 2-47	2692
41	MASS INST OF TECH	Nagel, D. C.	ARC	Simpson, R. W.	NAS 2-10720	2714
41	MASS INST OF TECH	Johnson, W. R.	ARC	Widhall, S. I.	NSG 2142	2778
41	MASS INST OF TECH	Johnson, W. R.	ARC	Ham, N. D.	NSG 2266	2780
41	MASS INST OF TECH	Nelsen, F. D.	GSFC	Cunnold, D. M.	NAS 5-22915	2718
41	MASS INST OF TECH	Gloersen, P.	GSFC	Staelin, D. H.	NAS 5-22929	2719
41	MASS INST OF TECH	Bland, S. R.	LARC	Harris, W. I.	NAG 1-60	2687
41	MASS INST OF TECH	Hubbard, H. H.	LARC	Ingard, K. V.	NAS 1-15154	2710
41	MASS INST OF TECH	Maddalon, D. V.	LARC	Taneja, N. K.	NAS 1-15268	2711
41	MASS INST OF TECH	Harris, R. L., Sr.	LARC	Whitehurst, C. A.	NCC 1-23	2740
41	MASS INST OF TECH	Dwoyer, D. L.	LARC	Abarbanel, S. S.	NCC 1-45	2741
41	MASS INST OF TECH	Downing, D. R.	LARC	Simpson, R. W.	NGL 22-009-640	2752
41	MASS INST OF TECH	Boyd, R. P.	LARC	Haldeman, C. W.	NSG 1356	2770
41	MASS INST OF TECH	Boyd, R. P.	LARC	Covert, E. F.	NSG 1502	2771
41	MASS INST OF TECH	Chima, R.	LERC	Thompson, W. T.	NAG 3-9	2694
41	MASS INST OF TECH	Cassidy, J. F.	LERC	Haywood, J. B.	NAG 3-82	2696
41	MASS INST OF TECH	Crouse, J. E.	LERC	Kerrebrock, J. L.	NAS 3-20473	2715
41	MASS INST OF TECH	Gorrell, W. T.	LERC	Kerrebrock, J. L.	NGL 22-009-383	2749

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41	MASS INST OF TECH	Weiss, S.	LERC	Witmer, E. A.	NGR 22-009-339	2755
41	MASS INST OF TECH	Brabbs, T. A.	LERC	Hoult, D. P.	NSG 3076	2786
41	MASS INST OF TECH	Adamczyk, J. J.	LERC	Kerrebrock, J. L.	NSG 3079	2787
41	MASS INST OF TECH	Adamczyk, J. J.	LERC	Greitzer, E. M.	NSG 3208	2790
41	MASS INST OF TECH	Chima, R.	LERC	Kerrebrock, J. L.	NSG 3234	2792
41	MASS INST OF TECH	Janetzke, D. C.	LERC	Dugundji, J.	NSG 3303	2795
41	MASS INST OF TECH	Bishop, A. R.	LERC	Thompkins, W. T	NSG 3309	2796
41	MISSISSIPPI STATE U	Holmes, B. J.	LARC	Bull, G	NAG 1-3	2963
41	MISSISSIPPI STATE U	South, J. C., Jr.	LARC	Thompson, J. F.	NGR 25-001-055	2973
41	MISSISSIPPI STATE U	Hall, A. W.	LARC	Rogerson, A. C.	NSG 1083	2974
41	MISSISSIPPI STATE U	Stewart, E. C.	LARC	Bennett, A. G., Jr.	NSG 124 <sup>o</sup>	2975
41	MISSISSIPPI STATE U	Johnson, J. L.	LARC	Bennett, A. G., Jr.	* SG 1402	2976
41	MISSISSIPPI STATE U	Judd, J. H.	LARC	Bennett, A. G., Jr.	NSG 1454	2977
41	MISSISSIPPI STATE U	Thomas, J. L.	LARC	Bennett, A. G., Jr.	NSG 1623	2979
41	MISSISSIPPI STATE U	Mitchell, G. A.	LERC	Bennett, A. G., Jr.	NAG 3-56	2964
41	MONTANA STATE UNIV	Horstman, C. C.	ARC	Demetriades, A.	NAG 2-37	3020
41	NEW JERSEY INST TECH	Mundy, J. R.	GSFC	Gant, M.	NAS 5-26156	3063
41	NEW YORK UNIVERSITY	Hicks, R. M.	ARC	Garabedian, P. R.	NGR 33-016-201	3255
41	NEW YORK UNIVERSITY	Anderson, G. Y.	LARC	Agnone, A. M.	NGR 33-016-131	3253
41	NEW YORK UNIVERSITY	Edwards, C. L.	LARC	Zakkay, V.	NSG 1444	3257
41	NEW YORK UNIVERSITY	Graves, R. A.	HD-RT	Garabedian, P. R.	NGT 33-016-800	3256
41	NO CAROLINA STATE U	Kurtenbach, F. J.	DFRC	Smetana, F. O.	NSG 4025	3297
41	NO CAROLINA STATE U	Lamar, J. E.	LARC	Dejarnette, F. R.	NCC 1-13	3384
41	NO CAROLINA STATE U	South, J. C.	LARC	Hassan, H. A.	NCC 1-22	3385
41	NO CAROLINA STATE U	Wurster, K. E.	LARC	Dejarnette, F. R.	NCC 1-35	3386
41	NO CAROLINA STATE U	Campbell, J. F.	LARC	Dejarnette, F. R.	NCC 1-46	3387
41	NO CAROLINA STATE U	Brooks, T. F.	LARC	Hodgson, T. H.	NSG 1377	3391
41	NO CAROLINA STATE U	Crane, H. L.	LARC	Smetana, F. O.	NSG 1584	3395
41	NO CAROLINA STATE U	Stockman, N. O.	LERC	Boles, M. A.	NAG 3-89	3381
41	NORTHWESTERN UNIV	Faye, A. E.	ARC	Spencer, F. A.	NSG 2328	2202
41	OHIO STATE UNIV	Hicks, R. M.	ARC	Gregorek, G. M.	NAG 2-32	3489
41	OHIO STATE UNIV	Stroub, R. H.	ARC	Velkoff, H. R.	NCA 2-565001	3505
41	OHIO STATE UNIV	Holst, T. L.	ARC	Nakamura, S.	NCA 2-565901	3506
41	OHIO STATE UNIV	Marvin, J. G.	ARC	Petrie, S. L.	NSG 2298	3517
41	OHIO STATE UNIV	McGhee, R. J.	LARC	Gregorek, G. M.	NAS 1-14406	3496
41	OHIO STATE UNIV	Greene, G. C.	LARC	Gregorek, G. M.	NAS 1-15680	3497
41	OHIO STATE UNIV	Bergeron, H. P.	LARC	Weislogel, G. S.	NAS 1-15969	3498
41	OHIO STATE UNIV	Holmes, B. J.	LARC	Gregorek, G. M.	NAS 1-16388	3499
41	OHIO STATE UNIV	Holmes, B. J.	LARC	Gilson, R. D.	NSG 1620	3511
41	OHIO STATE UNIV	Everhart, J. L.	LARC	Burggraf, O. R.	NSG 1622	3512
41	OHIO STATE UNIV	Shaw, R. J.	LERC	Gregorek, G. M.	NAG 3-28	3491
41	OHIO STATE UNIV	Shaw, J.	LERC	Korkan, K. D.	NAG 3-109	3493
41	OHIO STATE UNIV	Mitchell, G. A.	LERC	Gregorek, G. M.	NSG 3247	3520
41	OKLAHOMA STATE UNIV	Miller, S. A.	ARC	Wiggins, K. E.	NAS 2-10467	3593
41	OKLAHOMA STATE UNIV	Steinle, F. W.	ARC	Moretti, P. M.	NSG 2396	3597
41	OKLAHOMA STATE UNIV	Gilyard, G. B.	DFRC	Swain, R. L.	NSG 4018	3598
41	OKLAHOMA STATE UNIV	Marek, C. J.	LERC	Lilley, D. G.	NAG 3-74	3591
41	OLD DOMINION UNIV	Bushnell, D. M.	LARC	Grosch, C. E.	NAG 1-96	4160
41	OLD DOMINION UNIV	Erickson, W. D.	LARC	Unavailable	NAS 1-15648	4163
41	OLD DOMINION UNIV	Drummond, J. P.	LARC	Tiwari, S. N.	NAS 1-15930	4164
41	OLD DOMINION UNIV	Peterson, J. B.	LARC	Goglia, G. L.	NCC 1-9	4166
41	OLD DOMINION UNIV	Erickson, W. D.	LARC	Roberts, A. S.	NGR 47-003-052	4173
41	OLD DOMINION UNIV	Dixon, S. C.	LARC	Thornton, E. A.	NSG 1167	4177
41	OLD DOMINION UNIV	Peterson, J. B., Jr	LARC	Kuhlman, J. M.	NSG 1357	4185
41	OLD DOMINION UNIV	Graves, R. A., Jr.	LARC	Tiwari, S. N.	NSG 1464	4187
41	OLD DOMINION UNIV	Creedon, J. F.	LARC	Tcheng, P.	NSG 1480	4189
41	OLD DOMINION UNIV	Bushnell, D. M.	LARC	Goglia, G. L.	NSG 1491	4190
41	OLD DOMINION UNIV	Kilgore, R. A.	LARC	Goglia, G. L.	NSG 1503	4192

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41	OLD DOMINION UNIV	Dwoyer, D. L.	LARC	Cooke, C. H.	NSG 1517	4193
41	OLD DOMINION UNIV	Yates, F. C., Jr	LARC	Kandil, O. A.	NSG 1560	4196
41	OLD DOMINION UNIV	Lamar, J. F.	LARC	Goglia, G. I.	NSG 1561	4197
41	OLD DOMINION UNIV	Margason, R. J.	LARC	Barna, P. S.	NSG 1563	4198
41	OLD DOMINION UNIV	Bushnell, D. M.	LARC	Grosch, C. F.	NSG 1618	4200
41	OLD DOMINION UNIV	Hefner, J. N.	LARC	Ash, R. I.	NSG 1634	4201
41	OLD DOMINION UNIV	Harvey, W. D.	LARC	Goglia, G. I.	NSG 1645	4202
41	OLD DOMINION UNIV	Armstrong, E. S.	LARC	Liberty, S. R.	NSG 1650	4204
41	PENN STATE U-UNIV PK	Norum, T. D.	LARC	Daniel, O. H.	NAG 1-4	3688
41	PENN STATE U-UNIV PK	Chambers, J. R.	LARC	McCormick, B. W.	NAG 1-73	3689
41	PENN STATE U-UNIV PK	Fisher, B. D.	LARC	McCormick, B. W.	NSG 1308	3720
41	PENN STATE U-UNIV PK	Gatski, T. B.	LARC	Morris, P. J.	NSG 1580	3722
41	PENN STATE U-UNIV PK	Britsch, W. R.	IFRC	Lakshminarayana, B.	NGL 39-009-007	3716
41	PENN STATE U-UNIV PK	Shaw, L. M.	IFRC	Lakshminarayana, B.	NSG 3012	3724
41	PENN STATE U-UNIV PK	Sockol, P. M.	IFRC	Lakshminarayana, B.	NSG 3032	3725
41	PENN STATE U-UNIV PK	Sockol, P. M.	IFRC	Lakshminarayana, B.	NSG 3212	3727
41	PENN STATE U-UNIV PK	Sanger, N. S.	IFRC	Kubo, I.	NSG 3264	3728
41	PENN STATE U-UNIV PK	Englert, G. W.	IFRC	Morris, P. J.	NSG 3265	3729
41	PENN STATE U-UNIV PK	Sockol, P. M.	IFRC	Lakshminarayana, B.	NSG 3266	3730
41	PENN STATE U-UNIV PK	Mitchell, G. A.	IFRC	McCormick, B. W.	NSG 3304	3732
41	POLY INST OF NY	Smith, F. H.	ARC	Ison, M. P.	NCC 2-87	3268
41	POLY INST OF NY	Salas, M. D.	LARC	Moretti, G.	NSG 1248	3270
41	PRINCETON UNIVERSITY	Biggers, J.	ARC	Miles, R. B.	NCC 2-94	3080
41	PRINCETON UNIVERSITY	Davis, S. S.	ARC	Dowell, F. H.	NSG 2194	3087
41	PRINCETON UNIVERSITY	Horstman, C. C.	ARC	Settles, G. S.	NSG 2299	3088
41	PRINCETON UNIVERSITY	Downing, D. R.	LARC	Stengel, R. I.	NAS 1-15758	3069
41	PRINCETON UNIVERSITY	Garren, J. F.	LARC	Stengel, R. I.	NAS 1-15764	3070
41	PRINCETON UNIVERSITY	Downing, D. R.	LARC	Stengel, R. I.	NGL 31-001-252	3083
41	PRINCETON UNIVERSITY	Mixson, J. S.	LARC	Dowell, F. H.	NSG 1253	3084
41	PRINCETON UNIVERSITY	Schy, A. A.	LARC	Stengel, R. I.	NSG 1587	3085
41	PRINCETON UNIVERSITY	Jones, J. J.	LARC	Benkowski, G. K.	NSG 1630	3086
41	PRINCETON UNIVERSITY	Szaniak, A. J.	IFRC	Bracco, F. V.	NAG 3-8	3064
41	PRINCETON UNIVERSITY	Braun, W. H.	IFRC	Dowell, F. H.	NSG 3292	3092
41	PURDUE UNIVERSITY	Carmichael, R. I.	ARC	Anderson, D. C.	NSG 2192	2309
41	PURDUE UNIVERSITY	Berry, D. T.	DFRC	Schmidt, D. K.	NAG 4-1	2292
41	PURDUE UNIVERSITY	Mixson, J. S.	LARC	Crocker, M. J.	NAG 1-58	2288
41	PURDUE UNIVERSITY	Swanson, R. C.	LARC	McCarthy, D. R.	NSG 1635	2308
41	PURDUE UNIVERSITY	Lehtinen, B.	IFRC	Leiminger, G. G.	NAG 3-17	2289
41	PURDUE UNIVERSITY	Steinke, R. J.	IFRC	Murthy, S. N.	NAG 3-62	2291
41	PURDUE UNIVERSITY	Stepka, F. S.	IFRC	LeCuyer, M. R.	NSG 3071	2312
41	PURDUE UNIVERSITY	Katsanis, T.	IFRC	Ragsdell, K. M.	NSG 3105	2313
41	PURDUE UNIVERSITY	Serafini, J. S.	IFRC	Sullivan, J. P.	NSG 3135	2314
41	PURDUE UNIVERSITY	Chamis, C. C.	IFRC	Sun, C. T.	NSG 3185	2315
41	PURDUE UNIVERSITY	Lyon, V. J.	IFRC	Telebvre, A. H.	NSG 3213	2316
41	PURDUE UNIVERSITY	Boldman, D. R.	IFRC	Fleeter, S.	NSG 3285	2319
41	PURDUE UNIVERSITY	Bishop, A. R.	IFRC	Hoffman, J. D.	NSG 3311	2320
41	QUEENSBOROUGH COMM C	Bouge, R. K.	DFRC	Kousourou, G.	NAG 4-2	3274
41	RENSSELAER POLY NY	Harris, C. D.	LARC	Nagamatsu, H. T.	NSG 1624	3292
41	RENSSELAER POLY NY	Simoneau, R. J.	IFRC	Mayle, R. F.	NSG 3262	3296
41	RUTGERS U-N BRUNSWK	Claus, R. W.	IFRC	Johnson, J. A.	NSG 3280	3109
41	SAN JOSE STATE UNIV	Stroub, R. H.	ARC	Limecki, A. G.	NCA 2-675001	1323
41	STANFORD UNIVERSITY	Williams, L. J.	ARC	Shevell, R. S.	NAG 2-18	1360
41	STANFORD UNIVERSITY	Chapman, G. T.	ARC	Cantrell, B.	NAG 2-21	1361
41	STANFORD UNIVERSITY	Peterson, V. I.	ARC	Reynolds, W. C.	NAG 2-29	1362
41	STANFORD UNIVERSITY	Presley, I. I.	ARC	Kline, S. J.	NAG 2-42	1364
41	STANFORD UNIVERSITY	Presley, I. I.	ARC	Karamchett, K.	NAG 2-43	1365
41	STANFORD UNIVERSITY	Yu, Y. H.	ARC	Baganoff, D.	NAG 2-45	1367
41	STANFORD UNIVERSITY	Lomax, H.	ARC	Shevell, R. S.	NCA 2-745001	1396

