

COMPOSITE LIST OF PROJECTS

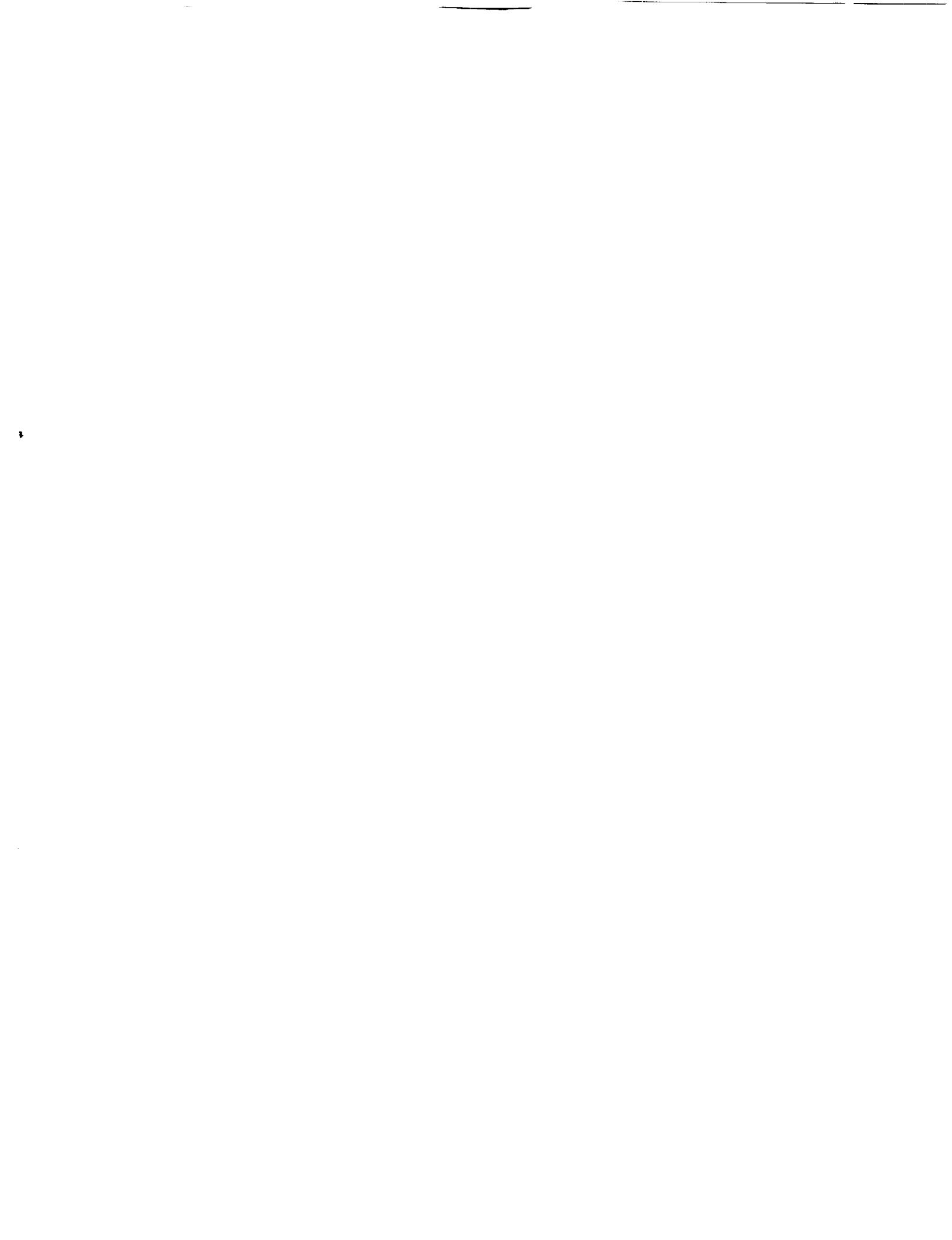
1983 to 1989



NASA Small Business Innovation Research Program

N93-27639
Unclass

(NASA-TM-104991) NASA SMALL
BUSINESS INNOVATION RESEARCH
PROGRAM. COMPOSITE LIST OF
PROJECTS, 1983 TO 1989 (NASA)
130 p



INTRODUCTION

Description of this document

The *NASA SBIR Composite List of Projects, 1983 to 1989*, includes all projects that have been selected for support by the Small Business Innovation Research (SBIR) program of the National Aeronautics and Space Administration (NASA) since the program's inception in 1983. The list describes 1232 Phase I and 510 Phase II contracts that had been awarded or were in negotiation for award in August 1990. The main body of the document is organized alphabetically by name of the small businesses. Four indexes cross-reference the document. The Index of Subjects lists projects by the technical areas covered by the program. The Index of States and Cities locates the firms geographically. The Index of Principal Investigators links the names of these key individuals to the firm or firms with which they have been associated. The Index of Contract Numbers relates the NASA contract identifier to the company performing the contract and serves as a cross-reference for the NASA center responsible for managing the project.

The objective of this listing is to provide information about the SBIR program to anyone concerned with NASA research and development activities. This includes researchers and managers of NASA projects and prime contractors who could benefit from the research conducted through SBIR. Industrial concerns and investors who may support further development and marketing of the results of SBIR projects are also part of the potential readership, as are small business firms that may wish to submit SBIR proposals and need information on the types of projects of interest to NASA. The information included has been issued by NASA solely for the purpose of information dissemination. While it is the best available at the date of preparation, August 1990, NASA does not guarantee its accuracy. As the comments in the listing demonstrate, participating firms occasionally change names and/or addresses.

NASA has also published compendiums of project abstracts for most program years. These and additional copies of this listing can be obtained by writing to the Director, SBIR Program, Code CR, NASA HQ, Washington, DC 20546 or to the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161. Readers are also encouraged to contact the small businesses for additional information.

The NASA Small Business Innovation Research program

Initiated in 1983, the NASA SBIR program supports innovative R&D projects of interest to the agency and the aerospace community with funds set aside from the agency's research and development budget. Since fiscal year 1986, as required by law, that funding set-aside has been 1.25 percent of NASA's annual budget for extramural R&D. For FY1989, \$52 millions were provided to the NASA SBIR program resulting in a total of \$207 millions for the seven years of the program to date. Since the NASA budget supports, in large part, the accomplishment of dedicated mission and R&D goals and has limited flexibility in the optional use of these specifically budgeted funds, the SBIR program constitutes a significant portion of the agency's discretionary research effort.

Program management is provided by the SBIR Office in the NASA Headquarters Office of Commercial Programs. Nine NASA Field Centers participate by sponsoring technical subtopics, evaluating proposals, letting contracts, and managing SBIR projects.