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FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
41	STANFORD UNIVERSITY	Lomax, H.	ARC	Baganoff, D	NCA 2-745005	1399
41	STANFORD UNIVERSITY	Deiwert, G. S.	ARC	Baganoff, D.	NCA 2-745006	1400
41	STANFORD UNIVERSITY	Robinson, W. R	ARC	Karamcheti, K	NCC 2-13	1411
41	STANFORD UNIVERSITY	Presley, R.	ARC	Karamcheti, K.	NCC 2-18	1413
41	STANFORD UNIVERSITY	Carr, L. W	ARC	Reynolds, W. C	NCC 2-21	1414
41	STANFORD UNIVERSITY	Tauber, M. E.	ARC	Karamcheti, K.	NCC 2-42	1418
41	STANFORD UNIVERSITY	Snyder, C. T	ARC	Karamcheti, K.	NCC 2-55	1424
41	STANFORD UNIVERSITY	Marvin, J. G.	ARC	Karamcheti, K	NCC 2-59	1425
41	STANFORD UNIVERSITY	Olson, L. E.	ARC	Karamcheti, K.	NCC 2-62	1426
41	STANFORD UNIVERSITY	Dickey, D.	ARC	Karamcheti, K.	NCC 2-74	1429
41	STANFORD UNIVERSITY	Atencio, A.	ARC	Karamcheti, K.	NCC 2-75	1430
41	STANFORD UNIVERSITY	Soderman, P. T	ARC	Karamcheti, K.	NCC 2-76	1431
41	STANFORD UNIVERSITY	Davis, S.	ARC	Karamcheti, K	NCC 2-77	1432
41	STANFORD UNIVERSITY	McKenzie, R. L	ARC	Bershadet, D	NCC 2-82	1433
41	STANFORD UNIVERSITY	Presley, L. L	ARC	Karamcheti, K	NCC 2-89	1434
41	STANFORD UNIVERSITY	Caradonna, F. X	ARC	Steger, T.	NCC 2-97	1435
41	STANFORD UNIVERSITY	Faye, A. E.	ARC	Dajani, J. R	NSG 2203	1460
41	STANFORD UNIVERSITY	Horne, C.	ARC	Karamcheti, K.	NSG 2308	1462
41	STANFORD UNIVERSITY	Ciffone, D. L	ARC	Ashley, H.	NSG 2359	1463
41	STANFORD UNIVERSITY	Chapman, G. T	ARC	Cantwell, B	NSG 2392	1464
41	STANFORD UNIVERSITY	Franklin, J. A.	ARC	Debra, D. B	NSG 2400	1465
41	STANFORD UNIVERSITY	Edwards, J. W	DFRC	Debra, D. B	NSG 4002	1467
41	STANFORD UNIVERSITY	Doggett, R. V., Jr	LARC	Ashley, H	NGL 05-020-243	1441
41	STANFORD UNIVERSITY	Graves, R. A	HD-RT	Chapman, D. R	NGT 05-020-801	1457
41	STEVENS INST OF TECH	Bushnell, D. M.	LARC	Salwen, H	NSG 1619	3115
41	TEXAS A&M UNIV SYSTM	Enomoto, F. Y.	ARC	Miley, S. J	NAG 2-25	3904
41	TEXAS A&M UNIVERSITY	Morgan, D	ARC	Bruse, J. C	NAS 2-10272	3909
41	TEXAS A&M UNIVERSITY	Corsiglia, V. R.	ARC	Chevalier, H	NCC 2-78	3932
41	TEXAS A&M UNIVERSITY	Andre, W. L	ARC	Phillips, D. T	NSG 2226	3943
41	TEXAS A&M UNIVERSITY	Nelsen, F. D	GSFC	El-sayed, S. Z	NAS 5-22966	3910
41	TEXAS A&M UNIVERSITY	Zorumski, W. F	LARC	Gerhold, C. H	NAG 1-11	3905
41	TEXAS A&M UNIVERSITY	Everhart, J. L.	LARC	Carlson, I. A	NSG 1174	3939
41	TEXAS A&M UNIVERSITY	Chambers, J. R	LARC	Chevalier, H.	NSG 1407	3941
41	TEXAS A&M UNIVERSITY	Needleman, H. C	WFC	Carlson, I. A	NAS 6-3072	3915
41	TUSKEGEE INSTITUTE	Shanks, R. E.	LARC	Hargrove, A	NAG 1-72	1025
41	TUSKEGEE INSTITUTE	Glassman, A. J	LFRC	Jenkins, R. M	NSG 3295	1034
41	UNIV OF AKRON	Chamis, C. C	LFRC	Simon, A. I	NAG 3-50	3531
41	UNIV OF AKRON	Chamis, C. C	LFRC	Adams, M. I.	NSG 3283	3537
41	UNIV OF ARIZONA	Ballhaus, W. F	ARC	Seebass, A. R	NSG 2112	1165
41	UNIV OF ARIZONA	Chamis, C. C	LFRC	Gallagher, R. H	NAG 3-45	1114
41	UNIV OF ARIZONA	Graves, R. A	HD-RT	Seebass, A. R	NGT 03-002-200	1164
41	UNIV OF ARIZONA	Murphy, R. F	HD-SL	Tomasko, M. G	NAGW 55	1124
41	UNIV ARKANSAS-FAYETTE	Ragent, B.	ARC	Mazumder, M. K	NGL 04-001-007	1200
41	UNIV CALIF-BERKELEY	Faye, A. F	ARC	Kanafani, A	NAG 2-19	1478
41	UNIV CALIF-BERKELEY	Lee, G.	ARC	Holt, M	NGR 05-003-451	1542
41	UNIV CALIF-BERKELEY	Marek, C. J	LFRC	Oppenheim, A. K	NSG 3227	1551
41	UNIV CALIF-DAVIS	Maivin, J. G.	ARC	Launder, B	NSG 2256	1573
41	UNIV CALIF-L ANGELES	Ahtye, W	ARC	Meecham, W. C	NSG 2290	1627
41	UNIV CALIF-L ANGELES	Edwards, J. W	DFRC	Balakrishnan, A. V.	NSG 4015	1631
41	UNIV CALIF-L ANGELES	Hammond, C. F	LARC	Friedmann, P	NSG 1578	1626
41	UNIV CALIF-L ANGELES	Friedman, R	LFRC	Liu, C. Y	NSG 3116	1628
41	UNIV CALIF-SAN DIEGO	Marek, C. J	LFRC	Libby, P. A.	NSG 3219	1701
41	UNIV OF CINCINNATI	Hodges, D. H	ARC	CrespoDaSilva, M. R	NAG 2-38	3539
41	UNIV OF CINCINNATI	Erzberger, H.	ARC	Slater, G. I.	NCA 2-130801	3543
41	UNIV OF CINCINNATI	Rakich, J. V	ARC	Davis, R. T	NCA 2-130901	3544
41	UNIV OF CINCINNATI	Swanson, R. C	LARC	Rubin, S. S.	NAG 1-8	3538
41	UNIV OF CINCINNATI	Glassman, A. J	LFRC	Tabakoff, W	NAG 3-26	3540
41	UNIV OF CINCINNATI	Katsanis, T	LFRC	Hamed, A	NAG 3-52	3541

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41	UNIV OF CINCINNATI	McFarland, E. R.	LERC	Tabakoff, W.	NAS 3-21609	3542
41	UNIV OF CINCINNATI	Kao, H. C.	LERC	Ghia, K. N.	NSG 3267	3555
41	UNIV OF CINCINNATI	Graves, R. A.	HD-RT	Rubin, S. G.	NGT 36-004-800	3545
41	UNIV COLORADO-BOLDR	Stainback, P. C.	LARC	Uberoi, M. S.	NAG 1-59	1848
41	UNIV COLORADO-BOLDR	Groeneweg, J. F.	LERC	Uberoi, M. S.	NSG 3181	1884
41	UNIV OF CONNECTICUT	Olsen, W. A.	LERC	Bowley, W. W.	NAG 3-64	1929
41	UNIV OF DAYTON	Shaw, R. J.	LERC	Luers, J. K.	NAG 3-65	3557
41	UNIV OF DAYTON	Camp, D. W.	MSFC	Leurs, J. K.	NAS 8-31294	3562
41	UNIV OF DAYTON	Camp, D. W.	MSFC	Luers, J. K.	NAS 8-32111	3563
41	UNIV OF DAYTON	Melson, W. E., Jr.	WFC	Luers, J. K.	NSG 6026	3565
41	UNIV OF DELAWARE	Adamczyk, J. J.	LERC	Seidel, B. S.	NSG 3189	1954
41	UNIV OF DELAWARE	Farrell, C. A., Jr.	LERC	Seidel, B. S.	NSG 3270	1955
41	UNIV OF FLORIDA	Malcolm, G. N.	ARC	Clarkson, M. H.	NCC 2-23	2060
41	UNIV OF FLORIDA	Chapman, G. T.	ARC	Clarkson, M. H.	NGT 10-005-800	2065
41	UNIV OF FLORIDA	Aoyagi, K.	ARC	Fearn, R. L.	NSG 2288	2070
41	UNIV OF FLORIDA	Wilkinson, S. P.	LARC	Clarkson, M. H.	NAG 1-104	2048
41	UNIV OF FLORIDA	Margason, R. J.	LARC	Fearn, R. L.	NGT 10-005-801	2066
41	UNIV HOUSTON-HOUSTON	Maestrello, L.	LARC	Nadkarni, A. A.	NSG 1475	3967
41	UNIV ILLINOIS-URBANA	Somers, D. M.	LARC	Ormsbee, A. I.	NAG 1-76	2244
41	UNIV ILLINOIS-URBANA	Hankins, W. W.	LARC	Chen, R. T.	NAG 1-90	2245
41	UNIV ILLINOIS-URBANA	Baker, C. E.	LERC	Strehlow, R. A.	NAG 3-60	2246
41	UNIV ILLINOIS-URBANA	Bober, L. J.	LERC	Chow, W. L.	NGL 14 505-140	2254
41	UNIV OF IOWA	Marvin, J. G.	ARC	Ramaprian, B. R.	NSG 2300	2372
41	UNIV OF IOWA	Hoffman, R. A.	GSFC	Frank, L. A.	NAS 5-25689	2362
41	UNIV OF IOWA	Hoffman, R. A.	GSFC	Shawhan, S.	NAS 5-25690	2363
41	UNIV OF IOWA	Stockman, N. O.	LERC	Chou, D. C.	NSG 3117	2374
41	UNIV OF IOWA	Johnson, J. M.	LERC	Chen, C. J.	NSG 3305	2375
41	UNIV OF KANSAS	Stroub, P. F.	ARC	Zerwekh, R.	NCC 2-92	2402
41	UNIV OF KANSAS	Black, J. M.	DFRC	Roskam, R. J.	NAG 4-5	2390
41	UNIV OF KANSAS	Szalai, K. J.	DFRC	Clark, R.	NCC 4-2	2403
41	UNIV OF KANSAS	Jenkins, J. M.	DFRC	Lenzen, K.	NSG 4008	2413
41	UNIV OF KANSAS	Edwards, J. W.	DFRC	Kotsabasis, A.	NSG 4017	2414
41	UNIV OF KANSAS	Kordes, E. E.	DFRC	Roskam, J.	NSG 4019	2415
41	UNIV OF KANSAS	Frink, N. T.	LARC	Lan, C. E.	NAG 1-75	2383
41	UNIV OF KANSAS	Bergerson, H. P.	LARC	Roskam, J.	NAG 1-94	2384
41	UNIV OF KANSAS	Holmes, B. J.	LARC	Roskam, J.	NAS 1-15770	2393
41	UNIV OF KANSAS	Downing, D. R.	LARC	Roskam, J.	NAS 1-16255	2394
41	UNIV OF KANSAS	Holmes, B. J.	LARC	Kohlman, D. L.	NAS 1-16363	2395
41	UNIV OF KANSAS	Stephens, D. G.	LARC	Roskam, J.	NCC 1-6	2400
41	UNIV OF KANSAS	Campbell, J. F.	LARC	Lan, C. E.	NCC 1-18	2401
41	UNIV OF KANSAS	Lamar, J. E.	LARC	Roskam, J.	NSG 1046	2405
41	UNIV OF KANSAS	Hassell, J. L., Jr.	LARC	Roskam, J.	NSG 1574	2409
41	UNIV OF KANSAS	Lamar, J. E.	LARC	Lan, C. E.	NSG 1629	2410
41	UNIV OF KANSAS	Holmes, B. J.	LARC	Lenzen, K.	NSG 1633	2411
41	UNIV OF KANSAS	Neumann, H. E.	LERC	Schweikhard, W. G.	NAG 3-11	2386
41	UNIV OF KANSAS	Evanich, P. L.	LERC	Kohlman, D. L.	NAG 3-71	2388
41	UNIVERSITY OF LOWELL	Card, M. F.	LARC	Lamont, P. J.	NSG 1295	2823
41	UNIV MARYLAND-COL PK	Walsh, M. J.	LARC	Wallace, J. M.	NAG 1-24	2517
41	UNIV MARYLAND-COL PK	Erickson, W. D.	LARC	Anderson, J. D.	NCC 1-41	2557
41	UNIV MARYLAND-COL PK	Dicarlo, D. J.	LARC	Barlow, J. B.	NSG 1570	2579
41	UNIV MICH-ANN ARBOR	Hoffman, R. A.	GSFC	Hays, P. B.	NAS 5-25691	2884
41	UNIV MICH-ANN ARBOR	Hoffman, R. A.	GSFC	Carignan, G. R.	NAS 5-26069	2887
41	UNIV MICH-ANN ARBOR	Powell, R. W.	LARC	Vinh, N. X.	NAG 1-86	2855
41	UNIV MICH-ANN ARBOR	McCarty, J. L.	LARC	Clark, S. K.	NSG 1494	2909
41	UNIV MICH-ANN ARBOR	McCarty, J. L.	LARC	Clark, S. K.	NSG 1607	2910
41	UNIV MICH-ANN ARBOR	Ercegovic, D. E.	LERC	Kauffman, C. W.	NSG 3165	2912
41	U MINN-MNPLS-ST PAUL	Chapman, G. T.	ARC	Moran, J. P.	NAG 2-4	2932
41	UNIV MO-ROLLA	Holst, T. L.	ARC	Lee, S. C.	NCA 2-450001	2996



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41	UNIV MO-ROLLA	Holmes, B. J.	LARC	Selberg, B. P.	NAG 1-26	2993
41	UNIV MO-ROLLA	Hefner, J. N.	LARC	Patterson, G. K.	NSG 1452	2998
41	UNIV MO-ROLLA	Baumeister, K. J.	LFRC	Eversman, W.	NSG 3231	2999
41	UNIV NEVADA-L VEGAS	Davis, S. S.	ARC	Fromme, J. A.	NSG 2140	3035
41	UNIV OF NEVADA-RENO	Presley, L. L.	ARC	Rose, W. C.	NSG 2291	3037
41	UNIV OF NOTRE DAME	Somers, D. M.	LARC	Mueller, T. J.	NSG 1419	2326
41	UNIV OKLAHOMA-NORMAN	Koenig, D. G.	ARC	Krothapalli, A.	NCA 2-580001	3614
41	UNIV OF SANTA CLARA	Lomax, H.	ARC	Vinokur, M.	NCC 2-16	1781
41	UNIV OF SOUTHAMPTON	Kilgore, R. A.	LARC	Goodyer, M. J.	NSG 7172	4427
41	UNIV OF SOUTHAMPTON	Boyden, R. P.	LARC	Goodyer, M. J.	NSG 7523	4428
41	UNIV OF SOUTHERN CAL	Hefner, J. N.	LARC	Blackwelder, R. F.	NAG 1-19	1786
41	UNIV OF SOUTHERN CAL	Stein, M.	LARC	Seide, P.	NSG 1401	1799
41	UNIV TENNESSEE-KNOXV	Steink, F. W., Jr	ARC	Tirres, C.	NCA 2-772901	3838
41	UNIV TENNESSEE-KNOXV	Steink, F. W., Jr	ARC	Wu, J. M.	NSG 2379	3843
41	UNIV TENNESSEE-KNOXV	Bland, S. R.	LARC	Kumble, K. R.	NSG 1224	3842
41	UNIV TENNESSEE-KNOXV	Segel, R.	LARC	Kurosaka, M.	NSG 3287	3845
41	UNIV TENNESSEE-KNOXV	Baumeister, K. J.	LFRC	White, J. W.	NAG 3-18	3821
41	UNIV TENNESSEE-KNOXV	Shaw, R. J.	LFRC	Keshock, E. G.	NAG 3-83	3822
41	UNIV TENNESSEE-KNOXV	Rostafinski, W.	LFRC	Caruthers, J. F.	NAG 3-86	3823
41	UNIV TENNESSEE-KNOXV	Shaw, R. J.	LFRC	Keshock, E. G.	NAG 3-90	3824
41	UNIV TEXAS-AUSTIN	Lasinski, T. A.	ARC	Carey, G. F.	NAG 2-5	3982
41	UNIV TEXAS-AUSTIN	Goodrich, W. D.	JSC	Bertin, J. J.	NAS 9-13680	3996
41	UNIV TEXAS-DALLAS	Hoffman, R. A.	GSFC	Heelis, R. A.	NAS 5-26068	4046
41	UNIV TEXAS-DALLAS	Hoffman, R. A.	GSFC	Winningham, J. D.	NAS 5-26070	4047
41	UNIV TEXAS-DALLAS	Hoffman, R. A.	GSFC	Hanson, W. B.	NAS 5-26071	4048
41	UNIV OF TOLEDO	Shaw, R. J.	LFRC	Dewitt, K. J.	NAG 3-72	3568
41	UNIV OF TOLEDO	Brown, G. V.	LFRC	Koza, K. R.	NSG 3139	3574
41	UNIV OF WASHINGTON	Chapman, G. T.	ARC	Childs, M. F.	NGL 48-002-047	4328
41	UNIV OF WASHINGTON	Lee, G.	ARC	Childs, M. F.	NGR 48-002-141	4329
41	UNIV OF WASHINGTON	Greer, B.	ARC	Joppa, R. G.	NSG 2176	4331
41	UNIV OF WASHINGTON	Braun, W. H.	LFRC	Dixon, L. J.	NSG 3261	4336
41	VILLANOVA UNIVERSITY	Crabill, N. L.	LARC	Goldberg, J. H.	NAS 1-16095	3774
41	VIRGINIA POLY INST	Rubens, M. W.	ARC	Perce, F. J.	NSG 2301	4289
41	VIRGINIA POLY INST	Price, D. B.	LARC	Kelly, H. J.	NAG 1-52	4241
41	VIRGINIA POLY INST	Zohy, F. V.	LARC	Lewis, C. H.	NAG 1-53	4242
41	VIRGINIA POLY INST	Newsom, J. R.	LARC	Anderson, I. R.	NAG 1-80	4245
41	VIRGINIA POLY INST	Melfi, L. T.	LARC	Lewis, C. H.	NAG 1-101	4247
41	VIRGINIA POLY INST	Frickson, W. D.	LARC	Hobeika, A. G.	NCC 1-20	4267
41	VIRGINIA POLY INST	Campbell, J. F.	LARC	Marchman, J. F.	NGT 47-004-800	4270
41	VIRGINIA POLY INST	Harris, J. E.	LARC	Nayfeh, A. H.	NSG 1255	4274
41	VIRGINIA POLY INST	Yates, F. C., Jr	LARC	Mook, D. T.	NSG 1262	4275
41	VIRGINIA POLY INST	Creedon, J. F.	LARC	Vanlandingham, H. F.	NSG 1354	4276
41	VIRGINIA POLY INST	Hefner, J. N.	LARC	Schetz, J. A.	NSG 1589	4283
41	VIRGINIA POLY INST	Hefner, J. N.	LARC	Sarric, W. S.	NSG 1608	4286
41	VIRGINIA POLY INST	Johns, A. I.	LFRC	Jakubowski, A. K.	NSG 3073	4290
41	VIRGINIA POLY INST	Flemings, D. P.	LFRC	Mitchell, L. D.	NSG 3239	4292
41	VIRGINIA POLY INST	Lehtinen, B.	LFRC	Leonard, R. G.	NSG 3275	4294
41	WAYNE STATE UNIV	Maestrello, L.	LARC	Chow, P. L.	NSG 1330	2927
41	WESTERN MICHIGAN UN	Schmidt, H. W.	LFRC	Behm, H. D.	NAG 3-92	2928
41	WICHITA STATE UNIV	Watts, J. D.	LARC	Cook, F. L.	NCC 1-21	2419
41	WICHITA STATE UNIV	Weidner, J. P.	LARC	Zumwalt, G. W.	NCC 1-31	2420
41	WICHITA STATE UNIV	McGhee, R. J.	LARC	Wentz, W. H., Jr.	NSG 1165	2421
41	WICHITA STATE UNIV	Rogers, R. C.	LARC	Zumwalt, G. W.	NSG 1575	2422
41	WICHITA STATE UNIV	Miller, D. R.	LFRC	Wentz, W. H., Jr.	NSG 3277	2424
41	YOUNGSTOWN STATE U	Creedon, J. F.	LARC	Fouikes, R. H.	NAG 1-88	3589
41	AUBURN UNIV-AUBURN	Shackelford, B. J.	MSFC	Foster, W. A.	NAS 8-33886	1017
41	CITY COLLEGE OF N Y	Montgomery, R. C.	LARC	Thau, F. E.	NAG 1-6	3144
42	COLORADO STATE UNIV	Priem, R. J.	LFRC	Mitchell, C. F.	NGR 06-002-095	1829

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42	COLORADO STATE UNIV	Kerslake, W R	LERC	Kaufman, H. R.	NSG 3011	1836
42	HOWARD UNIVERSITY	Waltz, J.	LARC	Jones, I. W.	NSG 1320	2010
42	MASS INST OF TECH	Kramer, E. H.	LERC	Kolm, H. H.	NSG 3175	2788
42	MASS INST OF TECH	Greenfield, M. A.	HD-RT	Mar, J. W.	NAGW 21	2707
42	MASS INST OF TECH	Schwenk, F.	HD-RT	Mar, J. W.	NSG 7396	2812
42	OHIO STATE UNIV	Woolley, C. T.	LARC	Klein, C. A.	NAG 1-30	3488
42	OLD DOMINION UNIV	Cooper, P. A.	LARC	Prabhakaran, R.	NCC 1-26	4167
42	PENN STATE U-UNIV PK	Mahon, J. B.	HD-ML	Unavailable	NASW 3256	3710
42	PRINCETON UNIVERSITY	Kramer, E. H.	LERC	O'Neill, G. K.	NSG 3176	3090
42	PRINCETON UNIVERSITY	Lazar, J.	HD-RP	Jahn, R. G.	NGL 31-001-005	3081
42	RENSSELAER POLY-NY	Reid, R. C.	JSC	Balas, M. J.	NAS 9-16053	3286
42	SOUTHERN METHODIST U	Marvin, J. G.	ARC	Simpson, R. L.	NSG 2354	3902
42	STANFORD UNIVERSITY	Howe, J. T.	ARC	Bershadar, D.	NCC 2-10	1410
42	STANFORD UNIVERSITY	Lorell, K. R.	ARC	Powell, J. D.	NCC 2-29	1415
42	STANFORD UNIVERSITY	Kant, S.	GSFC	Debra, D. B.	NAS 5-21960	1376
42	STANFORD UNIVERSITY	Hornor, G. C.	LARC	Cannon, R. H.	NAG 1-97	1359
42	STANFORD UNIVERSITY	Szurlock, O. F.	LERC	Breakwell, J. V.	NAG 3-63	1370
42	STATE UNIV NY-ALBANY	Whiting, E. E.	HD-RT	Ratchiff, K. I.	NSG 7501	3316
42	UNIV OF DAYTON	Gentile, I. C.	LERC	Engler, N.	NAS 3-21370	3558
42	UNIV OF DELAWARE	Garcia, R.	LARC	Pipes, R. B.	NSG 1409	1952
42	UNIV OF LOUISVILLE	Winder, S. W.	MSFC	Childs, D. W.	NAS 8-31233	2438
42	UNIV OF PITTSBURGH	Kerslake, W. R.	LERC	McWilliams, P. A.	NAS 3-22662	3756
42	UNIV STHN COLORADO	Hruby, R. J.	ARC	Carestia, R. A.	NCC 2-41	1924
42	UNIV TEXAS-AUSTIN	Fuchs, A. J.	GSFC	Tapley, B. D.	NAS 5-25756	3988
42	UNIV TEXAS-AUSTIN	Finley, C. J.	HD-FR	Silverberg, E. C.	NASW 3296	4005
42	VIRGINIA POLY INST	Montgomery, R. C.	LARC	Johnson, C. R.	NAG 1-7	4240
42	VIRGINIA POLY INST	Montgomery, R. C.	LARC	Metrovitch, I.	NCC 1-4	4264
43	BUCKNELL UNIVERSITY	Serafini, T. T.	LERC	Snyder, W. J.	NSG 3136	3642
43	CASE WESTERN RESERVE	Hsu, L. C.	LERC	Liu, C. C.	NAG 3-66	3411
43	CASE WESTERN RESERVE	Fordyce, J. S.	LERC	Liu, C. C.	NSG 3203	3443
43	CATHOLIC UNIVERSITY	Friedman, R.	LERC	Mcynihan, C. T.	NAG 3-94	1957
43	CLEVELAND STATE UNIV	Ashbrook, R. L.	LERC	Yeh, H. C.	NSG 3155	3472
43	MASS INST OF TECH	Mularz, E. J.	LERC	Heywood, J. B.	NGR 22-009-378	2756
43	PENN STATE U-UNIV PK	Loomis, W. R.	LERC	Klaus, F. F.	NAG 3-35	3690
43	RICE UNIVERSITY	Lin, C. H.	JSC	Davis, S. H.	NAS 9-15630	3883
43	STANFORD UNIVERSITY	Poppa, H.	ARC	Boudart, M.	NCA 2-745908	1407
43	STATE U NY-STONY BRK	Cochran, T. H.	LERC	Berlad, A. I.	NSG 3051	3338
43	UNIV OF DELAWARE	Alterescu, S.	GSFC	Glass, W. P.	NAS 5-26273	1950
43	UNIV OF FLORIDA	Sheblev, D. W.	LERC	Walker, R. D., Jr	NGR 10-005-182	2064
43	UNIV OF SHEFFIELD	Lyons, V. J.	LERC	Chigier, N. A.	NSG 7517	4426
44	NO CAR A&T STATE U	Montgomery, R. C.	LARC	Abu-saba, E. G.	NCC 1-37	3370
44	NO CAR A&T STATE U	Rhodes, M. D.	LARC	Sharma, A. V.	NSG 1631	3374
44	RENSSELAER POLY-NY	Rogers, J. L.	LARC	Feeser, I. J.	NSG 1636	3294
44	UNIV OF AKRON	Chamis, C. C.	LERC	Fertis, D. G.	NGT 36-001-800	3535
44	UNIV OF AKRON	Chamis, C. C.	LERC	Simon, A. L.	NGT 36-001-801	3536
44	UNIV COLORADO-BOULDR	Brooks, W. F.	ARC	Sture, S.	NAG 2-58	1849
44	UNIV ILLINOIS-CHICGO	Costes, N.	MSFC	Silver, M. L.	NAS 8-32993	2243
44	UNIV MARYLAND-COL PK	Salomonson, V. V.	GSFC	McCuen, R. H.	NGT 21-002-800	2573
45	ALABAMA A&M UNIV	Bilbro, J. W.	MSFC	Murts, S. S.	NSG 8037	1003
45	ALABAMA A&M UNIV	Gould, J. M.	MSFC	Shiva, S. G.	NSG 8057	1005
45	AUBURN UNIV-AUBURN	Matheney, J. I.	MSFC	Tung, C.	NAS 8-31572	1014
45	AUBURN UNIV-AUBURN	Routh, D. F.	MSFC	Kerns, D. V.	NAS 8-33092	1015
45	AUBURN UNIV-AUBURN	Harper, W.	MSFC	Shumpert, T.	NAS 8-33880	1016
45	AUBURN UNIV-AUBURN	Wagnon, F. W.	MSFC	Irwin, J. D.	NCA 8-133	1020
45	BOWEN STATE COLLEGE	Mundy, J. R.	GSFC	Bonds, J. W.	NCA 5-96	2470
45	CAL STATE U-FULLERTN	Arndt, G. D.	JSC	Marouf, A.	NAS 9-16207	1287
45	CARNEGIE-MELLON UNIV	Wilson, R. G.	LARC	Casasent, D.	NAS 1-16125	3645
45	CARNEGIE-MELLON UNIV	Baumbick, R. J.	LERC	Casasent, D.	NAG 3-5	3643

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45	CASE WESTERN RESERVE	Stevens, G. H.	FERC	Claspy, P. C.	NSG 3085	3436
45	CATHOLIC UNIVERSITY	Heaney, J. B.	GSFC	Lally, J. F.	NAS 5-26226	1958
45	CITY COLLEGE OF N.Y.	Land, C. K.	JSC	Schilling, D. I.	NAS 9-13940	3148
45	CITY COLLEGE OF N.Y.	Barnes, S. P.	FERC	Schilling, D. I.	NSG 5013	3154
45	CLARKSON COL. OF TECH	Rotnem, J. O.	FERC	Arozullah, M.	NSG 3191	3158
45	CLEVELAND STATE UNIV	McBrien, F. F.	FERC	Klingshirn, F. A.	NAG 3-108	3467
45	CLEVELAND STATE UNIV	Nieberding, W. C.	FERC	Marsel, J. F.	NSG 3222	3473
45	COLORADO STATE UNIV	Taylor, M. B.	GSFC	Parkenson, B. W.	NSG 5352	1844
45	COLUMBIA UNIVERSITY	Leroy, B.	FERC	Meadows, H.	NAS 3-22464	3165
45	CORNELL UNIVERSITY	McCright, C. R.	ARC	Lee, C. A.	NSG 2389	3224
45	CORNELL UNIVERSITY	Conway, F. J.	FERC	Baliantyne, J. M.	NAG 1-83	3195
45	CORNELL UNIVERSITY	Hendricks, H. D.	FERC	Frey, J.	NSG 1642	3220
45	CORNELL UNIVERSITY	Conway, F. J.	FERC	Baliantyne, J. M.	NSG 1651	3221
45	CORNELL UNIVERSITY	Gilbert, I. J.	FERC	Thomas, R. J.	NAG 3-104	3198
45	DUKE UNIVERSITY	Gruber, R. P.	FERC	Wilson, T. G.	NSG 3157	3366
45	GEORGE WASHINGTON U.	Menechini, R.	GSFC	Lang, R. H.	NAG 5-83	1967
45	GEORGE WASHINGTON U.	Reade, J. A.	GSFC	Helgert, H. J.	NAS 5-24431	1969
45	GEORGE WASHINGTON U.	LeVine, D. M.	GSFC	Lang, R. H.	NSG 5288	1991
45	GEORGE WASHINGTON U.	Crosswell, W. F.	FERC	Liebowitz, H.	NGR 09-010-096	1983
45	GEORGE WASHINGTON U.	Crosswell, W. F.	FERC	Liebowitz, H.	NSG 1110	1985
45	GEORGIA INST OF TECH	King, J. I.	GSFC	Schuchardt, J. M.	NAS 5-23710	2114
45	GEORGIA INST OF TECH	King, J. I.	GSFC	Gaghano, J. A.	NAS 5-26220	2117
45	GEORGIA INST OF TECH	King, J. I.	GSFC	Forsythe, R. F.	NSG 5012	2141
45	GEORGIA INST OF TECH	O'Neat, R. I.	FERC	Gaylord, T. K.	NAS 1-15370	2110
45	GEORGIA INST OF TECH	Hein, G. I.	FERC	Zimmer, R. P.	DIN 3-73	2099
45	GEORGIA INST OF TECH	Inman, R. A.	MSFC	Wu, S. T.	NAS 8-33605	2122
45	GEORGIA INST OF TECH	Gleason, J. H.	MSFC	Gaghano, J. A.	NAS 8-33800	2123
45	HAMPTON INSTITUTE	Jobson, D. J.	FERC	Trehan, A. K.	NSG 1294	4149
45	HAMPTON INSTITUTE	Katzberg, S. J.	FERC	Trehan, A. K.	NSG 1552	4150
45	HOUSTON UNIVERSITY	Johnson, J. W.	FERC	Weissman, W. F.	NGR 33-209-002	3245
45	HOWARD UNIVERSITY	Santarpia, D. I.	GSFC	Chowdhary, R.	NAS 5-26019	2005
45	HOWARD UNIVERSITY	Taylor, R. E.	GSFC	Sennott, J. W.	NSG 5336	2017
45	JOHNS HOPKINS UNIV	Pitts, F. I.	FERC	Masson, G. M.	NSG 1442	2500
45	MASS INST OF TECH	Shue, J. C.	GSFC	Kong, J. A.	NAS 5-24139	2720
45	MASS INST OF TECH	Ippolitto, I.	GSFC	Staelin, D. H.	NAS 5-25091	2723
45	MASS INST OF TECH	Armstrong, F. S.	FERC	Stem, G.	NAG 1-2	2684
45	MASS INST OF TECH	Hendricks, H. D.	FERC	Fonstad, C. G.	NAG 1-48	2686
45	MASS INST OF TECH	Haves, P. J.	FERC	Epstein, D. J.	NAG 1-98	2689
45	MISSISSIPPI STATE U.	Wallace, G. R.	MSFC	Ingels, F. M.	NAS 8-31373	2965
45	MISSISSIPPI STATE U.	Hollis, B. R.	MSFC	Wade, I. F.	NAS 8-33448	2967
45	MISSISSIPPI STATE U.	Edge, T. M.	MSFC	Causey, W. H.	NAS 8-33450	2968
45	MISSISSIPPI STATE U.	Coffey, R. D.	MSFC	Ingels, F. M.	NAS 8-33887	2970
45	NO. CAR. A&T STATE U.	Hendricks, H. D.	FERC	Stefanakos, I.	NSG 1390	3372
45	NO. CAROLINA STATE U.	Beng, H. F.	FERC	Snyder, W. F.	NAG 1-20	3378
45	NO. CAROLINA STATE U.	Benz, H. F.	FERC	Snyder, W. F.	NSG 1353	3389
45	NO. CAROLINA STATE U.	Batson, A. M.	FERC	Rajala, S. A.	NSG 1355	3390
45	NO. CAROLINA STATE U.	Cockrell, C. R.	FERC	Kauffman, J. I.	NSG 1588	3396
45	OHIO STATE UNIV	Wolfe, J. H.	ARC	Dixon, R. S.	NSG 2162	3413
45	OHIO STATE UNIV	Hirschmann, I.	GSFC	Hodge, D. B.	NAS 5-22575	3501
45	OHIO STATE UNIV	Gilreath, M. C.	FERC	Burnside, W. D.	NSG 1498	3509
45	OHIO STATE UNIV	Gilreath, M. C.	FERC	Peters, I.	NSG 1613	3510
45	OHIO STATE UNIV	Baumbilk, R. J.	FERC	Collins, S. A., Jr.	NSG 3302	3522
45	OHIO STATE UNIV	Ippolitto, I.	HD-FC	Hodge, D. B.	NASW 3393	3504
45	OHIO UNIVERSITY	Bundick, W. T.	FERC	McFarland, R. H.	NGR 36-009-017	3529
45	OLD DOMINION UNIV	Baley, M. C.	FERC	Moskowitz, S. M.	NAG 1-63	4158
45	OLD DOMINION UNIV	Tripp, J. S.	FERC	Tcheng, P. I.	NSG 1079	4176
45	OLD DOMINION UNIV	Hellbaum, R. I.	FERC	Rogerson, A. C.	NSG 1177	4178
45	OLD DOMINION UNIV	Campbell, T. G.	FERC	Becher, J.	NSG 1331	4181