Presentation of Information

Serial number → R101
Name of firm → **Reticulations, Inc**
Address → 123 Westminster Way
Merryville, MA 02173
Telephone number → 617-861-4567

Project title → * Neural Networking Robots
Project number → 88-1-05.01-9999 NASA JPL
Contract numbers → I: NAS7-8888 \$ 49,000 II: NAS7-8889 \$475,075
Principal Investigator → Samuel B. Johnson

← NASA center
← Contract amounts

-
- Serial Number:** For this listing, each firm has been assigned a sequential identifying number, from A001 to Z001, in ascending order.
- Name of firm:** The name of the small business to which the listed contracts were issued. All firms which have participated in the program are included, even if they are known to have gone out of business or been taken over by another company. Known changes are noted in italics.
- Address and telephone number:** The information shown is the most current available. When a firm has branches in different states, the branches are shown as separate entries. Where the telephone number is replaced by the comment "Last known address," NASA is no longer able to contact the firm. When NASA has received specific information that a company has dissolved, the comment is "No longer in business."
- The **Index of States and Cities** lists participating firms by their location.
- Project title:** When a project has proceeded to Phase II, the Phase II title is used and an asterisk is placed in the margin. If a Phase II project was carried out under a different company name, the Phase I project is described under the name of the company that received the Phase I contract. The project title has an asterisk, and there is a note after the company name referring to where the Phase II contract is listed.
- Project number:** The project listing for each company is organized by project number. The first two digits indicate the **program year**, which encompasses all Phase I projects that result from an annual Program Solicitation and those projects subsequently selected for continuation into Phase II. The fourth through seventh digits indicate the **technical topic and subtopic** for that program year, as described in the Program Solicitation. While subtopics change annually, depending on the interests of the agency, the topic number references have remained the same. They are listed below.
- To aid readers interested in locating projects in particular technical areas or disciplines, an **Index of Subjects** is included. Project titles and the serial number of the responsible small businesses are listed according to the technical subject of each project. These subjects were consolidated from the subtopics presented in all the Program Solicitations issued by NASA SBIR. Each project relates to a technical subject through the subtopic selected by the proposer.

Technical topics

- | | |
|---|---|
| 01 Aeronautical Propulsion and Power | 09 Spacecraft Systems and Subsystems |
| 02 Aerodynamics and Acoustics | 10 Space Power |
| 03 Aircraft Systems, Subsystems, and Operations | 11 Space Propulsion |
| 04 Materials and Structures | 12 Human Habitability and Biology in Space |
| 05 Teleoperators and Robotics | 13 Quality Assurance, Safety, and Check-out for |
| 06 Computer Sciences and Applications | Ground and Space Operations |
| 07 Information Systems and Data Handling | 14 Satellite and Space Systems Communications |
| 08 Instrumentation and Sensors | 15 Materials Processing, Microgravity, and
Commercial Applications in Space. |
-

NASA center: The following NASA field centers are responsible for implementing the NASA SBIR program:

ARC	Ames Research Center, Moffett Field, CA 94035
GSFC	Goddard Space Flight Center, Greenbelt, MD 20771
JPL	Jet Propulsion Laboratory, Pasadena, CA 91109
JSC	Johnson Space Center, Houston, TX 77058
KSC	Kennedy Space Center, FL 32899
LaRC	Langley Research Center, Hampton, VA 23665
LeRC	Lewis Research Center, Cleveland, OH 44135
MSFC	Marshall Space Flight Center, AL 35812
SSC	Stennis Space Center, MS 39529

The **Index of Contract Numbers** is organized by center since each center has a unique prefix for numbering its contracts: 1 = LaRC; 2= ARC; 3 = LeRC; 5 = GSFC; 7 = JPL; 8 = MSFC; 9 = JSC; 10 = KSC; and 13 = SSC.

Contract numbers: The number of the contract issued by the NASA center is preceded by I or II to indicate the relevant phase. Where an award has been announced but a contract has not yet been issued, "TBD" replaces the number.

For **Phase I** of a NASA SBIR project, the objectives are to establish the feasibility and merit of an innovative scientific or technical concept proposed by a small business responding to a need or opportunity delineated in the annual program solicitation. Contracts for Phase I are awarded through a competitive selection process.

Phase II of a project is the principal research and development effort, having as its purpose the further development of the proposed ideas to meet the particular program needs. Only Phase I contractors can submit proposals to continue into Phase II. The selection of Phase II awards considers the scientific and technical merit and feasibility evidenced by the first phase, the expected value of the research to the agency, and the competence of the firm.

In **Phase III**, a small business pursues commercial applications of the results of its SBIR-funded project or obtain follow-on R&D or production contracts with NASA or other federal agencies. However, Phase III activities are not supported by SBIR program funding.

Contract amounts: Phase I contracts are generally limited to six months in duration and \$50,000, while contracts for Phase II, the major R&D effort, are normally limited to two years' duration and funding of not more than \$500,000. NASA may make justifiable exceptions.

Principal Investigator: When a project has proceeded to Phase II, the Phase II principal investigator is named. All principal investigators who have participated in the program are listed in the **Index of Principal Investigators**.



TABLE OF CONTENTS

Firms from A001 to A093	1
ACA Industries to Axiomatics Corp.	
Firms from B001 to B022	11
B & D Instruments and Avionics to Business and Technological Systems	
Firms from C001 to C059	14
CCE-Robotics to Crystallume	
Firms from D001 to D027	21
DCW Industries to Dynamics Technology	
Firms from E001 to E039	24
E-Tek Dynamics to Extrude Hone Corporation	
Firms from F001 to F020	30
FTP Software to Frederick A. Costello	
Firms from G001 to G021	33
G & C Systems to Gums Associates	
Firms from H001 to H012	35
H & N Instruments to Hyperfine	
Firms from I001 to I028	37
ISM Technologies to Ithaco	
Firms from J001 to J006	40
JAI Associates to Johnson Engineering Corporation	
Firms from K001 to K005	41
KMS Fusion to Kuck & Associates	
Firms from L001 to L011	41
L. W. Fleckstein to Lynntech	
Firms from M001 to M057	43
M. W. Aerospace to Multisignal Technology Corporation	
Firms from N001 to N020	49
NDE Technology to Numedloc	
Firms from O001 to O014	51
OI Corporation to Orbital Technologies Corporation	
Firms from P001 to P040	53
P. C. Krause & Associates to Pulse Systems	

Firms from Q001 to Q009	58
Q-Dot to Quintus Computer Systems	
Firms from R001 to R023	59
R Scan Corporation to Rupprecht & Patashnick Company	
Firms from S001 to S083	62
S. R. Taylor & Associates to Systems Technology	
Firms from T001 to T035	73
TNA Technologies to Turbulence Prediction Systems	
Firms from U001 to U007	77
UFA to Universal Energy Systems	
Firms from V001 to V005	78
VRA to Viking Instruments Corporation	
Firms from W001 to W007	79
Waddan Systems to Winzen International	
Firm X001	79
X2Y2 Corporation	
Firm Z001	80
ZeroOne Systems	
Index of Subjects	81
Index of States and Cities	105
Index of Principal Investigators	113
Index of Contract Numbers	119

NASA SBIR

COMPOSITE LIST OF PROJECTS

1983 to 1989

A

A001

ACA Industries, Inc.