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45	OLD DOMINION UNIV	Ganner, P. A.	1 ARC	Varanasi, M. R.	NSG 1379	4184
45	OLD DOMINION UNIV	Gilreath, M. C.	1 ARC	Mielke, R. R.	NSG 1655	4205
45	PURDUE UNIVERSITY	Strong, J. P.	GSEC	Reeves, A. P.	NAG 5-3	2293
45	PURDUE UNIVERSITY	Gilbert, I. J.	1 ERC	Krause, P. C.	NSG 3237	2317
45	SO. ILL. UNIV-CARBONDE	Bankatis, H. V.	1 ERC	Dodd, C. W.	NCC 3-7	2205
45	STANFORD UNIVERSITY	Leonard, A.	ARC	Buneman, O.	NCA 2-745906	1405
45	STANFORD UNIVERSITY	Pontous, C. I.	HD-RI	McCarthy, J.	NASW 2916	1394
45	STANFORD UNIVERSITY	Fitzmaurice, M. W.	HD-RI	Harris, S. F.	NSG 05-020-103	1439
45	SYRACUSE UNIVERSITY	Benz, H. F.	1 ARC	Kowel, S. I.	NSG 1602	3353
45	SYRACUSE UNIVERSITY	Segura, R.	1 ARC	Kowel, S. I.	NSG 1611	3354
45	TEXAS A&M UNIVERSITY	Farris, G. W.	JSC	Jean, B. R.	NAS 9-15311	3924
45	TEXAS A&M UNIVERSITY	Arndt, G. D.	JSC	Marout, A.	NAS 9-16088	3930
45	TEXAS A&M UNIVERSITY	Lytle, C. D.	1 ARC	Painter, J. H.	NSG 1374	3940
45	TEXAS A&M UNIVERSITY	Hearn, C. P.	1 ARC	Painter, J. H.	NSG 1639	3942
45	TEXAS A&M UNIVERSITY	Nowakowski, M.	MSFC	Parker, P. I.	NAS 8-33519	3918
45	TEXAS TECH UNIV	Day, J. I.	JSC	Portnov, W. M.	NAS 9 11162	3954
45	TEXAS TECH UNIV	Zaeffel, K. P.	1 ARC	Trost, T. F.	NAG 1-28	3953
45	TUSKEGEE INSTITUTE	Peacock, C. I.	MSFC	Doreswamy, C. V.	NSG 8-5	1028
45	TUSKEGEE INSTITUTE	Young, T. I.	MSFC	Doreswamy, C. V.	NSG 8038	1035
45	UNIV ALA-UNIVERSITY	Williams, D. I.	MSFC	Raburn, W. D.	NAS 8-33430	1073
45	UNIV CALIF-BERKELEY	Clark, T. A.	GSEC	Welch, W. J.	NAG 5-95	1485
45	UNIV OF CINCINNATI	Sundberg, G. R.	1 ERC	Henderson, H. I.	NSG 3022	3548
45	UNIV OF CINCINNATI	Riley, T. J.	1 ERC	Nevin, J. H.	NSG 3024	3549
45	UNIV OF FLORIDA	Walker, G. H.	1 ARC	Li, S. S.	NSG 1425	2067
45	UNIV OF FLORIDA	Godlewski, M. P.	1 ERC	Lindholm, F. A.	NSG 3018	2071
45	UNIV HOUSTON-HOUSTON	Horner, G. C.	1 ARC	Denman, I. D.	NSG 1603	3968
45	UNIV ILLINOIS-URBANA	Schaefer, D. H.	GSEC	Slotnick, D. I.	NAS 5 24275	2251
45	UNIV ILLINOIS-URBANA	Keating, T. Jr.	GSEC	Mittal, R.	NAS 5-25062	2252
45	UNIV ILLINOIS-URBANA	Abshire, J. B.	GSEC	Gardner, C. S.	NSG 5049	2262
45	UNIV OF KANSAS	Abbott, T. W.	1 ERC	Kelley, G. I.	NSG 4026	2417
45	UNIV OF KANSAS	Rango, A.	GSEC	Ulaby, F. T.	NAG 5-23777	2396
45	UNIV OF KANSAS	Crosswell, W. F.	1 ARC	Moore, R. K.	NSG 1554	2408
45	UNIV MARYLAND-COL PK	Peake, H. J.	GSEC	Taylor, I. S.	NAS 5-25437	2539
45	UNIV MARYLAND-COL PK	Schy, A. A.	1 ARC	Wang, S. H.	NAG 1-27	2518
45	UNIV MARYLAND-COL PK	Benz, H. F.	1 ARC	Lin, H. C.	NSG 1468	2578
45	UNIV OF MASS-AMHERST	Swift, C. I.	1 ARC	McIntosh, R.	NAG 1-54	2824
45	UNIV MICH-ANN ARBOR	Migneault, G. I.	1 ARC	Meyer, J. F.	NSG 1306	2907
45	UNIV MO-COLUMBIA	Eggleston, T. W.	JSC	Tranter, W. H.	NAS 9-15477	2989
45	UNIV NEBRASKA-LINCOLN	Riley, T. J.	1 ERC	Woollam, J. A.	NAG 3-95	3023
45	UNIV OF NEW MEXICO	Haves, P. J.	1 ARC	Grannemann, W. W.	NAG 1-98	3133
45	UNIV OF NOTRE DAME	Seldner, K.	1 ERC	Sam, M. K.	NSG 3048	2327
45	UNIV OKLAHOMA-NORMAN	Hendricks, H. D.	1 ARC	Kahng, S. K.	NAG 1-14	3607
45	UNIV OF OXFORD	Hinton, D.	1 ARC	Unavailable	NASW 3301	4425
45	UNIV OF PENNSYLVANIA	Levine, D. M.	GSEC	Kritikos, H. N.	NAG 5-92	3743
45	UNIV OF PITTSBURGH	McBrien, T. F.	1 ERC	Hamilton, H. B.	NSG 3163	3767
45	UNIV SO CAROLINA-COI	Lowrey, D. O.	MSFC	Fellers, R. G.	NAS 8-28660	3802
45	UNIV OF SOUTHERN CAL	Secunde, R. R.	1 ERC	Maslowski, B. A.	NSG 3243	1802
45	UNIV TENNESSEE-KNOX	Allen, W.	GSEC	Rochelle, R. W.	NAS 5-24250	3826
45	UNIV TENNESSEE-KNOX	Craig, G. D.	MSFC	Gonzalez, R. C.	NAS 8-29271	3828
45	UNIV TENNESSEE-KNOX	Howell, J. T., Jr.	MSFC	Hung, J. C.	NAS 8-33604	3834
45	UNIV TEXAS-AUSTIN	Hirschmann, I.	GSEC	Vogel, W.	NAS 5-22576	3986
45	UNIV TEXAS-AUSTIN	Ippolito, T. J.	HD-EC	Vogel, W.	NASW 3388	4006
45	UNIV OF TOLEDO	Wythe, W.	1 ERC	Kwatra, S. C.	NAG 3-42	3567
45	UNIV OF TOLEDO	Merrill, W. C.	1 ERC	Leininger, G. G.	NSG 3084	3572
45	UNIV OF TOLEDO	Lehtinen, B.	1 ERC	Leininger, G. G.	NSG 3171	3576
45	UNIV OF TOLEDO	Gruber, R. P.	1 ERC	Stuart, T. A.	NSG 3281	3578
45	UNIV OF TORONTO	Aton, P. R.	1 ERC	Balman, K. G.	NSG 7647	4422
45	UNIV OF VIRGINIA	Kahle, D. R.	GSEC	Wilson, S. G.	NAS 5-25634	4219

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45	UNIV OF VIRGINIA	Kable, D R.	GSFC	Wilson, S. G.	NAS 5-26011	4220
45	UNIV OF VIRGINIA	Loendorf, D D	EARC	Aylor, J. H.	NAG 1-43	4208
45	UNIV OF VIRGINIA	Ashworth, B. R.	EARC	Parrish, F. A.	NSG 1599	4229
45	VIRGINIA POLY INST	Hirschmann, F.	GSFC	Bostian, C W.	NAS 5-22577	4256
45	VIRGINIA POLY INST	Montgomery, R C	EARC	Vanlandingham, H F	NSG 1527	4280
45	VIRGINIA POLY INST	Watson, W R	EARC	Nayfeh, A H.	NSG 1573	4282
45	VIRGINIA POLY INST	Maslowski, F A.	FERC	Demerdash, N A.	DEN 3-65	4239
45	VIRGINIA POLY INST	Kolecki, J C.	FERC	Lee, F. C.	NAG 3-81	4251
45	VIRGINIA POLY INST	Maslowski, I. A.	FERC	Lee, F. C.	NAG 3-99	4252
45	VIRGINIA POLY INST	Kolecki, J C.	FERC	Lee, F. C.	NSG 3274	4293
45	WORCESTER POLY INST	Godlewski, M P.	FERC	Lanyon, H P.	NSG 3137	2842
45	YALE UNIVERSITY	Schaefer, D.	GSFC	Barker, R C.	NGI 07-004-005	1941
46	ALABAMA A&M UNIV	Humphries, W R.	MSFC	Saha, H.	NSG 8041	1004
46	ARIZONA STATE UNIV	Fleming, D P.	FERC	Nelson, H D.	NAG 3-6	1089
46	AUBURN UNIV-AUBURN	Decker, A J.	FERC	Swi... W F.	NAG 3-103	1013
46	AUBURN UNIV-AUBURN	Shackleford, B W.	MSFC	Sfor... H.	NCA 8-132	1019
46	CALIF INST OF TECH	Gross, I A.	MSFC	Acosta, A J.	NAS 8-29313	1223
46	CALIF INST OF TECH	Gross, I A.	MSFC	Costa, A J.	NAS 8-33108	1224
46	CAL STATE U-IG BEACH	Johnson, D A.	ARC	Modarress, D.	NCA 2-382001	1295
46	CAL STATE U-IG BEACH	Townsend, D P.	FERC	Akin, I.	NAG 3-20	1294
46	CAL STATE U-I ANGLES	Ream, I W.	FERC	Gold, P I.	NAG 3-73	1296
46	CAL STATE U-I ANGLES	Pohly, J G.	HD-1U	Manvi, R.	NASW 3257	1297
46	CAL STATE U-I ANGLES	Pohly, J G.	HD-1U	Gold, P I.	NSG 7263	1299
46	CAL STATE U-NRTHRIDGE	Coe, H H.	FERC	Nypan, I J.	NSG 3065	1301
46	CARNIGIE-MELLON UNIV	Cassidy, J I.	FERC	Sirignano, W A.	NAG 3-21	3644
46	CARNIGIE-MELLON UNIV	Srawley, J I.	FERC	Swedlow, J I.	NSG 3172	3647
46	CARNIGIE-MELLON UNIV	Cunningham, R I.	FERC	Hughes, W F.	NSG 3202	3648
46	CASE WESTERN RESERVE	Ollendorf, S.	GSFC	Kamotani, Y.	NAS 5-24144	3426
46	CASE WESTERN RESERVE	Liebert, C H.	FERC	Dybbs, A.	NAG 3-97	3413
46	CASE WESTERN RESERVE	Labus, I M.	FERC	Ostrack, S.	NAS 3-21046	3419
46	CASE WESTERN RESERVE	Anderson, D N.	FERC	Hlen, J S.	NSG 3230	3448
46	CASE WESTERN RESERVE	Brown, W E, Jr.	FERC	Mendelson, A.	NSG 3251	3451
46	CLEMSON UNIV-CLEMSON	Poe, C C, Jr.	EARC	Goree, J G.	NSG 1297	3795
46	CLEVELAND STATE UNIV	Townsend, D P.	FERC	Kasuba, R.	NAS 3-18547	3468
46	CLEVELAND STATE UNIV	Simoneau, R J.	FERC	Gorla, R S.	NCC 3-3	3469
46	CLEVELAND STATE UNIV	Savino, J M.	FERC	Kasuba, R.	NCC 3-6	3470
46	CLEVELAND STATE UNIV	Lorenzo, C F.	FERC	Larson, V H.	NSG 3257	3475
46	COLLEGE OF WM & MARY	Tanner, J A.	EARC	Anderson, C M.	NAS 1-15965	4122
46	COLLEGE OF WM & MARY	Tanner, J A.	EARC	Anderson, C M.	NCC 1-40	4127
46	COLORADO STATE UNIV	Smith, G T.	FERC	Smith, F W.	NAG 3-40	1814
46	COLORADO STATE UNIV	Kerslake, W. R.	FERC	Wilbur, P J.	NGR 06-002-112	1830
46	GEORGIA INST OF TECH	Smith, G T.	FERC	Atluri, S N.	NAG 3-38	2104
46	GEORGIA INST OF TECH	Jones, W R.	FERC	Winer, W O.	NAG 3-77	2106
46	GEORGIA INST OF TECH	Wedeven, I D.	FERC	Winer, W O.	NCC 3-14	2126
46	GEORGIA INST OF TECH	Jones, W R.	FERC	Winer, W O.	NSG 3106	2136
46	HOWARD UNIVERSITY	Cygnarowicz, T A.	GSFC	Watkins, C B.	NAG 5-25	1996
46	IOWA STATE UNIV	Presley, I I.	ARC	Cook, W J.	NCA 2-340901	2338
46	IOWA STATE UNIV	Tanner, J A.	EARC	Baumgarten, J R.	NSG 1605	2348
46	IOWA STATE UNIV	Strazisar, A J.	FERC	Okushi, T H.	NGT 16-002-800	2343
46	MASS INST OF TECH	Chamis, C C.	FERC	Pian, T H.	NAG 3-33	2695
46	MASS INST OF TECH	Cassidy, J I.	FERC	Heywood, J B.	NSG 3245	2793
46	NO CAR A&T STATE U	Stuckey, J M.	MSFC	Sharma, A V.	NSG 8045	3376
46	NORTHWESTERN UNIV	Baker, C I.	FERC	Law, C K.	NAG 3-53	2193
46	NORTHWESTERN UNIV	Wedeven, L D.	FERC	Cheng, H S.	NCC 3-13	2200
46	NORTHWESTERN UNIV	Coy, J J.	FERC	Cheng, H S.	NSG 3143	2203
46	OHIO STATE UNIV	Brown, G V.	FERC	Leissa, A W.	NAG 3-36	3492
46	OLD DOMINION UNIV	Card, M F.	EARC	Ibrahim, S R.	NSG 1649	4203
46	OREGON STATE UNIV	Spera, D A.	FERC	Thresher, R W.	NAG 3-87	3622

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46	PENN STATE U-UNIV PK	Skorobatchky, M.	LERC	Lestz, S. S.	NAG 3-91	3692
46	PENN STATE U-UNIV PK	Wedeven, L. D.	LERC	Klaus, E. E.	NCC 3-9	3712
46	PENN STATE U-UNIV PK	Marer, C. J.	LERC	Faeth, G. M.	NSG 3306	3733
46	PRINCETON UNIVERSITY	Cassidy, J. F.	LERC	Sirignano, W. A.	NSG 3178	3091
46	PURDUE UNIVERSITY	Haggard, J.	LERC	Shifstad, J. G.	NSG 3258	2318
46	RENSELAEER POLY-NY	Kiraly, L. J.	LERC	Loewy, R. G.	NAG 3-37	3278
46	STANFORD UNIVERSITY	Gaugler, R. E.	LERC	Johnston, J. P.	NAG 3-3	1369
46	STANFORD UNIVERSITY	Gaugler, R. E.	LERC	Johnston, J. P.	NSG 3124	1466
46	STEVENS INST OF TECH	Kiraly, L. J.	LERC	Sisto, F.	NAG 3-47	3114
46	TENNESSEE TECH U	Priem, R. J.	LERC	Ventrice, M. B.	NGR 43-003-015	3819
46	TENNESSEE TECH U	Smith, A. D.	MSFC	Swim, W. B.	NAG 8-7	3818
46	TEXAS A&M UNIVERSITY	Garcia, F. F.	MSFC	Childs, D. W.	NAS 8-33716	3919
46	TRENTON STATE COL	Marek, C. J.	LERC	Feng, C. C.	NSG 3180	3116
46	TUSKEGEE INSTITUTE	Peoples, J. A.	MSFC	Sellers, J. P., Jr	NSG 8054	1036
46	UNIV OF AKRON	Chams, C. C.	LERC	Padovan, J.	NAG 3-54	3532
46	UNIV OF AKRON	Coy, J. J.	LERC	Savage, M.	NAG 3-55	3533
46	UNIV ALA-HUNTSVILLE	Decher, R.	MSFC	Hendricks, J. B.	NAS 8-29316	1041
46	UNIV ALA-HUNTSVILLE	Urban, E. W.	MSFC	Karr, G. R.	NGT 01-002-083	1070
46	UNIV CALIF-BERKELEY	MacElroy, R. D.	ARC	Auslander, D. M.	NCC 2-67	1531
46	UNIV CALIF-BERKELEY	Marek, C. J.	LERC	Daily, J. W.	NSG 3028	1550
46	UNIV CALIF-DAVIS	Pollack, J. B.	ARC	White, B. R.	NCA 2-180903	1569
46	UNIV CALIF-L ANGELES	Vorreiter, J. W.	ARC	Frederking, T. H.	NCC 2-64	1611
46	UNIV CALIF-L ANGELES	Burkhart, J. A.	LERC	Frederking, T. H.	NSG 3153	1629
46	UNIV CALIF-SAN DIEGO	Altman, R. L.	ARC	Middleman, S.	NCA 2-658001	1683
46	UNIV OF CINCINNATI	Monteith, J. H.	LARC	Brown, D. L.	NSG 1486	3547
46	UNIV OF CINCINNATI	Coy, J. J.	LERC	Huston, R. L.	NSG 3188	3552
46	UNIV OF CINCINNATI	Stubbs, R. M.	LERC	Tabakoff, W.	NSG 3218	3553
46	UNIV OF CONNECTICUT	Goldman, I. J.	LERC	Langston, L. S.	NSG 3238	1931
46	UNIV OF DELAWARE	Deaton, J. W.	LARC	Pipes, R. B.	NSG 1304	1951
46	UNIV ILLINOIS-CHICGO	Coy, J. J.	LERC	Litvin, F. L.	NAG 3-48	2242
46	UNIV OF KANSAS	Hirschbein, M. S.	LERC	Dodds, R. H.	NAG 3-32	2387
46	UNIV OF KANSAS	Straight, D. M.	LERC	Schweikhard, W. G.	NAG 3-85	2389
46	UNIV OF KENTUCKY	Cochran, T. H.	LERC	Altenkirch, R. A.	NSG 3114	2435
46	UNIV OF LOUISVILLE	Hendricks, R. C.	LERC	Dressman, J. B.	NSG 3200	2441
46	UNIV OF MASS AMHERST	Wedeven, L. D.	LERC	Wilson, W. R.	NCC 3-10	2828
46	UNIV OF MIAMI	Bland, R. A.	KSC	Lee, S. S.	NAS10-9410	2084
46	UNIV MICH-ANN ARBOR	Wedeven, L. D.	LERC	Ludema, K. C.	NCC 3-11	2897
46	UNIV SO CAROLINA-COL	Decker, A. J.	LARC	Ranson, W. F.	NAG 3-75	3801
46	UNIV SOUTHWESTERN LA	Humphries, W. R.	MSFC	Bankston, I. D.	NAS 8-33765	2467
46	UNIV OF TOLEDO	Cunningham, R. E.	LERC	Keith, T. E.	NSG 3156	3575
46	UNIV OF VIRGINIA	Kascak, A. F.	LERC	Barrett, L. E.	NSG 3177	4232
46	UNIV OF VIRGINIA	Clark, W. D.	MSFC	Gunter, F. J.	NAS 8-31951	4222
46	UNIV OF WASHINGTON	Wieting, A. R.	LARC	Emery, A. F.	NAG 1-41	4301
46	UNIV OF WASHINGTON	Hall, R. C.	LERC	Wolak, J.	NAG 3-7	4302
46	UNIV OF WASHINGTON	Valentine, H. H.	LERC	Martini, W. R.	NSG 3194	4335
46	VIRGINIA POLY INST	Hoffman, E. L.	LARC	Stinchcomb, W. W.	NSG 1254	4273
47	ALABAMA A&M UNIV	Bannister, T. C.	MSFC	Lal, R. B.	NAS 8-32945	1001
47	ARIZONA STATE UNIV	Reeves, E. A.	MSFC	Wagner, J. B.	NAS 8-32937	1098
47	ATLANTA UNIVERSITY	Bryan, C. J.	KSC	Korda, E. J.	NAG10-3	2092
47	CASE WESTERN RESERVE	Gray, H. R.	LERC	Ebert, L. J.	NAG 3-30	3405
47	CASE WESTERN RESERVE	Thompson, R. L.	LERC	Mendelson, A.	NAG 3-39	3406
47	CASE WESTERN RESERVE	Halford, G. R.	LERC	Manson, S. S.	NAG 3-46	3407
47	CASE WESTERN RESERVE	Smialek, J. L.	LERC	Ebert, L. J.	NAG 3-49	3408
47	CASE WESTERN RESERVE	Smialek, J. L.	LERC	Ebert, L. J.	NAG 3-58	3409
47	CASE WESTERN RESERVE	Fortini, A.	LERC	Dybbys, A.	NSG 3040	3435
47	CASE WESTERN RESERVE	Scheuermann, C. M.	LERC	Ebert, L. J.	NSG 3246	3450
47	CASE WESTERN RESERVE	Gedwill, M. A.	LERC	Ebert, L. J.	NSG 3252	3452
47	CASE WESTERN RESERVE	Gideon, L.	LERC	Kamotani, Y.	NSG 3268	3453