28603 Trailriders Drive
Rancho Palos Verdes, CA 90274
213-539-7121

* Joined Wing Aircraft

83-1-02.07-9224	NASA ARC
I: NAS2-11725	\$ 49,793
II: NAS2-12242	\$679,912
Julian Wolkovitch	

Joined-Wing Tiltrotor Aircraft Study

88-1-02.09-7121	NASA ARC
I: NAS2-12988	\$ 49,827
Julian Wolkovitch	

Very-High-Altitude Aircraft with Joined Wings

89-1-03.08-7121	NASA ARC
I: NAS2-13156	\$ 49,995
Julian Wolkovitch	

A002

AETA Corporation

117 Silver Street
Dover, NH 03820
Last Known Address

Piezoelectric Sensor and Microprocessor Array to Measure B/P
in Astronauts

85-1-12.02-3686A	NASA KSC
I: NAS10-11287	\$ 49,376
Fred K. Manasse	

A003

AKM Associates, Inc.

635 Mariner's Island Boulevard, #205
San Mateo, CA 94404
415-571-7901

Reusable Software Base Development - Source Code Tailoring

88-1-06.02-7910	NASA GSFC
I: NAS5-30488	\$ 49,000
Carl Ponder	

A004

AMS Corporation

4706 Papermill Road
Knoxville, TN 37919
615-588-9709

A Low-Power Fourier Transform Processor

84-1-07.06-9709	NASA GSFC
I: NAS5-28635	\$ 49,368
T. W. Kerlin	

A005

ANCO Engineers, Inc.

9937 Jefferson Boulevard
Culver City, CA 90232-3591
213-204-5050

* Providing Structural Modules with Self-Integrity Monitoring

84-1-04.09-5050	NASA JPL
I: NAS7-937	\$ 49,922
II: NAS7-961	\$439,000
Paul Ibanez	

* Tether Deployment Monitoring System

85-1-09.02-5050	NASA MSFC
I: NAS8-36268	\$ 49,940
II: NAS8-37336	\$464,000
Paul Ibanez	

* Instrumented Torque Wrench Systems

86-1-13.08-5050	NASA KSC
I: NAS10-11372	\$ 49,997
II: NAS10-11501	\$493,250
Paul Ibanez	

Damage Inspection and Verification of Tethers

87-1-09.08-5050A	NASA MSFC
I: NAS8-37618	\$ 48,864
George E. Howard	

A006

AOTF Technology, Inc.

540 Weddell Drive #6
Sunnyvale, CA 94089
408-734-5435

* AOTF Enhancements for a Space-Based Spectropolarimeter

88-1-08.11-5435A	NASA JPL
I: NAS7-1052	\$ 49,227
II: NAS7-T B D	\$ T B D
Patrick Katzka	

Adaptive, Rapid-Scanning Imaging Spectropolarimeter

89-1-08.11-5435	NASA JPL
I: NAS7-1078	\$ 50,000
Patrick Katzka	

A007

APA Optics, Inc.

2950 N.E. 84th Lane
Blaine, MN 55434
612-784-4995

* Integrated Optic Device for Laser Beam Scanning

85-1-06.14-4995	NASA JSC
I: NAS9-17579	\$ 47,885
II: NAS9-17813	\$496,995
W. T. Boord	

* Extravehicular-Mobility-Unit, Helmet-Mounted Display

87-1-12.01-4995	NASA JSC
I: NAS9-17929	\$ 48,970
II: NAS9-18163	\$495,000
David E. Stoltzman	

High-Speed Optoelectronic Switch 87-1-14.01-4995B I: NAS3-25424 Lynn D. Hutcheson	NASA LaRC \$ 49,776	A011 Accel Catalysis, Inc. Technology Innovation Center Iowa City, IA 52242 319-335-1359
Surface-Acoustic-Wave Device for Wide-Angle Laser Scanning 88-1-09.09-4995 I: NAS9-18084 Steven M. Arnold	NASA JSC \$ 49,996	A Catalytic, Thermal Management System for Hydrogen-Fueled Injection Vehicles 89-1-11.01-4577 I: NAS3-25887 Katherine B. Gloer
Atomic-Layer CVD of Yttrium-Barium-Cuprate over a Low-Dielectric Substrate 89-1-04.16-4995 I: NAS7-1094 M. Asif Khan	NASA JPL \$ 49,940	A012 Accelerated Processors, Inc. 2685 Marine Way, Suite 1401 Mountain View, CA 94043 415-961-4900
Flat-Panel, Multicolor Display Based on Integrated Optic Scanner 89-1-09.09-4995 I: NAS9-18303 William Phillips	NASA JSC \$ 49,945	* Accelerate an Existing IBM 3084 Object Code from Fortran 77 86-1-06.03-4900 I: NAS8-37310 II: NAS8-37404 Hal Nissley
A008 APD Cryogenics, Inc. 1833 Vultee Street Allentown, PA 18103 215-791-6700		A013 Accurate Automation Corporation 409 Chestnut Street, Suite A-180 Chattanooga, TN 37402 615-267-5959
* Three-Stage, Linear, Split-Stirling Cryocooler with a 1K to 2K Magnetic Cold Stage 87-1-08.12-3708A I: NAS2-12643 II: NAS2-13180 Ralph C. Longsworth	NASA ARC \$ 46,780 \$430,177	Advanced Telerobotic Concepts Using Neural Networks 89-1-05.09-5959A I: NAS8-38443 Craig T. Harston
A009 ARD Corporation 9151 Rumsey Road Columbia, MD 21045 301-596-5845		A014 Acton Research Corporation P.O. Box 215 Acton, MA 01720 617-263-3584
* Brain Wave Measures of Workload in the Advanced Cockpit 83-1-03.09-5845 I: NAS1-17576 II: NAS1-18019 Richard L. Horst	NASA LaRC \$ 49,669 \$486,651	* Automatic Contamination Evaluator for Optical Surfaces 83-1-08.16-3584 I: NAS8-35845 II: NAS8-35257 Robert D. Fancy
Three-Dimensional Viewing in Teleoperated Systems 83-1-05.01-5845 I: NAS7-921 Andrew D. Lecocq	NASA JPL \$ 50,000	A015 Ada Technologies, Inc. 304 Inverness Way South, Suite 480 Englewood, CO 80112 303-792-5615
Polar Graphics for Rapid Assessment of Multivariate Information 84-1-03.09-5845 I: NAS2-12095 Robert C. Munson	NASA ARC \$ 49,966	Incipient Combustion Monitor for Zero-Gravity Environments 89-1-12.02-5615 I: NAS8-38439 James A Armstrong
A010 ATAC P.O. Box 370 301 East Evelyn Street, Suite B 415-965-8801		A016 Adaptive Machine Technologies 1224 Kinnear Road #130 Columbus, OH 43212 614-486-7741
An Expert System for Particle Analysis 86-1-08.28-8801 I: NAS2-12561 Daniel E. Wolf	NASA ARC \$ 48,000	Large-Scale, Space-Based Compliant Manipulator 86-1-05.01-7741 I: NAS1-18406 Eric Ribble

A017
Adiabatics, Inc.
630 South Mapleton
Columbus, IN 47201
812-372-5052

* Adiabatic, Wankel-Type Rotary Engines
84-1-01.03-5052 NASA LeRC
I: NAS3-24535 \$ 49,965
II: NAS3-24880 \$437,000
Roy Kamo

A018
Advanced Communications Technology
1209 Goth Lane
Silver Spring, MD 20904
301-384-3759

* Viewcache: an Incremental Pointer-Based Access Method for
Distributed Databases
87-1-07.06-3759 NASA GSFC
I: NAS5-30265 \$ 49,980
II: NAS5-30628 \$498,775
Stephen Kelly

A019
Advanced Control Technologies
182 Edgewater Circle
Gallatin, TN 37060
615-256-5272

Three-Dimensional Vision Algorithm for Direct Transformation
from Image Space to Robot Joint Space
86-1-05.01-0520 NASA MSFC
I: NAS8-37307 \$ 49,997
Mary S. Waggener

New Solution Method for Robot Kinematic Equations
87-1-05.02-5272 NASA MSFC
I: NAS8-37616 \$ 49,988
Mary S. Waggener

A020
Advanced Decision Systems
1500 Plymouth Street
Mountain View, CA 94043-1230
415-960-7300

Adjustable Autonomy for Hazardous Robotic Operations
87-1-05.02-3912 NASA JSC
I: NAS9-17926 \$ 48,200
Marcel Schoppers

* Architectures for Semi-Autonomous Planning
87-1-05.02-3912A NASA JSC
I: NAS9-17927 \$ 49,575
II: NAS9-18162 \$500,000
Daniel Shapiro

Multilevel Motion Processing for Autonomous Helicopters
88-1-03.04-7300 NASA ARC
I: NAS2-12967 \$ 49,237
Daryl T. Lawton

The Space Station as Robot: A Reactive Planning Approach to
OMS Problems
88-1-05.05-7300 NASA JSC
I: NAS9-18083 \$ 49,964
Daniel Shapiro

A021
Advanced Dimensional Displays
16742 Stagg Street, Suite 102
Van Nuys, CA 91406
818-785-6563

Real-Time Autostereoscopic Display
85-1-06.02-6563 NASA ARC
I: NAS2-12350 \$ 49,789
Craig Neuswanger

A022
Advanced Diversified Technology, Inc.
5965 Pacific Center Boulevard, Suite 715
San Diego, CA 92121
619-925-5266

Protective Coatings for Components Used in Space
89-1-04.15-5301 NASA JSC
I: NAS9-18301 \$ 50,000
Charles Y. Lin

A023
Advanced Energy Dynamics
14 Tech Circle
Natick, MA 01760
617-653-8112

Electrostatic Fractionation of Natural and Processed Lunar
Solids in Space
87-1-04.12-8112 NASA JSC
I: NAS9-17928 \$ 50,000
Donald E. Heyburn

A024
Advanced Energy Technology, Inc.
16966 Cloudcroft Drive
Poway, CA 92064
619-455-4310

New Thermionic Converter for Out-of-Core Space Power
System
89-1-10.01-4310 NASA LeRC
I: NAS3-25875 \$ 50,000
Gary O. Fitzpatrick

A025
Advanced Fuel Research, Inc.
P.O. Box 18343
East Hartford, CT 06118
203-528-9806

In-Situ Characterization of the Size and Composition of
Atmospheric Aerosols
85-1-08.12-9806 NASA LaRC
I: NAS1-18206 \$ 49,956
Peter R. Solomon

A026
Advanced Material Corporation
c/o Mellon Inst 4400 Fifth Ave
Pittsburgh, PA 15213-2639
412-268-5651

Lightweight, Permanent-Magnet Actuators and Manipulators
88-1-05.03-5649 NASA MSFC
I: NAS8-38044 \$ 49,257
E. B. Boltich

A027

Advanced Materials Design, Inc.
1291 E Cumberland Avenue
West Lafayette, IN 47906
317-497-1049

Software System for Predicting Engineering Properties of Polymer Matrix Resins
88-1-04-01-1049 NASA LaRC
I: NAS3-25567 \$ 49,900
Alok K. Kulshreshtha

A028

Advanced Projects Research, Inc.
5301 N Commerce Avenue, Suite A
Moorpark, CA 93021
805-529-8848

* An Oblique-Detonation-Wave, Ram-Accelerator-Driven Hypersonic Test Facility
88-1-02-05-8848 NASA LaRC
I: NAS1-18802 \$ 48,300
II: NAS1-19098 \$499,954
J. W. Humphrey

A029

Advanced Research and Applications Corp.
425 Lakeside Drive
Sunnyvale, CA 94086-4701
408-733-7780

* Quantitative Experimental Stress Tomography Laboratory System
85-1-04-10-7780 NASA LaRC
I: NAS1-18201 \$ 49,679
II: NAS1-18480 \$499,870
James H. Stanley

* Dual-Energy Detector Package for Advanced Structures
88-1-04-09-7780 NASA LaRC
I: NAS1-18830 \$ 42,360
II: NAS1-19093 \$496,000
Robert N. Yancey

Miniature, Biogenic-Element Analyzer
89-1-08-10-7780 NASA ARC
I: NAS2-13169 \$ 49,913
Russell E. Stachowski

Automated Assessment of VLSI Circuits for Radiation Hardness and Reliability
89-1-13-07-7780 NASA JPL
I: NAS7-1083 \$ 49,994
Leslie J. Palkuti

A030

Advanced System Technologies
12200 E Briarwood Avenue, Suite 260
Englewood, CO 80112
303-790-4242

* Integrated Modeling Tool for Performance Engineering of Complex Computer Systems
85-1-06-06-4242 NASA JPL
I: NAS7-959 \$ 49,244
II: NAS7-995 \$475,000
Gary J. Wright

* Expert Assistant for Integrated Timing and Reliability Design Analysis
88-1-06-02-4242A NASA GSFC
I: NAS5-30502 \$ 49,554
II: NAS5-T B D \$ T B D
Robert T. Goettge

A031

Advanced System Technologies
5113 Leesburg Pike, Suite 514
Falls Church, VA 22041
703-845-0040

An Interactive, Algorithm Design Tool for Embedded Multiprocessor Systems
88-1-07-06-0040 NASA LaRC
I: NAS1-18809 \$ 45,432
Duane R. Ball

A032

Advanced Technologies, Inc.
812 Middle Ground Blvd
Newport News, VA 23606
804-873-3017

Soft Hub for Bearingless Rotors
89-1-02-07-3017A NASA ARC
I: NAS2-13157 \$ 49,329
Peter G. Dixon

A033

Advanced Technology Laboratories
8027 Leesburg Pike, Suite 700
Vienna, VA 22180
703-442-8214

A 10 to the 15th Bit Random Access Optical Memory for Spacecraft
83-1-07-02-8214 NASA JPL
I: NAST-928 \$ 48,310
Marc A. Friedlander

A034

Advanced Technology Materials, Inc.
520-B Danbury Road
New Milford, CT 06776
203-355-2681

Improved CVD for SiC Fibers
88-1-04-01-2681 NASA LaRC
I: NAS3-25569 \$ 49,974
Ward C. Stevens

* Composite High-Tc Superconductive Bolometer
88-1-08-13-2681 NASA GSFC
I: NAS5-30598 \$ 50,000
II: NAS5-T B D \$ T B D
Charles P. Beetz

* Fabrication of Multifilament Conductors: CVD Processing of High-Tc Superconducting Composite Fibers
88-1-10-06-2681 NASA MSFC
I: NAS8-38023 \$ 49,750
II: NAS8-38485 \$499,380
Peter S. Kirlin