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47	CASE WESTERN RESERVE	Souey, J. S.	TERC	Geil, K. H.	NSG 3289	3460
47	CASE WESTERN RESERVE	Smialek, J. L.	TERC	Halloran, J. W.	NSG 3291	3461
47	CASE WESTERN RESERVE	Hirschberg, M. H.	TERC	Powell, N. L.	NSG 7035	3463
47	CLEMSON UNIV-CLEMSON	Nunes, A. C.	MSFC	Thompson, R. G.	NAS 8-33524	3794
47	CLEVELAND STATE UNIV	Nary, A.	TERC	Hemann, J. H.	NAG 3-106	3466
47	CLEVELAND STATE UNIV	Herbell, T. P.	TERC	Yeh, H. C.	NSG 3259	3476
47	COLORADO STATE UNIV	Kerslake, W. R.	TERC	Wilbur, P. J.	NAG 3-25	1812
47	COLUMBIA UNIVERSITY	Stephens, J. R.	TERC	Tien, J. K.	NAG 3-57	3161
47	CORNELL UNIVERSITY	Goldstein, M. F.	TERC	Ruoff, A. L.	NSG 7488	3236
47	DARTMOUTH COLLEGE	Klopp, W. D.	TERC	Schulson, E. M.	NAG 3-13	3038
47	DARTMOUTH COLLEGE	Bill, R. C.	TERC	Kennedy, F. E., Jr.	NSG 3253	3042
47	DREXEL UNIVERSITY	Poe, C. C., Jr.	LARC	Awerbuch, J.	NSG 1606	3662
47	DREXEL UNIVERSITY	Glasgow, T. K.	TERC	Apelan, D.	NAG 3-14	3653
47	DREXEL UNIVERSITY	Grimes, H. H.	TERC	Kozak, M. J.	NSG 3128	3665
47	GEORGE WASHINGTON U	Swann, R. F.	LARC	Liebowitz, H.	NCC 1-36	1977
47	GEORGE WASHINGTON U	Roderick, G. I.	LARC	Liebowitz, H.	NSG 1289	1986
47	GEORGE WASHINGTON U	O'Brien, T. K.	LARC	Yang, J. N.	NSG 1604	1989
47	GEORGIA INST OF TECH	Johnston, M. H.	MSFC	Brown, J. I.	NAS 8-33438	2121
47	HOWARD UNIVERSITY	Clark, R. K.	LARC	Reiss, R.	NAG 1-23	1994
47	KENT STATE UNIV-KENT	Wintucky, T. G.	TERC	Johnson, D. I.	NSG 3159	3481
47	KENT UNIVERSITY	Reynolds, M. A.	JSC	Vanderhoff, J. W.	NAS 9-16071	3675
47	MASS INST OF TECH	Kostuk, T.	GSFC	Spears, D. I.	NAS 5-25717	2725
47	MASS INST OF TECH	Price, H. L.	LARC	McGarry, F. J.	NSG 1504	2772
47	MASS INST OF TECH	Weinberg, I.	TERC	Gatos, H. C.	NSG 3017	2783
47	MASS INST OF TECH	Scheuermann, C. M.	TERC	Flemings, M. C.	NSG 3046	2785
47	MASS INST OF TECH	Vary, A.	TERC	Williams, J. H., Jr.	NSG 3210	2791
47	MASS INST OF TECH	Reeves, F. A.	MSFC	Uhlmann, D. R.	NAS 8-31350	2732
47	MASS INST OF TECH	Vontiesenhausen, G. I.	MSFC	Miller, R. H.	NAS 8-32925	2733
47	MASS INST OF TECH	Vitale, J. A.	HD-ET	Gatos, H. C.	NSG 7331	2809
47	MASS INST OF TECH	Vitale, J. A.	HD-ET	Szekely, J.	NSG 7645	2820
47	MICHIGAN STATE UNIV	Halford, G. R.	TERC	Martin, J. F.	NAG 3-51	2845
47	MICHIGAN TECH UNIV	Barrett, C. A.	TERC	Heckel, R. W.	NSG 3215	2853
47	NO CAR A&T STATE U	Buckley, J. D.	LARC	Botros, B. M.	NSG 1516	3373
47	NO CAROLINA STATE U	Long, F. R., Jr.	LARC	Memory, J. D.	NSG 1463	3392
47	OHIO STATE UNIV	Bill, R. C.	TERC	Black, J. T.	NSG 3164	3518
47	OHIO STATE UNIV	Vary, A.	TERC	Fu, I. S.	NSG 3269	3521
47	OLD DOMINION UNIV	Lisagor, W. B.	LARC	Cupschalk, S. G.	NSG 1521	4194
47	PENN STATE U-UNIV PK	Fripp, A. I.	LARC	White, W. B.	NSG 1387	3721
47	PENN STATE U-UNIV PK	Barranger, J. P.	TERC	Bradt, R. C.	NAG 3-68	3691
47	PURDUE UNIVERSITY	Stephens, J. R.	TERC	Radavich, J. I.	NAG 3-59	2290
47	RENSSELAER POLY-NY	Dieus, D. L.	LARC	Ansell, G. S.	NSG 1510	3291
47	RENSSELAER POLY-NY	Miner, R. V.	TERC	Duquette, D. J.	NAG 3-22	3277
47	RENSSELAER POLY-NY	Davidson, M. C.	MSFC	Wiedmann, H.	NAS 8-26146	3279
47	RENSSELAER POLY-NY	Bannister, T. C.	MSFC	Gucksmann, M. I.	NAS 8-32425	3280
47	RENSSELAER POLY-NY	Schaefer, D. A.	MSFC	Wiedemeier, H.	NAS 8-32936	3283
47	RENSSELAER POLY-NY	Greenfield, M. A.	HD-RT	Wiberly, S. E.	NGL 33-018-003	3288
47	RICE UNIVERSITY	Berge, R.	MSFC	Margrave, J.	NAS 8-33199	3879
47	SAN JOSE STATE UNIV	Riccitello, S. R.	ARC	Anderson, R. N.	NCC 2-3	1335
47	SAN JOSE STATE UNIV	Mansfield, J.	ARC	Holmstrom, F.	NCC 2-80	1349
47	STANFORD UNIVERSITY	Poppa, H.	ARC	Heinemann, K.	NCA 2-745901	1404
47	SYRACUSE UNIVERSITY	Hayes, P. J.	LARC	Schroder, K.	NSG 1654	3355
47	TEXAS A&M UNIVERSITY	Thompson, R. L.	TERC	Haisler, W. I.	NAG 3-31	3906
47	TUSKEGEE INSTITUTE	Titran, R. H.	TERC	Ramirez, R. P.	NSG 3154	1033
47	UNIV ALA-HUNTSVILLE	Whitaker, A. F.	MSFC	Davis, J. H.	NAS 8-33377	1052
47	UNIV ALA-HUNTSVILLE	Bass, B. G.	MSFC	Hendricks, J. B.	NAS 8-33542	1057
47	UNIV ALA-HUNTSVILLE	Lacy, L. I.	MSFC	Davis, J. H.	NAS 8-33548	1058
47	UNIV OF ARIZONA	Thompson, R. L.	TERC	Wirsching, P. H.	NAG 3-41	1113
47	UNIV CALIF-BERKELEY	Campbell, C. F.	GSFC	Price, P. B.	NAS 5-25453	1512

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47	UNIV CALIF-L ANGELES	Ricciello, S R	ARC	Mackenzie, J D	NCC 2-7	1610
47	UNIV CALIF-L ANGELES	Barranger, J P	IFRC	Mackenzie, J D	NAG 3-69	1586
47	UNIV CALIF-L ANGELES	Williams, J R	MSFC	Bunshah, R F	NAS 8-33115	1603
47	UNIV CALIF-S BARBARA	Nelson, H G	ARC	Shanabarger, M R	NCC 2-63	1749
47	UNIV OF CENTRAL FLA	Bianca, C	MSFC	Carroll, W F	NAS 8-32835	2042
47	UNIV OF CINCINNATI	Miner, R V	IFRC	Antolovich, S D	NSG 3147	3551
47	UNIV OF CINCINNATI	Hirschberg, M H	IFRC	Antolovich, S D	NSG 3263	3554
47	UNIV OF DAYTON	Gourash, F	IFRC	Sirnat, K J	DELN 3-18	3556
47	UNIV OF DAYTON	McDaniels, D I	IFRC	Bless, S J	NAS 3-22353	3559
47	UNIV OF DELAWARE	Vernon, R W	IFRC	Birchenall, C F	NSG 3184	1953
47	UNIV OF FLORIDA	Dutta, S	IFRC	Hench, F F	NSG 3254	2072
47	UNIV HOUSTON-HOUSTON	Viegas, J R	ARC	Hussain, A K	NSG 2337	3969
47	UNIV OF IOWA	Rummier, D R	IFRC	Wu, H C	NSG 1499	2371
47	UNIV OF KANSAS	Howell, W F	IFRC	Reese, C D	NSG 281	2406
47	UNIV OF MIAMI	Lisagor, W B	IFRC	Poteat, F F	NSG 1283	2086
47	UNIV MICH-ANN ARBOR	Jones, J I	IFRC	Felbeck, D K	NAS 1-15333	2865
47	UNIV MICH-ANN ARBOR	Fichter, W B	IFRC	Felbeck, D K	NGR 23-005-528	2904
47	UNIV MICH-ANN ARBOR	Lauver, R W	IFRC	Yeh, G S	NSG 3192	2913
47	UNIV MINN-MNPLS-ST PAUL	Leadbetter, S A	IFRC	Plunkett, R	NAG 1-99	2931
47	UNIV OF NEW ORLEANS	Wood, G M	IFRC	Loup, G F	NSG 1460	2465
47	UNIV OREGON-HEALTH CTR	Bannister, T C	MSFC	Brooks, D F	NAS 8-33575	3641
47	UNIV OF PITTSBURGH	Kohl, F J	IFRC	Birks, N	NAG 3-44	3754
47	UNIV OF PITTSBURGH	Kohl, F J	IFRC	Meier, G H	NSG 3214	3768
47	UNIV OF SOUTHERN CAL	Conway, F J	IFRC	Kroger, F A	NSG 1536	1800
47	UNIV TEXAS-EL PASO	Brandhorst, H W, Jr	IFRC	Brient, S J	NSG 3146	4065
47	UNIV OF TORONTO	Baker, D J	IFRC	Tennyson, R C	NSG 7409	4421
47	UNIV OF UTAH	Fripp, A F	IFRC	Rosenberger, F F	NSG 1534	4092
47	UNIV OF VIRGINIA	Fripp, A F	IFRC	Jesser, W A	NSG 1652	4230
47	UNIV OF VIRGINIA	Behrendt, D R	IFRC	Wawner, F E, Jr	NSG 3242	4233
47	UNIV OF WASHINGTON	Greenfield, M A	HD-RT	Mueller, J F	NGI 48-002-004	4326
47	UNIV OF WYOMING	Dicarlo, J A	IFRC	Adams, D F	NSG 3217	4418
47	UNIV OF WYOMING	Reeves, F A	MSFC	Saunders, C	NAS 8-32486	4415
47	VANDERBILT UNIVERSITY	Nichols, R I	MSFC	Kinsler, D I	NAS 8-32695	3848
47	VIRGINIA POLY INST	Nelson, H G	ARC	Louthan, M R	NAG 2-3	4248
47	VIRGINIA POLY INST	Nelson, H G	ARC	Brinson, H F	NCC 2-71	4268
47	VIRGINIA POLY INST	Nelson, H G	ARC	Brinson, H F	NSG 2038	4288
47	VIRGINIA POLY INST	Price, H I	IFRC	Wilkes, G F	NAG 1-78	4244
47	VIRGINIA POLY INST	Tenney, D R	IFRC	Houska, C R	NSG 1470	4278
47	VIRGINIA POLY INST	Everett, R A	IFRC	Morris, D H	NSG 1571	4281
47	VIRGINIA POLY INST	Baker, D J	IFRC	Hyer, M W	NSG 1621	4287
47	VIRGINIA POLY INST	Stephens, J R	IFRC	Louthan, M R	NAG 3-78	4250
47	VIRGINIA POLY INST	Wintucky, F G	IFRC	Dwight, D W	NSG 3204	4291
47	YALE UNIVERSITY	Kohl, F J	IFRC	Rosner, D F	NSG 3107	1944
49	AUBURN UNIV AUBURN	Decker, A J	IFRC	Swinson, W F	NSG 3233	1021
49	AUBURN UNIV AUBURN	Daniel, C C	MSFC	Flood, C A, Jr	NSG 8047	1022
49	CALIF INST OF TECH	Carter, C H	HD-IU	Albee, A F	NGI 05-003-790	1247
49	CARNEGIE-MELLON UNIV	Pohly, J G	HD-IU	Cathie, W	NGI 39-087-790	3646
49	CASI WESTERN RESERVE	Doolin, B F	ARC	Martin, C F	NSG 2384	3234
49	CASI WESTERN RESERVE	Seasholtz, R G	IFRC	Edwards, R V	NAG 3-2	3402
49	CASI WESTERN RESERVE	Smetana, J	IFRC	Collins, R F	NAS 3-21365	3420
49	CASI WESTERN RESERVE	Wintucky, F G	IFRC	Bahnuk, F	NAS 3-21946	3421
49	CASI WESTERN RESERVE	Fanner, H G	IFRC	Dybbis, A	NCC 3-8	3430
49	CASI WESTERN RESERVE	Weigand, A J	IFRC	Gibbons, D F	NSG 3126	3438
49	CASI WESTERN RESERVE	Carter, C H	HD-IU	Prabe, J M	NGI 36-027-011	3432
49	CASI WESTERN RESERVE	Pohly, J G	HD-IU	Chenelle, D W	NGI 36-027-790	3433
49	CITY COLLEGE OF N Y	Braun, W H	IFRC	Weinstein, H	NSG 3174	3153
49	CLEVELAND STATE UNIV	Beach, R F	ARC	Donoghue, J F	NAG 3-84	3465
49	CLEVELAND STATE UNIV	Beach, R F	IFRC	Burghart, J H	NSG 3223	3474



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49	CLEVELAND STATE UNIV	Pohly, J. G.	HD-LU	Bennett, W. R.	NGT 36-025-780	3471
49	COLLEGE OF WM & MARY	Finelli, G. B.	LARC	Schaefer, M. K.	NSG 1625	4132
49	COLUMBIA UNIVERSITY	Stephens, D. G.	LARC	Galanter, F.	NSG 1550	3183
49	DE ANZA COLLEGE	Lum, H.	ARC	Frederick, V.	NCC 2-34	1306
49	DREXEL UNIVERSITY	Meyer, G.	ARC	Calise, A. J.	NAG 2-8	3650
49	DUKE UNIVERSITY	Hayduk, R. J.	LARC	Melosh, R. J.	NSG 1647	3365
49	FORT LEWIS COLLEGE	Kruger, R.	GSFC	Williams, R. I.	NAG 5-1	1847
49	GEORGE WASHINGTON U	Morakis, J. C.	GSFC	Helgert, H. J.	NSG 5109	1990
49	GEORGIA INST OF TECH	Vykukal, H. C.	ARC	Olson, I. H.	NSG 2356	2133
49	GEORGIA INST OF TECH	Reed, B.	MSFC	Pierce, A. D.	NAS 8-33093	2120
49	HOWARD UNIVERSITY	Hui, P. S.	GSFC	Choudhury, A. K.	NAS 5-24251	2003
49	HOWARD UNIVERSITY	Chapman, J. W.	GSFC	Cox, E. L.	NASA 5-29	2006
49	HOWARD UNIVERSITY	Chapman, J. W.	GSFC	Cox, E. L.	NASA 5-91	2007
49	HOWARD UNIVERSITY	Hammer, H. A.	LARC	Barnum, P. M.	NSG 1414	2011
49	IOWA STATE UNIV	Pollack, J. B.	ARC	Iversen, J. D.	NSG 2-340802	2337
49	IOWA STATE UNIV	Fralich, R. W.	LARC	McDaniel, T. J.	NSG 1372	2345
49	LAFAYETTE COLLEGE	Gamer, P. A.	LARC	Guy, W. J.	NAG 1-45	3672
49	LEHIGH UNIVERSITY	Chamis, C. C.	LARC	Sih, G. C.	NSG 3179	3682
49	LINCOLN UNIV-PA	Mundy, J. R.	GSFC	Williams, W.	NCA 5-98	3685
49	MASS INST OF TECH	Stewart, J. D.	ARC	Young, I. R.	NAG 2-12	2691
49	MASS INST OF TECH	Doolin, B. F.	ARC	Athans, M.	NGI 22-009-124	2747
49	MASS INST OF TECH	Burkhart, J. A.	LARC	Marston, P. G.	NAG 3-100	2697
49	MASS INST OF TECH	Chamis, C. C.	LARC	McGarry, I. J.	NSG 3044	2784
49	MASS INST OF TECH	Braun, W. H.	LARC	Kerrebrock, J. I.	NSG 3187	2789
49	MISSISSIPPI STATE U	Sims, J. I.	MSFC	Kassner, J. I., Jr	NAS 8-32912	2966
49	MORGAN STATE UNIV	Friedman, D. S.	GSFC	Taylor, J. H.	NAS 5-23558	2511
49	NEW MEX ST U-LAS CR	Pincus, B. R.	GSFC	Lawrence, H.	NAS 5-24241	3124
49	NEW MEX ST U-LAS CR	Pincus, B. R.	GSFC	Lawrence, H.	NAS 5-26332	3125
49	NEW MEX ST U-LAS CR	West, W. W.	WFC	Gammill, B. G.	NAS 6-3087	3126
49	NEW YORK UNIVERSITY	Tabus, T. I.	LARC	Ting, L.	NSG 3059	3261
49	NO CAR A&T STATE U	Carter, C. H.	HD-LU	Abu-saba, F. G.	NGT 34-012-800	3371
49	OHIO STATE UNIV	Doolin, B. F.	ARC	Wyman, B.	NAG 2-34	3490
49	OHIO STATE UNIV	Bowles, K. J.	LARC	Smith, F. F.	NSG 1235	3519
49	OKLAHOMA STATE UNIV	West, W. W.	WFC	Buck, R. F.	NAS 6-2970	3594
49	OKLAHOMA STATE UNIV	Boykin, F. M.	WFC	Eike, R. M.	NAS 6-3103	3595
49	OKLAHOMA STATE UNIV	Carr, R. I.	WFC	Roth, I. O.	NSG 6018	3599
49	OLD DOMINION UNIV	Hamer, H. A.	LARC	Goghia, G. I.	NAG 1-102	4161
49	OLD DOMINION UNIV	Wieting, A. R.	LARC	Thornton, F. A.	NSG 1321	4180
49	OLD DOMINION UNIV	Sutton, K.	LARC	Tiwari, S. N.	NSG 1500	4191
49	OLD DOMINION UNIV	Carter, C. H.	HD-LU	McRee, G. J.	NGT 47-003-028	4174
49	OLD DOMINION UNIV	Carter, C. H.	HD-LU	Goghia, G. I.	NGT 47-003-029	4175
49	PURDUE UNIVERSITY	Pohly, J. G.	HD-LU	Holec, D. I.	NGT 15-005-790	2307
49	RENSSELAER POLY-NY	Gevartier, W. B.	HD-RI	Yerazunis, S.	NSG 7369	3298
49	RICE UNIVERSITY	Guttman, C.	MSFC	Few, A. A.	NAS 8-33023	3878
49	SOUTHEASTN OKLA ST U	Bivins, R. G.	HD-ET	Oliver, R.	NASW 3180	3601
49	STANFORD UNIVERSITY	Erzberger, H.	ARC	Bryson, A. I.	NGI 05-020-007	1436
49	STANFORD UNIVERSITY	Wolfe, J. H.	ARC	Peterson, A. M.	NSG 2121	1459
49	STANFORD UNIVERSITY	Carter, C. H.	HD-LU	Adams, J. I.	NGT 05-020-409	1454
49	STANFORD UNIVERSITY	Carter, C. H.	HD-LU	Bershader, D.	NGT 05-020-412	1455
49	TENNESSEE STATE UNIV	Pohly, J. G.	HD-LU	Malkani, M. J.	NGT 43-014-750	3816
49	TENNESSEE STATE UNIV	Pohly, J. G.	HD-LU	Malkani, M. J.	NGT 44-014-790	3817
49	TEXAS A&M UNIVERSITY	Carter, C. H.	HD-LU	Norton, D. J.	NGT 44-001-800	3937
49	TEXAS SOUTHERN UNIV	Davis, E. I.	JSC	Blackwell, H. F.	NAG 9-6	3952
49	TUSKEGEE INSTITUTE	Fohis, J. G.	HD-LU	Dybezak, Z. W.	NGT 01-005-750	1031
49	TUSKEGEE INSTITUTE	Pohly, J. G.	HD-LU	Dybezak, Z. W.	NGT 01-005-780	1032
49	UNIV ALA-HUNTSVILLE	Carter, C. H.	HD-LU	Karr, G. R.	NGT 01-008-021	1071
49	UNIV ALA-UNIVERSITY	Carter, C. H.	HD-LU	Barfield, B. I.	NGT 01-002-099	1075
49	UNIV OF ARIZONA	Wagnon, F. W.	MSFC	Krider, F. P.	NAS 8-33718	1140