Novel Process for Thin-Film Growth of Yttrium-Barium-Cuprate
89-1-04-17-2681 NASA LaRC
I: NAS3-25868 \$ 50,000
Peter S. Kirlin

Novel Mercury-Cadmium-Telluride Growth Process
89-1-08-01-2681 NASA JPL
I: NAST-1075 \$ 49,988
James D. Parsons

A035
Aerochem Research Laboratories, Inc.
P.O. Box 12
Princeton, NJ 08542
609-921-7070

Turbulent Mixing of Gases in a Simulated Combustor
84-1-01.02-7070 NASA LeRC
I: NAS3-24534 \$ 49,925
Charles H. Berman

Supersonic Combustion Enhancement by a Nonequilibrium
Plasma Jet
86-1-03.09-7070 NASA LaRC
I: NAS1-18404 \$ 50,000
Hartwell F. Calcote

* Direct Computation of Turbulence Noise
87-1-02.12-7070 NASA LaRC
I: NAS1-18622 \$ 50,000
II: NAS1-18849 \$349,798
Charles H. Berman

Computer Simulation and Design of Jet-Noise Suppressors
89-1-02.10-7070 NASA LeRC
I: NAS3-25829 \$ 46,033
Charles H. Berman

A036
Aerodyne Products Corporation

76 Treble Cove Road
North Billerica, MA 01862
508-663-7411

A Micrograviti Film Processor
86-1-12.04-9500 NASA JSC
I: NAS9-17734 \$ 50,000
David E. Willoughby

A037
Aerodyne Research, Inc.
45 Manning Road
Billerica, MA 01821
508-663-9500

Holographic Detection of Combustion Stream Droplets
83-1-01.02-9500 NASA LeRC
I: NAS3-24094 \$ 49,950
H. John Caulfield

* Rayleigh Scattering as a High-Temperature Combustion
Diagnostic Method
83-1-01.02-9500 NASA LeRC
I: NAS3-24093 \$ 49,952
II: NAS3-24613 \$433,393
Kurt D. Annen

Automated Object-Scan System for a Three-Dimensional CRT
84-1-06.02-9500 NASA ARC
I: NAS2-12084 \$ 49,926
Edwin S. Gaynor

* Optimal Silicon-Carbide Production
84-1-08.09-6500 NASA LeRC
I: NAS3-24531 \$ 49,897
II: NAS3-23891 \$500,000
Joda C. Wormhoudt

* An Open-Path-Diode-Laser Flux Meter for Trace Gases of
Biogenic Origin
84-1-12.06-9500 NASA ARC
I: NAS2-12117 \$ 49,858
II: NAS2-12433 \$373,000
Alan C. Stanton

On-Line Nutrient Analysis
85-1-12.10-9500 NASA ARC
I: NAS2-12358 \$ 49,940
Donald Frankel

Ruby Crystal, Chlorophyll Fluorometer for Measurements of
Photosynthesis Rates
87-1-08.04-9500 NASA ARC
I: NAS2-12776 \$ 49,300
Paul Kebabian

Temperature and Shock-Position Sensor for High-Pressure,
Oxygen Systems
89-1-13.06-9500 NASA JSC
I: NAS9-18302 \$ 49,840
Kurt D. Annen

A038
Aerometrics, Inc.
894 Ross Drive, Unit #105
Sunnyvale, CA 94089
408-745-0321

* Fuel Atomization and Air-Fuel Interactions in a Turbulent
Environment
85-1-01.01-8887 NASA LeRC
I: NAS3-24844 \$ 49,990
II: NAS3-25204 \$379,000
William D. Bachalo

* Diagnostics Development for the Characterization of Liquid Fuel
Rocket Engine Injector Atomization
86-1-11.08-8887 NASA MSFC
I: NAS8-37323 \$ 49,990
II: NAS8-37403 \$478,581
William D. Bachalo

* Advanced Instrumentation for Aircraft Icing Research
87-1-03.01-8887 NASA LeRC
I: NAS3-25348 \$ 49,900
II: NAS3-25635 \$487,519
William D. Bachalo

Diagnostics for Rocket Engine Spray Characterizations
87-1-11.03-8887 NASA MSFC
I: NAS8-37617 \$ 49,990
William D. Bachalo

Simultaneous Measurement of Temperature, Size, and Velocity
of Drops in Sprays
89-1-11.01-0321A NASA LeRC
I: NAS3-25830 \$ 49,922
W. D. Bachalo

A039
Aerospace Design & Development, Inc.
P.O. Box 672
Niwot, CO 80544
303-530-2888

Supercritical, Cryogenic, Self-Contained Breathing Apparatus
89-1-13.04-2888 NASA KSC
I: NAS10-11653 \$ 49,692
H. L. Gier

A040
Agave Analytics
8726D S Sepulveda Boulevard, #B71
Los Angeles, CA 90045
213-840-4569

* Remote Monitoring Indicators of Plant Stress
88-1-12.10-4569 NASA KSC
I: NAS10-11560 \$ 50,000
II: NAS10-11668 \$499,693
Robert Woodhouse

A041

Aker Industries - Was Energy Research & Generation
952 57th Street
Oakland, CA 94068
415-658-7248

Controlled-Density, Composite Carbide Structural Ceramics
87-1-04-01-9785 NASA LeRC
I: NAS3-25406 \$ 50,000
Glendon M. Benson

A042

Alabama Cryogenic Engineering, Inc.
P.O. Box 2470
Huntsville, AL 35804
205-536-8629

* Long-Lifetime, Spaceborne Closed-Cycle Cryocooler
83-1-09-19-6276 NASA MSFC
I: NAS8-35850 \$ 45,442
II: NAS8-35254 \$499,975
John B. Hendricks

* Adiabatic Demagnetization Refrigerator for Use in Zero Gravity
84-1-08-07-8629 NASA GSFC
I: NAS5-28641 \$ 49,878
II: NAS5-29418 \$495,000
John B. Hendricks

* A Helium-3/Helium-4 Dilution Cryocooler Operation in Zero Gravity
84-1-09-19-8629 NASA MSFC
I: NAS8-35273 \$ 49,987
II: NAS8-37260 \$496,000
John B. Hendricks

* A Small, Single-Stage Orifice, Pulse-Tube Cryocooler
86-1-08-03-8629A NASA JPL
I: NAS7-983 \$ 49,998
II: NAS7-1031 \$471,707
John B. Hendricks

Current Leads for Superconducting Magnets

88-1-10-06-8629 NASA JPL
I: NAS7-1059 \$ 48,771
John B. Hendricks

Ortho-Para Conversion in Space-Based Hydrogen Dewar Systems

89-1-11-03-8629C NASA MSFC
I: NAS8-38449 \$ 49,979
John B. Hendricks

A043

Allotech, Inc.
715 West Johnson Street
Raleigh, NC 27603
919-828-9446

Display Technology
86-1-03-03-9446 NASA ARC
I: NAS2-12559 \$ 49,985
Thomas D. Wason

A044

Altex Technologies Corporation
650 Nutman Road, #114
Santa Clara, CA 95054
408-986-8610