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49	UNIV OF ARIZONA	Wagnor, F. W.	MSFC	Wolfe, W. I.	NAS 8-35720	1141
49	UNIV CALIF-L ANGELES	Sobieski, J.	LARC	Schmit, L. A., Jr.	NSG 1490	1625
49	UNIV CALIF-S BARBARA	Jones, H. W.	ARC	Estes, J. I.	NCC 2-43	1748
49	UNIV OF CINCINNATI	Waltz, J.	LARC	Nayfeh, A. H.	NSG 1185	3546
49	UNIV OF FLORIDA	Nelsen, F. D.	GSFC	Green, A. F.	NAS 5-22908	2052
49	UNIV HOUSTON-HOUSTON	Carter, C. H.	HD-LU	Huang, C. J.	NGT 44-005-115	3965
49	UNIV OF KANSAS	Saltzman, F. J.	DFRC	Muirhead, V. U.	NSG 4023	2416
49	UNIV MARYLAND-COL PK	Chapman, J. W.	GSFC	Wockenfuss, W. A.	NCA 5-28	2555
49	UNIV MARYLAND-COL PK	Degnan, J. J.	GSFC	Hochuli, U. F.	NSG 5042	2582
49	UNIV MARYLAND-COL PK	McGarry, F. I.	GSFC	Basil, V. R.	NSG 5123	2583
49	UNIV MARYLAND-COL PK	Carter, C. H.	HD-LU	Emad, F. P.	NGT 21-002-254	2572
49	UNIV MICH-ANN ARBOR	Fish, R. H.	ARC	Springer, G. S.	NSG 2333	2911
49	UNIV OF NEW MEXICO	Pohly, J. G.	HD-LU	Liter, D. M.	NGT 32-004-770	3140
49	UNIV OF NOTRE DAME	Doolin, B. F.	ARC	Sain, M. K.	NAG 2-35	2324
49	UNIV OKLAHOMA-NORMAN	Pohly, J. G.	HD-LU	Thomas, G.	NGT 37-003-760	3616
49	PUERTO RICO-MAYAGZ	Lopez, J. J.	GSFC	Cabassa, H. D.	NAS 5-25844	4420
49	UNIV OF SANTA CLARA	Carter, C. H.	HD-LU	Healy, T. J.	NGT 05-017-998	1784
49	UNIV STHN COLORADO	Meyer, G.	ARC	Dunn, W. R.	NAG 2-2	1973
49	UNIV STHN COLORADO	Meyer, G.	ARC	Dunn, W. R.	NCC 2-91	1925
49	UNIV SO MISSISSIPPI	Whitley, S. I.	NSTI	Brundage, W. G.	NAS13-95	2983
49	UNIV TENNESSEE-KNOXV	Reynolds, F. A.	NSC	Speckhart, F. H.	NAS10-9834	3837
49	UNIV TENNESSEE-KNOXV	Stanger, P. J.	IFRC	Dicks, J. B.	NSG 32 4	3844
49	UNIV TEXAS-ARLINGTON	Smith, J. M.	IFRC	Wilson, D. R.	NSG 3255	3980
49	UNIV TEXAS-AUSTIN	Richard, R. R.	JSC	Hartwig, W. H.	NAS 9-14491	3997
49	UNIV TEXAS-AUSTIN	Pels, G. I.	JSC	Tucker, A. J.	NAS 9-15217	3998
49	UNIV TEXAS-AUSTIN	Kiefling, I. A.	MSFC	Craig, R. C.	NAS 8-33980	3995
49	UNIV OF TOLEDO	Finnegan, P. M.	IFRC	Keitt, T. G.	NCC 3-5	3571
49	UNIV OF TOLEDO	Labus, J. I.	IFRC	Dewitt, K. J.	NSG 3121	3573
49	UNIV OF VIRGINIA	Lamb, G. M.	GSFC	Mattauch, R. J.	NAS 5-24218	4218
49	UNIV OF VIRGINIA	Loendorf, D. D.	LARC	Ortega, J. M.	NAG 1-46	4209
49	UNIV OF VIRGINIA	Conner, D. W.	LARC	Kuhlthau, A. R.	NAS 1-14909	4215
49	VIRGINIA POLY INST	Davis, J. D., Jr.	LARC	Herakovich, C. T.	NCC 1-15	4266
49	WASHINGTON UNIVERSITY	Giles, G. I.	LARC	Szabo, B. A.	NSG 1640	3012
51	ALABAMA A&M UNIV	Serren, B. H.	MSFC	Neugebauer, M. G.	NSG 8067	1010
51	ALCORN STATE UNIV	Wolverton, B. C.	NSTI	Latif, A.	NSG 8036	2960
51	CAL STATE U-L ANGELES	Hochstein, I. I.	ARC	Andreoli, A. J.	NSG 2199	1298
51	CASI WESTERN RESERVE	Halstead, T. W.	HD-SB	Keefe, J. R.	NAGW 83	3418
51	COLORADO STATE UNIV	Holton, I. M.	ARC	Jordan, J. P.	NSG 2232	1834
51	CORNELL UNIVERSITY	Halstead, T. W.	HD-SB	Leopold, A. C.	NAGW 3	3201
51	CORNELL UNIVERSITY	Young, R. S.	HD-SB	MacDonald, R. I.	NSG 7235	3232
51	CORNELL UNIVERSITY	Devincenzi, D. I.	HD-SB	Gibson, J.	NSG 7529	3238
51	EMORY UNIVERSITY	Rasmussen, D. N.	ARC	Popovic, V. P.	NAS 2-10527	2095
51	EMORY UNIVERSITY	Holton, I. M.	ARC	Popovic, V. P.	NGI 11-001-009	2097
51	GEORGIA INST OF TECH	Young, R. S.	HD-SB	Hubbard, J. S.	NSG 7069	2142
51	HARDIN-SIMMONS UNIV	Young, R. S.	HD-SB	Foster, T. I.	NGR 44-095-001	3863
51	HARVARD UNIVERSITY	Ferandin, J.	ARC	Moore-ede, M. C.	NAS 2-10547	2642
51	INDIANA U-BLOOMINGTON	Halstead, T. W.	HD-SB	Malacinski, G. M.	NAGW 60	2276
51	MASS INST OF TECH	MacIlroy, R. D.	ARC	Rich, A.	NCA 2-425801	2 39
51	MASS INST OF TECH	Daunton, N. G.	ARC	Bizzi, I.	NGR 22-009-798	2765
51	MASS INST OF TECH	Daunton, N. G.	ARC	Unavailable	NGR 22-009-826	2766
51	MASS INST OF TECH	Devincenzi, D. I.	HD-SB	Biemann, K.	NGR 22-009-005	2753
51	MICHIGAN STATE UNIV	Halstead, T. W.	HD-SB	Bandurski, R. S.	NAGW 97	2848
51	OHIO STATE UNIV	Mehler, W. R.	ARC	Lim, D. J.	NSG 2220	3516
51	OHIO UNIVERSITY	Halstead, T. W.	HD-SB	Jaffe, M. J.	NSG 7352	3530
51	OKLAHOMA STATE UNIV	Devincenzi, D. I.	HD-SB	Vishniac, H. S.	NAGW 26	3592
51	PAST U-HERSHLY MED	Ferandin, J.	ARC	Severs, W. B.	NAS 2-10521	3686
51	PENN STATE U-UNIV PK	Morrison, D. R.	JSC	Hymers, W. C.	NAS 9-15566	3708
51	PRINCETON UNIVERSITY	Halstead, T. W.	HD-SB	Jacobs, W. P.	NSG 7280	3100

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51	PURDUE UNIVERSITY	Ferandin, J	ARC	Mitchell, C A	NAS 2-10514	2296
51	PURDUE UNIVERSITY	Halstead, T W.	HD-SB	Mitchell, C A.	NSG 7278	2323
51	RENSSELAER POLY-NY	Young, R S.	HD-SB	Pope, D. H.	NSG 7345	3297
51	RICE UNIVERSITY	Ferandin, J.	ARC	Campbell, J.	NAS 2-10519	3874
51	RICE UNIVERSITY	Halstead, T. W	HD-SB	Ward, C H	NASW 3164	3887
51	ROCKEFELLER UNIV	MacElroy, R D	ARC	Loew, G. H	NCA 2-630001	3299
51	ROCKEFELLER UNIV	Lawless, J. G	ARC	Loew, G. H	NCA 2-630901	3300
51	ROCKEFELLER UNIV	Daunton, N. G	ARC	Wilson, V J	NSG 2380	3301
51	SAN FRAN STATE UNIV	Oyama, J.	ARC	Kakihana, R.	NCC 2-25	1319
51	SAN FRAN STATE UNIV	Devincenzi, D. L.	HD-SB	Orenberg, J B	NSG 7512	1322
51	SAN JOSE STATE UNIV	Daunton, N G.	ARC	Ginsberg, R	NCA 2-675002	1324
51	SAN JOSE STATE UNIV	Oyama, V. I.	ARC	Ling, A. C	NCA 2-675008	1329
51	SAN JOSE STATE UNIV	Winget, C M	ARC	Holley, D. C.	NCA 2-675903	1332
51	SAN JOSE STATE UNIV	Deal, P. H.	ARC	Haight, R. D.	NCA 2-675907	1333
51	SAN JOSE STATE UNIV	Suri, K. P	ARC	Fox, R. A	NCC 2-72	1347
51	STANFORD UNIVERSITY	Ferandin, J	ARC	Reaven, G M	NAS 2-10512	1375
51	STANFORD UNIVERSITY	Goldwater, D	ARC	Debusk, R F	NCA 2-745911	1408
51	STANFORD UNIVERSITY	Young, R S	HD-SB	Lederberg, J	NGR 05-020-004	1446
51	STATE UNIV NY-ALBANY	Nolte, R W.	JSC	Sulzman, F M	NAS 9-15975	3307
51	STATE UNIV NY-BINGHAMTN	Sandler, H	ARC	Sulzman, F M	NGT 33-188-800	3319
51	STATE UNIV NY-BUFFALO	MacElroy, R D	ARC	Egan, J T	NCA 2-750001	3349
51	STATE UNIV NY-STONY BRK	Rasmussen, D N	ARC	Krikorian, A D	NAS 2-10520	3326
51	STATE UNIV NY-STONY BRK	Halstead, T W	HD-SB	Krikorian, A D.	NSG 7270	3342
51	TEXAS A&M UNIVERSITY	Lewis, J. L.	JSC	Stramler, J H	NAS 9-16073	3929
51	TEXAS TECH UNIV	Holton, F M	ARC	Hartman, H B	NGT 44-011-800	3956
51	TULANE UNIVERSITY	MacElroy, R D	ARC	Johnson, E. J	NCA 2-800001	2462
51	TUSKEGEE INSTITUTE	Klein, H P	ARC	Tolbert, M F	NAG 2-22	1026
51	UNIV ALASKA-FAIRBANKS	MacElroy, R D.	ARC	Bloom, A J	NCA 2-20902	1082
51	UNIV CALIF-BERKELEY	Rasmussen, D	ARC	Pace, N	NAS 2-10499	1501
51	UNIV CALIF-BERKELEY	Rasmussen, D	ARC	Pace, N	NAS 2-10504	1502
51	UNIV CALIF-BERKELEY	Heinrich, M	ARC	Pace, N	NAS 2-10658	1503
51	UNIV CALIF-BERKELEY	Lanyi, J K	ARC	Packer, L	NCA 2-50002	1525
51	UNIV CALIF-BERKELEY	Halstead, T W	HD-SB	Pace, N	NSG 7262	1559
51	UNIV CALIF-BERKELEY	Halstead, T W	HD-SB	Pace, N	NSG 7336	1560
51	UNIV CALIF-DAVIS	Winget, C M	ARC	Chapman, L F	NCA 2-180905	1570
51	UNIV CALIF-DAVIS	Zill, I P	ARC	Huffaker, R C	NSG 2406	1575
51	UNIV CALIF-DAVIS	Halstead, T W	HD-SB	Smith, A. H	NSG 7493	1577
51	UNIV CALIF-IRVINE	Rasmussen, D N	ARC	Baldwin, K M	NAS 2-10522	1579
51	UNIV CALIF-L ANGELES	Ellis, S	ARC	Parlow, A	NCA 2-390001	1607
51	UNIV CALIF-RIVERSIDE	Ferandin, J	ARC	Fuller, C A	NAS 2-10536	1657
51	UNIV CALIF-SAN DIEGO	Devincenzi, D L	HD-SB	Nealson, K H.	NAGW 73	1670
51	UNIV CALIF-SAN FRAN	Souza, K A	ARC	Arnaud, C	NAS 2-10164	1717
51	UNIV CALIF-SAN FRAN	Mehler, W R	ARC	Snyder, R L	NCA 2-665003	1724
51	UNIV CALIF-SAN FRAN	Callahan, P X	ARC	Ashing, C W	NCA 2-665004	1725
51	UNIV CALIF-SAN FRAN	Keil, L C	ARC	Reid, I A	NCA 2-665005	1726
51	UNIV CALIF-SAN FRAN	Keil, L C	ARC	Ramsay, D J	NCA 2-665006	1727
51	UNIV CALIF-SAN FRAN	Holton, F M	ARC	Cann, C E	NCA 2-665008	1729
51	UNIV CALIF-SAN FRAN	Ellis, S	ARC	Riley, D A	NCA 2-665901	1732
51	UNIV CALIF-SAN FRAN	Holton, F M	ARC	Arnaud, C.	NCA 2-665902	1733
51	UNIV CALIF-SAN FRAN	Ellis, S	ARC	Riley, D A	NCA 2-665903	1734
51	UNIV CALIF-SAN FRAN	MacElroy, R D	ARC	Kuntz, I	NGT 05-029-800	1738
51	UNIV CALIF-SAN FRAN	Young, R S	HD-SB	Stoekentus W	NSG 7151	1739
51	UNIV OF CHICAGO	Daunton, N. G	ARC	Goldberg, J M	NGR 14-001-225	2228
51	UNIV OF CHICAGO	Soffen, G A	HD-SB	Fernandez, H	NSG 7303	2237
51	UNIV OF CONNECTICUT	Devincenzi, D L	HD-SB	Leadbetter, F R.	NSG 7450	1934
51	UNIV HOUSTON-HOUSTON	Schneider, H J	JSC	Zlatkis, A	NAS 9-15882	3962
51	UNIV HOUSTON-HOUSTON	Halstead, T W	HD-SB	Hendrix, D H	NSG 7300	3970
51	UNIV HOUSTON-HOUSTON	Devincenzi, D L	HD-SB	Fox, G F	NSG 7440	3972

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SI	UNIV HOUSTON-HOUSTON	Halstead, T W	HD-SB	Coules, J R	NSG 9042	3976
SI	UNIV OF LOUISVILLE	Rasmussen, D	ARC	Musacchia, N J	NAS 2-10510	2437
SI	UNIV OF LOUISVILLE	Holton, F M	ARC	Musacchia, N J	NSG 2325	2440
SI	UNIV OF LOUISVILLE	Halstead, T W	HD-SB	Musacchia, N J	NAGW 70	2436
SI	UNIV OF LOUISVILLE	Halstead, T W	HD-SB	Fuller, P M	NSG 7441	2442
SI	UNIV MD-EASTRN SHOR	Trafford, G H	WFC	Albano, M	NSG 6033	2616
SI	UNIV OF MIAMI	Rasmussen, D N	ARC	Loewenstein, W R	NAS 2-10524	2075
SI	UNIV MICH-ANN ARBOR	Ferandin, J	ARC	Kluger, M J	NAS 2-10534	2869
SI	UNIV MICH-ANN ARBOR	Ferandin, J	ARC	Ross, M	NAS 2-10535	2870
SI	UNIV MICH-ANN ARBOR	Halstead, T W	HD-SB	Nace, G W	NAGW 29	2861
SI	UNIV MICH-ANN ARBOR	Halstead, T W	HD-SB	Kaufman, P B	NAGW 34	2863
SI	UNIV MICH-ANN ARBOR	Devincenzi, D I	HD-SB	Rich, A	NSG 7452	2921
SI	UNIV MICH-ANN ARBOR	Halstead, T W	HD-SB	Ross, M	NSG 9047	2925
SI	UNIV NEW HAMPS-DURHAM	MacIroy, R D	ARC	Moore, B	NCC 2-27	3055
SI	U OKLA-HEALTH SCI CTR	Heinrich, M	ARC	Stone, H I	NAS 2-10408	3602
SI	U OKLA-HEALTH SCI CTR	Ferandin, J	ARC	Stone, H I	NAS 2-10526	3603
SI	U OKLA-HEALTH SCI CTR	Rasmussen, D N	ARC	Dowell, R I	NAS 2-10529	3604
SI	U OKLA-HEALTH SCI CTR	Lucid, S W	ISC	Nordquist, R I	NAS 9-15994	3605
SI	UNIV OKLAHOMA-NORMAN	Sandler, H	ARC	Stone, H I	NCA 2-580901	3615
SI	UNIV OF PENNSYLVANIA	Halstead, T W	HD-SB	Brown, A H	NGR 39-010-149	3750
SI	UNIV OF PITTSBURGH	Daunton, N G	ARC	Tomko, D I	NCA 2-592901	3760
SI	UNIV OF ROCHESTER	Morrison, D R	JSC	Barlow, G H	NAS 9-16187	3357
SI	UNIV SAN FRANCISCO	Young, D R	ARC	Furst, A	NCA 2-670902	1770
SI	UNIV SAN FRANCISCO	Kraft, I M	ARC	Benton, F A	NCC 2-47	1771
SI	UNIV OF SANTA CLARA	Mandel, A D	ARC	Caren, F D	NCA 2-685002	1773
SI	UNIV OF SANTA CLARA	Grindelap, R I	ARC	East, I	NCA 2-685003	1774
SI	UNIV OF SANTA CLARA	Hochstem, F I	ARC	Tomlinson, G A	NCA 2-685004	1775
SI	UNIV SO CAROLINA COL	Devincenzi, D I	HD-SB	Rohlfing, D I	NSG 7096	3804
SI	UNIV OF SOUTHERN CAL	Devincenzi, D I	HD-SB	Strahler, B I	NSG 7367	3807
SI	UNIV TENNESSEE-KNOX	Ferandin, J	ARC	Dunn, C D	NAS 2-10528	3825
SI	UNIV TEXAS-AUSTIN	Halstead, T W	HD-SB	Roux, S J	NSG 7480	4033
SI	UTEX MED BRANCH-GAL	Daunton, N G	ARC	Perachio, A A	NAG 2-26	4067
SI	UTEX MED BRANCH-GAL	Ferandin, J	ARC	Correia, M J	NAS 2-10502	4068
SI	UTEX MED BRANCH-GAL	Ferandin, J	ARC	Fabricant, J D	NAS 2-10513	4069
SI	UTEX HEALTH CTR HUS	Rasmussen, D	ARC	Booth, F	NAS 2-10500	4076
SI	UTEX HEALTH CTR HUS	Smith, M	JSC	Booth, F	NAS 9-15388	4077
SI	UNIV OF UTAH	Souza, K A	ARC	Jee, W S	NAS 2-10308	4086
SI	UNIV OF VIRGINIA	Holton, F M	ARC	Pitts, G C	NSG 2225	4231
SI	UNIV WISC-MADISON	Zill, I P	ARC	Tibbitts, I W	NSG 2405	4398
SI	UNIV WISC-MADISON	Devincenzi, D I	HD-SB	Fitch, W M	NSG 7521	4409
SI	UTAH STATE UNIV	Halstead, T W	HD-SB	Salisbury, F B	NSG 7567	4110
SI	WAKE FOREST UNIV	Ferandin, J	ARC	Hutchins, P M	NAS 2-10523	3400
SI	WAKE FOREST UNIV	Halstead, T W	HD-SB	Jaffe, M J	NAGW 96	3399
SI	WORCESTER POLY INST	Young, R S	HD-SB	Damelli, J I	NSG 7154	2843
SI	WRIGHT STATE UNIV	Daunton, N G	ARC	Crampton, G H	NCA 2-875002	3586
SI	YALE UNIVERSITY	Halstead, T W	HD-SB	Galston, A W	NSG 7290	1946
SI	BOSTON UNIVERSITY	Devincenzi, D I	HD-SB	Golubic, S	NSG 7588	2632
SI	COLORADO STATE UNIV	Hoffman, R A	JSC	Lett, J I	NAG 9-10	1818
SI	COLORADO STATE UNIV	Pitts, D	JSC	Smith, J A	NGT 06-002-800	1832
SI	FLORIDA STATE UNIV	Devincenzi, D I	HD-SB	Friedmann, F I	NSG 7337	2037
SI	OREGON STATE UNIV	Nachtwey, D S	JSC	Worrest, R C	NAS 9 14860	3626
SI	SAN JOSE STATE UNIV	Klein, H P	ARC	Weaver, F C	NCA 2-675003	1325
SI	TUSKIGEE INSTITUTE	Philpott, D F	ARC	Sapp, W J	NCC 2-12	1030
SI	UNIV CALIF-ANGELES	Daunton, N G	ARC	Markham, C H	NGR 05-007-418	1624
SI	UNIV CALIF-S BARBARA	Soffen, G A	HD-SB	Botkin, D B	NASW 3392	1746
SI	UNIV MD-EASTRN SHOR	Trafford, G H	WFC	Hung, Y W	NAC 6-4	2612
SI	UNIV OF SANTA CLARA	Deal, P H	ARC	Tomlinson, G A	NCA 2-685008	1778
SI	UTAH STATE UNIV	Nachtwey, D S	ISC	Caldwell, M M	NAS 9-14871	4103

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FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO
55	SOUTH DAKOTA STATE UNIV	Salomonson, A. V.	GSEC	Heilman, J. I.	NAG 5-37	3808
55	UNIV OF KANSAS	Jones, H. W.	ARC	Martinko, I. A.	NAG 2-57	2385
55	UNIV MID-EASTERN SHORE	Devincenzi, D. I.	HD-SB	Joshi, J. M.	NSG 7470	2618
56	BAYLOR COL OF MED	Souza, K. A.	ARC	Matthews, J. I.	NAS 5-10354	3853
56	BAYLOR COL OF MED	Alchuler, S. I.	JSC	Suki, W.	NAS 9-13737	3854
56	BAYLOR COL OF MED	Rippstein, W. J.	JSC	Duncan, W. C.	NAS 9-14407	3855
56	BAYLOR COL OF MED	Homick, J. I.	JSC	Igarashi, M.	NAS 9-14546	3856
56	BAYLOR COL OF MED	Leach, C. S.	JSC	Alfrev, C.	NAS 9-14662	3857
56	BAYLOR COL OF MED	Leach, C. S.	JSC	Criswell, B. S.	NAS 9-15457	3858
56	BAYLOR COL OF MED	Leach, C. S.	JSC	Dunn, C. D.	NAS 9-16180	3862
56	CASE WESTERN RESERVE	Weigand, A. J.	FERC	Gibbons, D. I.	NAG 3-12	3403
56	CASE WESTERN RESERVE	Weigand, A. J.	FERC	Hottel, I.	NAG 3-115	3416
56	CASE WESTERN RESERVE	Weigand, A. J.	FERC	Gibbons, D. I.	NAS 3-22443	3425
56	CASE WESTERN RESERVE	Weigand, A. G.	FERC	Gibbons, D. I.	NSG 3151	3441
56	CASE WESTERN RESERVE	Weigand, A. J.	FERC	Gibbons, D. I.	NSG 3282	3458
56	CLEMSON UNIV-CLEMSON	Weigand, A. J.	FERC	Park, J. B.	NAG 3-116	3793
56	CLEMSON UNIV-CLEMSON	Weigand, A. J.	FERC	Park, J. B.	NSG 3225	3797
56	COL MED & DENT NJ	Sharp, J. C.	ARC	Natelson, B. H.	NCC 2-40	3062
56	COLUMBIA UNIVERSITY	Wintucky, E. G.	FERC	Pawluk, R. J.	NAG 3-15	3160
56	DREXEL UNIVERSITY	Alchuler, S. I.	JSC	Kamel, I.	NAS 9-15915	3659
56	FLORIDA A&M UNIV	Alerescu, S.	GSEC	Fresh, F. A.	NAS 5-25165	2030
56	HARVARD UNIVERSITY	Leach, C. S.	JSC	Moore, ede, M. C.	NSG 9054	2683
56	HOWARD UNIVERSITY	Alerescu, S.	GSEC	Chang, P.	NAS 5-23799	2001
56	HOWARD UNIVERSITY	Yin, T. I.	GSEC	Ferguson, G. A.	NSC 5268	2015
56	HOWARD UNIVERSITY	Yin, T. I.	GSEC	Press, H. C., Jr.	NSC 5378	2018
56	INDIANA U. BLOOMINGTN	Greenleaf, J. I.	ARC	Ezondo, R.	NCA 2-335001	2280
56	JOHNS HOPKINS UNIV	Friedman, D. S.	GSEC	Long, D.	NAS 5-23732	2483
56	JOHNS HOPKINS UNIV	Friedman, D. S.	GSEC	Piro, P. A.	NAS 5-26085	2486
56	LINCOLN UNIV PA	Alerescu, S.	GSEC	Frankowsky, J. W.	NAS 5-23800	3684
56	MASS INST OF TECH	Winget, C. M.	ARC	Wurtman, R. J.	NGR 22-009-627	2759
56	MEHARRY MEDICAL COL	Alerescu, S.	GSEC	Braun, G.	NAS 5-23801	3515
56	MOREHOUSE COLLEGE	Alerescu, S.	GSEC	Barreras, R. J.	NAS 5-23571	2144
56	OHIO STATE UNIV	Nicogossian, A. I.	HD-11	Keller, M. D.	NGI 36-008-007	3508
56	PAST U. HERSHIFY MED	Keil, T. C.	ARC	Severs, W. B.	NSG 2122	3687
56	PENN STATE U. UNIV PK	Morrison, D. R.	ISC	Todd, P. W.	NAS 9-15584	3709
56	QUEENSBORO GH COMM C	Goldwater, D.	ARC	Yuster, R.	NCA 2-625902	3275
56	SO UNIV-BATON ROUGE	Sandler, H.	ARC	Ray, G.	NCC 2-33	2460
56	STANFORD UNIVERSITY	Holton, I. M.	ARC	Feldman, D.	NCA 2-745709	1402
56	STANFORD UNIVERSITY	Holton, I. M.	ARC	Feldman, D.	NCA 2-745802	1403
56	STANFORD UNIVERSITY	Sandler, H.	ARC	Popp, R.	NCC 2-1	1409
56	STANFORD UNIVERSITY	Sandler, H.	ARC	Meindl, J. D.	NCC 2-38	1417
56	STANFORD UNIVERSITY	Sandler, H.	ARC	Harrison, D. C.	NCC 2-51	1422
56	STANFORD UNIVERSITY	Sandler, H.	ARC	Harrison, D. C.	NCC 2-52	1423
56	STANFORD UNIVERSITY	Sandler, H.	ARC	Harrison, D. C.	NCC 2-70	1425
56	STANFORD UNIVERSITY	Sandler, H.	ARC	Harrison, D. C.	NGI 05-020-305	1443
56	STANFORD UNIVERSITY	Keil, T. C.	ARC	Luetscher, J. A.	NGR 05-020-456	1448
56	STANFORD UNIVERSITY	Sandler, H.	ARC	Harrison, D. C.	NGR 05-020-634	1450
56	STANFORD UNIVERSITY	Carle, G. C.	ARC	Angeli, J.	NGR 05-020-690	1453
56	STANFORD UNIVERSITY	Young, D. R.	ARC	Steele, C. R.	NSG 2092	1458
56	ST. UNY UPST MED CTR	Leon, H. A.	ARC	Landiaw, S. A.	NCA 2-765001	3348
56	TEMPLE UNIVERSITY	Nachtwey, D. S.	ISC	Urback, I.	NAS 9-14979	3742
56	TEXAS TECH UNIV	Holton, I. M.	ARC	Kenny, A. D.	NSG 2137	3957
56	TULANE UNIVERSITY	Weigand, A. J.	FERC	Weinstein, A. M.	NSG 3209	2464
56	UNIV OF ARIZONA	Mandel, A. D.	ARC	Meinke, W. F.	NSG 2381	1167
56	UNIV CALIF-IRVINE	Mandel, A. D.	ARC	Tilles, J. G.	NGR 05-041-012	1581
56	UNIV CALIF-IRVINE	Weigand, A. J.	FERC	Foltz, I. I.	NAS 3-21963	1580
56	UNIV CALIF-SAN DIEGO	Greenleaf, J. I.	ARC	West, J. B.	NGI 05-009-109	1690
56	UNIV CALIF-SAN DIEGO	Homick, J. I.	JSC	Bullock, T. H.	NSG 9048	1715

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56	UNIV CALIF-SAN DIEGO	Horrigan, D J	JSC	West, J B	NSG 9075	1716
56	UNIV CALIF-SAN FRAN	Heinrich, M	ARC	Goldfine, I	NCA 2-665001	1722
56	UNIV CALIF-SAN FRAN	Cowings, P S	ARC	Kamiya, J	NCA 2-665002	1723
56	UNIV CALIF-SAN FRAN	Sandler, H	ARC	Glantz, S A	NCA 2-665905	1756
56	UNIV CALIF-SAN FRAN	Philpott, D I	ARC	Arnaud, C	NCA 2-665906	1757
56	UNIV CALIF-SAN FRAN	Alchuler, S I	JSC	Genant, H K	NAS 9-15887	1719
56	UNIV CALIF-SAN FRAN	Alchuler, S I	JSC	Arnaud, C	NAS 9-16027	1720
56	UNIV OF FLORIDA	Weigand, A J	FERC	Hench, I L	NSG 3273	2073
56	UNIV HOUSTON-CL LAKE	Sawin, C F	JSC	Coleman, A F	NAS 9-15642	3978
56	UNIV HOUSTON-CL LAKE	Sawin, C F	JSC	Coleman, A F	NAS 9-16136	3979
56	UNIV OF IOWA	Hull, W I	JSC	Abboud, F M	NSG 9060	2329
56	UNIV OF KENTUCKY	Sandler, H	ARC	Knapp, C F	NSG 2318	2434
56	UNIV OF KENTUCKY	Booher, C R	JSC	Bhagat, P K	NAS 9-15452	2427
56	UNIV OF LOUISVILLE	Mandel, A D	ARC	Sonnenfeld, G	NCA 2-400901	2439
56	UNIV MARYLAND-COL PK	Mandel, A D	ARC	Goldsby, R A	NSG 2378	2580
56	UNIV OF MIAMI	Huntoon, C I	JSC	Epstein, M	NAS 9-15473	2083
56	UNIV MICH-ANN ARBOR	Homick, J I	JSC	Anderson, D J	NAS 9-15244	2895
56	UNIV SAN FRANCISCO	Rundel, R	JSC	Benton, F V	NAS 9-15152	1768
56	UNIV TENNESSEE-KNOX	Leach, C S	JSC	Dunn, C D	NAS 9-15164	3836
56	UNIV TENNESSEE-MEMPHIS	Schneider, H J	JSC	Autian, J	NAS 9-15670	3847
56	UNIV TEXAS-AUSTIN	Sherbiev, D W	FERC	Lagow, R J	NSG 3190	4018
56	UNIV TEX-BIOMED GRAD	Necogossian, A F	HD-SB	Key, M M	NGT 44-089-980	4037
56	UNIV TEX HEALTH CTR-SA	Leach, C S	JSC	George, J N	NAG 9-5	4075
56	UNIV TEX HEALTH CTR-DAL	Hull, W I	JSC	Blomquist, C G	NSG 9026	4074
56	UNIV WISC-MADISON	Young, D R	ARC	Mazess, R	NAS 2-10359	4368
56	UNIV WISC-MADISON	Young, D R	ARC	Mazess, R	NGR 50-002-051	4394
56	UNIV WISC-MADISON	Mandel, A D	ARC	Benton, G	NSG 2104	4397
56	UNIV WISC-MADISON	Friedman, D S	GSFC	Siedbank, M P	NAS 5-24385	4374
56	UNIV WISC-MADISON	Contron, N M	JSC	Schnoes, H K	NAS 9-15580	4390
56	VIRGINIA COMMONWELTH U	Hull, W I	JSC	Eckberg, D I	NSG 9063	4237
56	YALE UNIVERSITY	Mandel, A D	ARC	Evans, A S	NSG 2185	1943
59	ALABAMA A&M UNIV	Snyder, R S	MSFC	Savage, J	NSG 8064	1007
59	BAYLOR COL OF MED	Leach, C S	JSC	Suki, W	NAS 9-15891	3859
59	BAYLOR COL OF MED	Thirolf, R G	JSC	Chriswell, B S	NAS 9-16029	3860
59	BAYLOR COL OF MED	Thirolf, R G	JSC	Martin, R R	NAS 9-16040	3861
59	BRANDEIS UNIVERSITY	Homick, J I	JSC	Lackner, J R	NAS 9-15147	2634
59	CAL STATE U-HAYWARD	Greenleaf, J I	ARC	Brock, P J	NCA 2-290001	1292
59	COLORADO STATE UNIV	Hoffman, R A	JSC	Lett, J T	NSG 9045	1846
59	CORNELL UNIV-MED CTR	Sandler, H	ARC	Reis, D J	NSG 2259	3244
59	DREXEL UNIVERSITY	Larson, C	HD-SB	Dubin, S	NSG 7494	3671
59	EMORY UNIVERSITY	Gomersall, F W	ARC	McClure, H M	NAS 2-10627	2096
59	FLORIDA A&M UNIV	Winget, C M	ARC	Walker, C A	NSG 2029	2031
59	FLORIDA A&M UNIV	Winget, C M	ARC	Solman, K F	NSG 2183	2032
59	GEORGE WASHINGTON U	Halstead, T W	HD-SB	Waters, I	NASW 5165	1970
59	GEORGIA INST OF TECH	Quattrone, P D	ARC	Winnick, J	NAG 2-11	2103
59	GEORGIA INST OF TECH	Widmen, T J	ARC	Carden, J I	NSG 2323	2132
59	HOWARD UNIVERSITY	Riser, W T	KSC	Wang, Y C	NAG 10-2	2000
59	JOHNS HOPKINS UNIV	White, T	JSC	Walker, Y G	NAS 9-16030	2491
59	JOHNS HOPKINS UNIV	French, B	JSC	Swift, D I	NAS 9-16036	2492
59	KENTUCKY STATE UNIV	Hoffler, G W	KSC	Kloek, G	NSG 801	2425
59	LINCOLN UNIV-MO	Atwell, B H	NSII	Molnar, I G	NAG 13-1	2984
59	MARQUETTE UNIVERSITY	Smith, M C, Jr	JSC	Fitts, R H	NAS 9-15711	4361
59	MASS INST OF TECH	Dauntton, N G	ARC	Young, I R	NSG 2032	2776
59	MASS INST OF TECH	Quattrone, P D	ARC	Modell, M	NSG 2403	2782
59	MASS INST OF TECH	Evans, J S	JSC	Young, I R	NAS 9-15343	2737
59	MASS INST OF TECH	Sauer, R I	JSC	Karel, M	NAS 9-16008	2738
59	MIAMI UNIVERSITY	Homick, J I	JSC	Brooks, M	NAS 9-14538	3482
59	MIAMI UNIVERSITY	Evans, J F	JSC	Parker, D I	NAS 9-16049	3483