Pulse-Combustor-Driven, Recuperated or Regenerated Gas Turbine
87-1-01-02-7300 NASA LeRC
I: NAS3-25404 \$ 49,830
John T. Kelly

A045

Amerasia Technology, Inc.
620-1 Hampshire Road
Westlake Village, CA 91361
805-495-9388

* Monolithic GaAs Digitizer for Space-Based, Laser-Altimeter, Pulse-Spreadng Effect
87-1-08-02-9388 NASA GSFC
I: NAS5-30266 \$ 49,967
II: NAS5-30626 \$495,225
Edward J. Staples

* Multi-User, Receiver-Demodulator Satellite Communication System
88-1-14-05-9388 NASA LeRC
I: NAS3-25617 \$ 49,977
II: NAS3-25862 \$499,967
Edward J. Staples

A046

Amercom, Inc.
8948 Fullbright Avenue
Chatsworth, CA 91311
Last Known Address

* Composite Thermal Protection Material
83-1-04-05-4821 NASA ARC
I: NAS2-11734 \$ 50,000
II: NAS2-12158 \$406,000
Curtis V. Burkland

A047

American Holographic, Inc.
80 Harris Street
Acton, MA 01720
Last Known Address

Concave Grating Optical Demultiplexers-Wavelength Division Multiplexer
83-1-06-14-2538 NASA LaRC
I: NAS1-17581 \$ 48,400
Thomas Mikes

A048

American Innovision, Inc.
9581 Ridgehaven Court
San Diego, CA 92123-1624
619-560-9355

Identifying, Locating, and Tracking Objects by Detecting Pre-Affixed Colored Targets
89-1-05-01-9355 NASA LaRC
I: NAS1-19005 \$ 50,000
Jose R. Torre-Bueno

A049

American Research Corp. of Virginia
P.O. Box 3406
Radford, VA 24143-3406
703-731-0655

Cross-Correlation, Optical Strain Sensor for Wind Tunnel Test Instrumentation
89-1-02-08-0655 NASA LaRC
I: NAS1-19022 \$ 50,000
Adel Sarrafzadeh

Laser-Speckle Interferometer for Surface-Acoustic-Displacement Measurements
89-1-03-06-0655 NASA ARC
I: NAS2-13129 \$ 50,000
Adel Sarrafzadeh

A050

Amtec Engineering, Inc.

3055 112th Avenue NE #208
Bellevue, WA 98004
206-827-3304

* Three-Dimensional Navier-Stokes Analysis for Evaluation of
Hypersonic Vehicles
86-1-02.01-8060 NASA MSFC
I: NAS8-37303 \$ 49,950
II: NAS8-37406 \$391,421
Scott T. Imlay

Zonal Method for Modeling Powered-Lift Aircraft Flow Fields
87-1-02.11-8060 NASA ARC
I: NAS2-12801 \$ 50,000
Donald W. Roberts

Coupling Grid Adaption to an Implicit Navier-Stokes Solution
Procedure
89-1-02.01-3304 NASA MSFC
I: NAS8-38471 \$ 59,999
Scott T. Imlay

A051

Analytical Mechanics Associates - Phase III

being pursued by:
Seagull Technology, Inc.
1310 Hollenbeck Ave.
Sunnyvale, CA 94087
408-732-9620

* Advanced Flight Planning System
83-1-03.04-1844 NASA LaRC
I: NAS1-17575 \$ 49,996
II: NAS1-18017 \$493,000
John A. Sorensen

A052

Analytical Methods, Inc.

2133 152nd Avenue, N.E.
Redmond, WA 98052
206-643-9090

* Prediction Methods for Powered-Lift Vehicle Aerodynamics
83-1-02.07-9090 NASA ARC
I: NAS2-11727 \$ 49,757
II: NAS2-12166 \$272,000
Brian Maskew

* Improved Algorithms for Analysis of Circulation-Control Rotors
83-1-03.07-9090 NASA ARC
I: NAS2-11729 \$ 48,000
II: NAS2-12135 \$251,611
Frank A. Dvorak

* A Novel, Potential-Viscous Flow Coupling Technique for
Computing Helicopter Flow Fields
88-1-02.09-9090 NASA ARC
I: NAS2-12962 \$ 49,605
II: NAS2-13194 \$499.998
J. Michael Summa

A053

Analytical Services & Materials, Inc.

107 Research Drive
Hampton, VA 23666
804-865-7093

Flight Instrumentation for Simultaneous Detection of Flow
Separation and Transition
89-1-03.05-7093 NASA ARC
I: NAS2-13023 \$ 49,900
Siva M. Mangalam

A054

Analytics, Inc.

2500 Maryland Road
Willow Grove, PA 19090
215-657-4100

* Oculometer and Automated Speech Interface System
83-1-06.05-4100 NASA JPL
I: NAS7-922 \$ 49,543
II: NAS7-932 \$442,000
Floyd A. Glenn

* Prototype Cockpit Ocular Recording System
85-1-03.04-4100 NASA LaRC
I: NAS1-18211 \$ 49,899
II: NAS1-18473 \$484,000
James E. Deimler

* An Eye-Brain-Task Testbed
85-1-06.04-4100 NASA JSC
I: NAS9-17564 \$ 49,982
II: NAS9-17803 \$494,000
Nora Harrington

* Prototype Holographic-Enhanced Remote Sensing System
86-1-05.01-4100 NASA JPL
I: NAS7-974 \$ 49,951
II: NAS7-1036 \$499,951
Helene P. Iavecchia

Application of Expert Systems in Project Management Decision
Aiding

86-1-07.06-4100 NASA GSFC
I: NAS5-30040 \$ 49,918
David Jochman

A055

Analytix Corporation

P.O. Box 4044
Timonium, MD 21093
301-321-5710

Thermal Design of a Precollimator
85-1-09.08-5710 NASA GSFC
I: NAS5-29267 \$ 43,213
Heros Noravian

A056

Anamet Laboratories, Inc.

3400 Investment Boulevard
Hayward, CA 94545
Last Known Address

Prediction of Ultimate Strength of Composite, Curved, Frame
Members
83-1-04.07-2125 NASA LaRC
I: NAS1-17569 \$ 38,380
Rocky Richard Arnold

A057

Anatole J. Sipin Company, Inc.

505 Eighth Avenue
New York, NY 10018
212-695-5706

Two-Phase Flowmeter
85-1-13.01-5706 NASA KSC
I: NAS10-11289 \$ 50,000
A. J. Sipin

A058

Apelron

P.O. Box 1006, Mail Station 220
McKinney, TX 75069
214-542-2423

* Wireless Headset Network

87-1-13.02-2423A NASA KSC
I: NAS10-11462 \$ 45,000
II: NAS10-11607 \$242,374
Kurt K. Christensen

A059

Applications Research Corporation

428 Louisiana SE Suite A5
Albuquerque, NM 87108
Last Known Address

A Generic, Artificial-Intelligence, Expert System for Space Station Applications

86-1-05.04-8361 NASA MSFC
I: NAS8-37309 \$ 49,864
Kathleen Joyce

A060

Applied Cryogenics and Materials

Hampton, VA 23670
Last Known Address

* Technology for Pressure-Instrumented Thin Airfoil Models

83-1-02.03-5411 NASA LaRC
I: NAS1-17571 \$ 48,000
II: NAS1-18066 \$492,000
David A. Wigley

A061

Applied Logic Systems, Inc.