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			OFF LOC	FIRST PRINCIPAL INVESTIGATOR		
59	MIAMI UNIVERSITY	Evans, J	JSC	Parker, D E.	NAS 9-16051	3484
59	NEW YORK UNIVERSITY	Reeves, F A	MSFC	Johnson, A J	NAS 8-33099	3251
59	PURDUE UNIVERSITY	Zeitman, B B	ARC	Hoff, J E.	NSG 2401	2310
59	PURDUE UNIVERSITY	Zill, L P	ARC	Mitchell, C A	NSG 2404	2311
59	RUSH UNIVERSITY	Kirby, R	JSC	Gottlieb, G L	NAS 9-16035	2204
59	SAN FRAN STATE UNIV	Billingham, J	ARC	Seeger, C L	NCC 2-32	1320
59	SAN JOSE STATE UNIV	Wempe, T E	ARC	Clark, B	NCC 2-34	1339
59	SO DAKOTA SCHL MINES	Hall, W F	JSC	Gowen, R J	NAS 9-15522	3806
59	SO DAKOTA SCHL MINES	French, B	JSC	Gowen, R J	NAS 9-16028	3807
59	STANFORD UNIVERSITY	Silverman, M P	ARC	Young, L Y	NCA 2-745907	1406
59	STANFORD UNIVERSITY	Kirby, R	JSC	Popp, K	NAS 9-16030	1393
59	STANFORD UNIVERSITY	Devincenzi, D L	HD-SB	Bonner, W A	NGI 05-020-582	1444
59	STATE UNIV NY-ALBANY	Horrigan, D J	JSC	Farhi, L	NAS 9-15802	3306
59	STATE UNIV NY-ALBANY	Peck, E E	JSC	Farhi, L	NAS 9-16042	3308
59	STATE UNIV NY-ALBANY	Williams, J R	MSFC	VanOss, C J	NAS 8-32947	3304
59	STATE UNIV NY-BINGHAMTN	Souza, K A	ARC	Sulzman, F M	NAS 2-10621	3318
59	TEXAS TECH UNIV	Jackson, J T	JSC	Ayoub, M M.	NAS 9-16155	3955
59	TULANE UNIVERSITY	Mehler, W R	ARC	Brizze, K R	NSG 2139	2463
59	UNIV OF AKRON	French, B O	JSC	Herron, D F	NAS 9-16043	3534
59	UNIV ALA-BIRMINGHAM	Bannister, T C	MSFC	Chioveti, R, Jr	NAS 8-33014	1037
59	UNIV OF ARIZONA	Snyder, R S	MSFC	Bartels, P H	NAS 8-31948	1137
59	UNIV OF ARIZONA	Bannister, T C	MSFC	Bier, M	NAS 8-32950	1138
59	UNIV OF ARIZONA	Vitale, J A	HD-ET	Bier, M	NSG 7333	1181
59	UNIV CALIF-L ANGELES	French, B O	JSC	Wiberg, D M	NAS 9-16047	1605
59	UNIV CALIF-SAN DIEGO	Lintott, J	JSC	Ryan, A F	NAS 9-16033	1680
59	UNIV CALIF-SAN DIEGO	French, B	JSC	West, J B	NAS 9-16037	1681
59	UNIV CALIF-SAN DIEGO	White, T	JSC	Morgens, A R	NAS 9-16039	1687
59	UNIV CALIF-SAN FRAN	Souza, K A	ARC	Capn, C E	NAS 2-10350	1718
59	UNIV CALIF-SAN FRAN	Keil, L C	ARC	Dallman, M F	NCA 2-665806	1730
59	UNIV CALIF-SAN FRAN	White, T T	JSC	Scarle, D I	NAS 9-16038	1721
59	UNIV OF DENVER	Booher, C R	JSC	Sturm, R E	NAS 9-15991	1918
59	UNIV OF HAWAII-MANOA	Peck, E E	JSC	Darriso, J F	NAS 9-16048	2163
59	UNIV HOUSTON-HOUSTON	Tremor, J W	ARC	Cowles, J R	NAS 2-10087	3960
59	UNIV HOUSTON-HOUSTON	Sauer, R L	JSC	Cox, J F	NAS 9-11676	3961
59	UNIV ILLINOIS-URBANA	Thirolf, R G	JSC	Voss, F W	NAS 9-15328	2253
59	UNIV OF KENTUCKY	White, T	JSC	Bhagot, P K	NAS 9-16034	2428
59	UNIV OF KENTUCKY	Kirby, R	JSC	Bhattacharga, A	NAS 9-16045	2429
59	UNIV MICH-ANN ARBOR	Reschke, M F	JSC	Anderson, D J	NAS 9-15375	2896
59	UNIV NEVADA-DRI	Johnson, R D	ARC	Smiley, V N	NAG 2-14	3028
59	UNIV OKLA-HITH SCI CTR	Sandler, H	ARC	Stone, H I	NCC 2-24	3606
59	UNIV OF PACIFIC	Holton, F M	ARC	Roberts, W I	NCA 2-588002	1765
59	UNIV OF PENNSYLVANIA	Peck, E E	JSC	Brown, A H	NAS 9-15531	3747
59	UNIV OF PENNSYLVANIA	White, T T	JSC	Stejn, T D	NAS 9-16031	3749
59	UNIV SAN FRANCISCO	Souza, K A	ARC	Benton, F V	NAS 2-10161	1766
59	UNIV SAN FRANCISCO	Klein, H P	ARC	Satyanaravana, T	NCC 2-85	1772
59	UNIV TEXAS-DALLAS	Lintott, J	JSC	Blomquist, C G	NAS 9-16044	4054
59	UNIV TEX MED BRANCH-GAL	Leach, C S	JSC	Ziegler, M G	NAS 9-15565	4072
59	UNIV OF VIRGINIA	Souza, K A	ARC	Potts, G C	NAS 2-10195	4216
59	UNIV OF WASHINGTON	French, B O	JSC	Mlastala, M P	NAS 9-16052	4323
59	VIRGINIA COMMONWLTU	Kirby, R	JSC	Eckberg, D I	NAS 9-16046	4236
59	WASHINGTON UNIVERSTY	Holton, F A	ARC	Simmons, D J	NAS 2-10636	3005
59	WRIGHT STATE UNIV	French, B O	JSC	Petrofsky, J S	NAS 9-16041	3585
59	WRIGHT STATE UNIV	Nicogossian, A F	HD-SB	McCuen, R H	NGIT 36-024-790	3587
61	SAN JOSE STATE UNIV	Winget, C M	ARC	Holley, D C	NCA 2-675005	1327
61	SAN JOSE STATE UNIV	Daunton, N G	ARC	Fox, R A	NCA 2-675009	1330
61	SAN JOSE STATE UNIV	Suri, K P	ARC	Fox, R A	NSG 2339	1355
61	UNIV CALIF-DAVIS	Conners, M	ARC	Harrison, A A	NCC 2-48	1572
61	UNIV CALIF-SAN FRAN	Cowings, P S	ARC	Kamiya, J	NCA 2-665810	1731

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61	UNIV OF SANTA CLARA	Connors, M	ARC	Rakins, F	NCC 2-49	1782
61	UNIV OF UTAH	Sharp, J. C	ARC	Nielson, H. C	NSG 2350	4093
62	JOHNS HOPKINS UNIV	Patton, R. M	ARC	Brady, J. V	NGR 21-001-111	2497
62	PURDUE UNIVERSITY	Patton, R. M.	ARC	Castore, C. H.	NCA 2-605001	2303
69	BOSTON UNIVERSITY	Powell, C. A	LARC	Hellman, R. D.	NSG 1644	2629
69	MASS INST OF TECH	Daunton, N. G	ARC	Held, R. M	NGL 22-009-308	2748
69	OHIO STATE UNIV	Laubert, J. K	ARC	Rockwell, T. H	NAS 2-10047	3500
69	OHIO STATE UNIV	Dunn, R. S	ARC	Jagacinski, R. J	NSG 2179	3515
69	SAN JOSE STATE UNIV	Stewart, J. D	ARC	Clark, B	NCC 2-35	1340
69	SAN JOSE STATE UNIV	Hartzell, L. J	ARC	Clark, B	NCC 2-37	1341
69	STANFORD UNIVERSITY	Tanner, T. A.	ARC	Karamcheti, K	NCC 2-44	1419
69	STANFORD UNIVERSITY	Powell, C. A	LARC	Karamcheti, K	NAG 1-17	1358
69	TEXAS CHRISTIAN UNIV	Powell, C. A	LARC	Arnoult, M. D	NAG 1-22	3951
69	TUFTS UNIVERSITY	Palmer, F. A.	ARC	Chechile, R. A	NAG 2-51	2821
69	UNIV CALIF-SAN FRAN	Cowings, P. S	ARC	Narfeh, K	NCA 2-665007	1728
69	UNIV CALIF-SAN FRAN	Cowings, P. S	ARC	Kamiya, J	NCA 2-665904	1735
69	UNIV N CAR-GRNSBORO	Curry, R. E	ARC	Regan, J. E	NSG 2390	3398
69	UNIV TEXAS-AUSTIN	Patton, R. M	ARC	Helmreich, R. L	NSG 2065	4016
69	UTEX MED BRANCH-GAL	Reschke, M. F	JSC	Correia, M. J	NAS 9-14641	4071
69	UNIV OF VIRGINIA	Deloach, R	LARC	Cook, G	NSG 1509	4227
72	GEORGIA INST OF TECH	Scudder, L. R	LARC	Jacobson, J. F	NSG 3297	2139
72	OLD DOMINION UNIV	Batten, B. G	LARC	Strangways, R. S	NAG 1-66	4159
73	YALE UNIVERSITY	Roland, A	HD-1H	Theodore, F	NASW 3430	1940
76	CAL STATE U-HAYWARD	Holley, H	ARC	Huttman, F	NCA 2-290101	1293
79	GEORGETOWN UNIV	Tuttle, F. B	HD-11	Cheston, T. S	NASW 3397	1993
79	UNIV CALIF-BERKELEY	Tuyahov, A. J	HD-ET	Colwell, R. N	NSG 7522	1563
79	UNIV MICH-ANN ARBOR	Clevenson, S	LARC	Kalton, G	NAS 1-16107	2866
99	BOWIE STATE COLLEGE	Bailey, I	GSFC	Kirksey, C. H	NSG 5416	2477
99	BOWIE STATE COLLEGE	Pohly, J. G	HD-LU	Kirksey, C. H	NGT 21-027-012	2475
99	CAL STATE U-CHICO	Allen, H	LARC	Lewis, M. R	NAS 3-22172	1285
99	CAL STATE U-CHICO	Rich, W. B	HD-LI	Unavailable	NASW 2835	1286
99	COLLEGE OF WM & MARY	Anderson, A. F	LARC	Aceto, H. Jr	NAS 1-14972	4120
99	COLLEGE OF WM & MARY	Greene, R. F. Jr	LARC	Barnes, C. H	NAS 1-15899	4121
99	COLLEGE OF WM & MARY	Duberg, J. F	LARC	Aceto, H. Jr	NAS 1-16042	4123
99	COLLEGE OF WM & MARY	Morris, S. J	LARC	Barnes, C. H	NAS 1-16375	4124
99	COLUMBIA UNIVERSITY	Jennings, N	GSFC	Yavarkovskiy, J	NAS 5-25422	3168
99	EASTERN SHORE CNTY COL	Milliner, J. B	WFC	Layman, P	NAS 6-2964	4136
99	GEORGETOWN UNIV	Puttkamer, J. A	HD-MT	Cheston, T. S	NASW 3152	1992
99	HARVARD UNIVERSITY	Clark, T	GSFC	Lilley, A. E	NAS 5-25677	2646
99	HOWARD UNIVERSITY	Carter, C. H	HD-LU	Fan, D	NGT 09-011-060	2009
99	MASS INST OF TECH	Wempe, T. E	ARC	Sheridan, T. B	NSG 2118	2777
99	MASS INST OF TECH	Heninger, I. W	HD-SP	Bridge, H. S	NGL 22-009-638	2751
99	MORGAN STATE UNIV	Mundy, J. R	GSFC	Proctor, N. K	NGT 21-025-080	2513
99	NEW MEX ST U-IAS CR	Gomez, I. R	JSC	Guard, K	NAS 9-95504	3130
99	NEW MEX ST U-IAS CR	Thomas, C. N	MSFC	Unavailable	NAS 8-33764	3127
99	NEW YORK UNIVERSITY	Roberson, F	HD-ET	Fusfeld, H. I	NSG 7636	3266
99	OKLAHOMA STATE UNIV	Nixon, W. D	HD-LI	Wiggins, K	NASW 3313	3596
99	OLD DOMINION UNIV	Anderson, A. F	LARC	Mavgarden, E. M	NAS 1-14193	4162
99	PENN STATE U-UNIV PK	Irons, J	GSFC	Turner, B	NAS 5-26323	3704
99	PURDUE UNIVERSITY	Gordon, I	GSFC	Swain, P. H	NSG 5414	2321
99	SAN FRAN STATE UNIV	Tomberlin, K. A	ARC	Eisenberg, I	NCA 2-660001	1317
99	SOUTH DAKOTA STATE UNIV	Gordon, I	GSFC	Moore, D	NAS 5-24206	3809
99	STANFORD UNIVERSITY	Gevarter, W. B	HD-RT	Suppes, P	NAGW 6	1372
99	ST UNIV SYSTM OF ILL	Dolby, W	HD-FI	Unavailable	NASW 3060	2040
99	TEXAS A&M UNIVERSITY	Hancock, K. J	JSC	Harlan, J. C	NAS 9-15468	3926
99	TUFTS UNIVERSITY	Wempe, T. E	ARC	Kreifeldt, J. G	NCC 2-93	2822
99	UNIV CALIF-BERKELEY	Billingham, J	ARC	Welch, W. J	NCC 2-26	1529
99	UNIV CALIF-BERKELEY	Wempe, T. E	ARC	Stark, I	NCC 2-86	1532



**NASA'S UNIVERSITY PROGRAM  
APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING**

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO
99	UNIV CALIF-BERKELEY	Bollenbacher, G	EEFC	Sullivan, L A	NAG 3-111	1480
99	UNIV CALIF-BERKELEY	Heninger, L W	HD-SP	Price, P B	NGL 05-003-497	1538
99	HASTINGS COL OF LAW	Glazer, J H	ARC	Henke, D F	NCA 2-280001	1309
99	HASTINGS COL OF LAW	Glazer, J H	ARC	Wolcott, T	NCA 2-280801	1310
99	UNIV OF CENTRAL FLA	Thomas, C N	MSFC	Gunter, R D	NAS 8-33761	2044
99	UNIV OF CHICAGO	Heninger, L W	HD-SP	Meyer, P	NGL 14-001-258	2224
99	UNIV OF CHILE	Force, C A	GSFC	Diaz, F	NAS 5-1925	4424
99	UNIV OF CONNECTICUT	Bivins, R G	HD-ET	Wilde, D	NASW 3191	1930
99	UNIV OF DENVER	Ault, L A	HD-ET	Johnson, F D	NASW 3113	1919
99	UNIV HOUSTON-HOUSTON	Smith, M C	JSC	Bell, L	NAS 9-15944	3963
99	UNIV ILLINOIS-URBANA	Palmer, I A	ARC	Rouse, W B	NSG 2119	2260
99	UNIV OF KENTUCKY	Dolby, W	HD-ET	Unavailable	NASW 3039	2430
99	UNIV MARYLAND-COL PK	Truskowski, W	GSFC	Rieger, C S	NAS 5-25764	2543
99	UNIV MD-EASTRN SHORE	Oberholtzer, J D	WFC	Wutoh, J G	NAG 6-3	2611
99	UNIV MD-EASTRN SHORE	Floyd, J C	WFC	Smith, J C	NAS 6-2855	2614
99	UNIV OF NEW MEXICO	Bivins, R G	HD-ET	Unavailable	NASW 2936	3134
99	UNIV OF PITTSBURGH	Bivins, R G	HD-ET	Unavailable	NASW 3042	3758
99	UNIV OF SANTA CLARA	Margozzi, A P	ARC	Greeley, R	NCC 2-60	1783
99	UNIV OF SOUTHERN CAL	Bivins, R G	HD-ET	Mixer, R	NASW 3235	1793
99	UNIV TEXAS-DALLAS	Heninger, L W	HD-SP	Hanson, W B	NGL 44-004-130	4056
99	VIRGINIA POLY INST	Wempe, T F	ARC	Wierwille, W W	NAG 2-17	4249
99	VIRGINIA POLY INST	Gervin, J C	GSFC	Giles, R H	NAS 5-25935	4258
99	VIRGINIA POLY INST	Anderson, A F	ARC	Unavailable	NAS 1-15080	4255
99	VIRGINIA POLY INST	Deloach, R	ARC	Frair, I	NSG 1598	4285
99	VIRGINIA STATE UNIV	Owens, I C	ARC	Boese, A F	NAS 1-16079	4298