P.O. Box 90 University Station
Syracuse, NY 13210-0090
315-471-3900

Structured Analysis and Generation of Requirements

87-1-06.02-3900 NASA KSC
I: NAS10-11465 \$ 49,961
Kenneth A. Bowen

A062

Applied Research Associates, Inc.

6404 Falls Of Neuse Road Suite 200
Raleigh, NC 27615
919-876-0018

Probabilistic Structural Mechanics Research for Parallel Processing Computers

89-1-04.02-0018 NASA LeRC
I: NAS3-25824 \$ 49,967
Robert H. Sues

A063

Applied Research Consortium

7137 Stetson Drive Suite A
Scottsdale, AZ 85251
Last Known Address

Expert Systems for Accident Investigations

84-1-03.03-8293 NASA ARC
I: NAS2-12124 \$ 49,684
Peter D. Bates

A064

Applied Research Corporation

8201 Corporate Drive, Suite 920
Landover, MD 20785
301-459-8442

* Holographic Diffraction Gratings

83-1-08.01-8442 NASA GSFC
I: NAS5-27992 \$ 49,989
II: NAS5-28652 \$496,813
Joseph B. Gurman

* Logistic Regression Model for Satellite Rainfall Retrieval

85-1-08.04-8442 NASA GSFC
I: NAS5-29271 \$ 49,972
II: NAS5-30083 \$473,000
Long S. Chiu

* Radar and Microwave Link Techniques for Satellite Rainfall Algorithm Development

86-1-08.02-8442 NASA GSFC
I: NAS5-30041 \$ 49,999
II: NAS5-30303 \$480,505
Arthur R. Jameson

Rapid Readout System for Solar Pointing Sensors

87-1-07.03-8442 NASA GSFC
I: NAS5-30267 \$ 49,315
Andrew S. Endal

* A Low-Cost CCD Solid-State Star Tracker

88-1-09.12-8442 NASA GSFC
I: NAS5-30490 \$ 48,208
II: NAS5-T B D \$ T B D
Siegfried Auer

Highly Transparent and Rugged Sensor for Meteoroids and Space Debris

89-1-08.21-8442 NASA JSC
I: NAS9-18304 \$ 48,700
Siegfried Auer

A065

Applied Research, Inc.

P.O. Box 11220
Huntsville, AL 35814-1220
205-837-8600

Maneuver Automation Sensor

84-1-05.04-8600A NASA JSC
I: NAS9-17294 \$ 49,828
John Morris

* Laser Orientation Transceiver System

87-1-09.07-8600A NASA JSC
I: NAS9-17930 \$ 49,997
II: NAS9-18164 \$367,600
John Morris

Tethered Satellite Video Monitoring System

88-1-09.11-8600 NASA MSFC
I: NAS8-38051 \$ 49,264
Scott Davis

A066

Applied Sciences Consultants

621 River Oaks Parkway
San Jose, CA 95134
408-434-6780

* A Diet Expert Subsystem Program for the Controlled Ecological Life Support System

88-1-12.04-6780 NASA ARC
I: NAS2-12991 \$ 48,910
II: NAS2-T B D \$ T B D
Ahmad Waleh

A067

Applied Sciences Laboratories

335 Bear Hill Road
Waltham, MA 02154
617-890-5100

Improved Visual Display of Three-Dimensional Information
84-1-06.02-5100 NASA ARC
I: NAS2-12083 \$ 49,496
Sol Aisenberg

A068

Applied Technology Associates, Inc.

P.O. Box 149434
Orlando, FL 32814
407-894-6577

Thermal Transport System Using Conformal Heat Exchanger
84-1-09.02-1753 NASA MSFC
I: NAS8-35266 \$ 49,800
William E. Clark

* Thrust Vector Control Using Moveable Struts

86-1-11.07-1753 NASA MSFC
I: NAS8-37322 \$ 49,970
II: NAS8-37411 \$486,538
Robert Cavalleri

A069

Applied Technology Associates, Inc.

1320 Villa Street
Mountain View, CA 94041
415-965-7190

* Simultaneous Orbit Determination with Physical Connectedness
84-1-08.05-1590 NASA GSFC
I: NAS5-28637 \$ 49,750
II: NAS5-29417 \$498,000
James R. Wright

A070

Applied Technology Associates, Inc.

1900 Randolph S.E.
Albuquerque, NM 87106
505-247-8371

* Digital Active Materials Processing Platform Effort
87-1-15.01-8371 NASA LeRC
I: NAS3-25352 \$ 49,998
II: NAS3-25806 \$498,284
John Gniady

A071

Applied and Theoretical Mechanics, Inc.

4501 Sequoyah Road
Oakland, CA 94605
415-635-1427

Computations of Separated Flows with an Improved K-Epsilon Model
87-1-02.05-1427 NASA ARC
I: NAS2-12778 \$ 49,997
Joelle M. Champney

Two-Equation Turbulence Modeling of Hypersonic Transitional Flows with the UPS Code
89-1-02.01-1427 NASA ARC
I: NAS2-13176 \$ 49,995
Joelle M. Champney

A072

Aptech Imaging, Inc.

795 San Antonio Road
Palo Alto, CA 94303
415-858-2863

Computer Software for Signal Processing for Multiple Mixed Transducers
84-1-13.02-2863 NASA KSC
I: NAS10-11145 \$ 49,636
Scott D. Fouse

A073

Aptek, Inc.

1257 Lake Plaza Drive
Colorado Springs, CO 80906
719-576-8100

Automation of Stowage
89-1-12.06-8100 NASA JSC
I: NAS9-18305 \$ 49,987
Jerry L. Udy

A074

Aquanautics Corporation

980 Atlantic Ave., Suite 101
Alameda, CA 94501
415-521-4331

Oxygen Extraction from Mars for Advanced Mission Life-Support and Power
87-1-12.01-8553 NASA JSC
I: NAS9-17931 \$ 50,000
Bruce D. Zanner

A075

Arbus, Inc.

P.O. Box 80388
Las Vegas, NV 89103
702-736-9334

Self-Aligning Electrical Connector
84-1-05.02-6585 NASA MSFC
I: NAS8-35265 \$ 34,826
Danny B. Stokes

A076

Artelligence, Inc.

14902 Preston Road, Suite 212-252
Dallas, TX 75240
214-437-0361

C-Based Expert System Shell for Real-Time Applications
85-1-06.04-0361 NASA JSC
I: NAS9-17562 \$ 49,980
Lee Blaine

A077

Associated Dynamics International

139 South Beverly Dr Suite 220
Beverly Hills, CA 90212
213-273-5190

Knowledge Networks for Mission Planning and Flight Control
89-1-06.05-9896 NASA JSC
I: NAS9-18306 \$ 50,000
Cleveland W. Donnelly

A078
Astro International Corporation
100 Park Avenue
League City, TX 77573
713-332-2484

* Reagentless Water Quality Monitor (Organic Content)
84-1-12.01-2484 NASA JSC
I: NAS9-17282 \$ 50,000
II: NAS9-17612 \$274,000
T. J. Adams

A079
Astron Research & Engineering
130 Kifer Court
Mountain View, CA 94086
408-245-3200

Diagnostic Technique to Identify Airborne and Structureborne
Noise Components
86-1-02.13-8165 NASA LaRC
I: NAS1-18407 \$ 50,000
John F. Wilby

A080
Athena Labs, Inc.
2121 Nela Avenue
Orlando, FL 32809
305-855-7886

High-Speed Pneumatic Valve
84-1-13.12-7886 NASA JSC
I: NAS9-17279 \$ 35,620
Harvey Readey

A081
Atlantic Applied Research Corp.
4 A Street
Burlington, MA 01803
617-273-2400

Wind Tunnel Noise Reduction
89-1-02.02-0559 NASA LaRC
I: NAS1-19031 \$ 49,620
John Wilby

A082
Atmospheric & Environment Research
840 Memorial Drive
Cambridge, MA 02139
Last Known Address

Determination of Cloud Properties from Satellites
84-1-07.06-6207 NASA GSFC
I: NAS5-28633 \$ 47,707
R. G. Isaacs

A083
Atom Sciences, Inc.
355 Paint Branch Drive, Washington Ctr.
College Park, MD 20742
301-454-7751

* Red Blood Cell Measurements Using Resonance Ionization
Spectroscopy
87-1-12.03-1113 NASA JSC
I: NAS9-17932 \$ 49,957
II: NAS9-18165 \$485,710
Larry J. Moore

A084
Aurora Associates
3350 Scott Blvd., Bldg 33
Santa Clara, CA 90501
415-967-0827

Wideband, Acousto-Optic, Spectra Analyzer
89-1-08.16-0827 NASA JPL
I: NAS7-1082 \$ 49,280
I. C. Chang

Acousto-Optic Tunable Filter
89-1-08.18-0827 NASA JPL
I: NAS7-1093 \$ 47,245
I. C. Chang

A085
Aurora Flight Sciences Corporation
Box 11998
Alexandria, VA 22312
703-845-5694

Fuel-Cell Propulsion System for a High-Altitude Research
Platform
89-1-03.08-5694 NASA ARC
I: NAS2-13158 \$ 47,697
John S. Langford

A086
Aurora Optics, Inc.
1777 Walton Road #408 Dublin
Blue Bell, PA 19422
215-646-0690

Fiber-Optic Fluid Flow Sensor
88-1-01.03-0690 NASA LeRC
I: NAS3-25619 \$ 50,000
Laurence N. Wesson

A087
Austin Biological Laboratories
6620-A Manor Road
Austin, TX 78723
512-928-1304

Medical Microbiology Test Station for Microgravity
87-1-12.03-1304 NASA JSC
I: NAS9-17933 \$ 42,000
Dennis Ray Schneider

A088
Autodesk, Inc. - Was Cadetron, Inc.
1303 Hightower Trail, Suite 170
Atlanta, GA 30350
404-998-8095

* An Expert System for Finite-Element Modeling
85-1-04.02-8095A NASA LeRC
I: NAS3-24869 \$ 50,000
II: NAS3-25150 \$475,419
N. V. L. Narayana

A089
Automated Dynamics Corporation
105 Jordan Road
Troy, NY 12180
518-283-8822

Robotic Winding in a Plasma-Spray, High-Temperature,
Vacuum Environment
86-1-04.01-8822 NASA LeRC
I: NAS3-25202 \$ 50,000
Kenneth B. Bubeck

* Universal End-Effector with Torque Feedback for Hand Valves
86-1-13.13-8822 NASA KSC
I: NAS10-11373 \$ 37,500
II: NAS10-11502 \$332,750
Lawrence E. Ruff

Cableless Power and Signal Transfer for Robot End Effector
with Integrated Sensor System
88-1-05.03-8822 NASA LaRC
I: NAS1-18808 \$ 46,126
David Hauber

A090

Automatix, Inc.

755 Middlesex Turnpike
Billerica, MA 01821
508-667-7900

Macro- and Task-Level Programming of Arc Welding Robots for
Aerospace Applications
89-1-04.10-7900 NASA MSFC
I: NAS8-38448 \$ 49,996
John E. Agapakis

A091

Autometric, Inc.

5301 Shawnee Road
Alexandria, VA 22312-2312
703-658-4000

* The Large Format Camera: Novel Analyses of Sensor
Applications
84-1-15.05-7606 NASA MSFC
I: NAS8-35280 \$ 49,357
II: NAS8-37263 \$499,555
Carroll Lucas

Improved Accessing of Digital Data Bases by Geographic
Information Systems
89-1-07.04-4000 NASA SSC
I: NAS13-409 \$ 49,678
Daniel K. Gordon

A092

Autonomous Technologies Corporation
520 N Semoran Boulevard, Suite 180
Orlando, FL 32807
407-282-1262

* Hierarchical, Three-Dimensional and Doppler Imaging CO2
Ladar with Programmable Fovea and Peripheral Vision
87-1-09.07-1262 NASA JSC
I: NAS9-17934 \$ 50,000
II: NAS9-18166 \$499,000
Randy W. Frey

A093

Axiomatics Corporation
60 Rogers Street
Cambridge, MA 02142
617-497-6700

Remote Moisture Sensor to Control Irrigation of Plants in Space
89-1-12.12-6700 NASA KSC
I: NAS10-11657 \$ 43,690
James F. Bredt

B

B001

B&D Instruments and Avionics
209 W. Main
Valley Center, KS 67147
316-755-1223

Evaluation of PVDF Film as a Pressure Sensor
89-1-03.06-1223 NASA ARC
I: NAS2-13024 \$ 49,779
Richard Kreeger

B002

BC Associates - Now Femtometrics
1721 Whittier Avenue, Suite A
Costa Mesa, CA 92627
714-722-6239

* High-Sensitivity Particle and Gas Instrument Using the
Acoustic-Wave Piezoelectric Crystal
86-1-08.07-6239 NASA LaRC
I: NAS1-18412 \$ 47,980
Raymond L. Chuan

B003

BGB, Inc.
4321 University Drive, Suite 300
Huntsville, AL 35816
Last Known Address

* High Spatial Resolution, Large Field-of-View Detector and Data
Handling System
86-1-08.04-0341 NASA MSFC
I: NAS8-37312 \$ 48,350
II: NAS8-37405 \$485,053
Gary M. Arnett

B004

Barr Associates, Inc.
2 Lyberty Way
Westford, MA 01886
508-692-7513

* Space-Qualified, Image-Quality Ultraviolet Interference Filters
87-1-08.01-7513 NASA JPL
I: NAS7-1021 \$ 49,862
II: NAS7-1067 \$476,160
Thomas A. Mooney

Ion Beam Deposition of Large-Area, Low-Scattering Metal
Coatings
89-1-08.18-7513B NASA JPL
I: NAS7-1095 \$ 45,000
Ghanim Al-Jumaily

B005

Barrett Design, Inc.
230 Western Avenue
Boston, MA 02134
617-787-3909

A Robot Wrist Using New Mechanism Technology Invented for
Whole-Arm Manipulation
89-1-05.04-3909 NASA JSC
I: NAS9-18307 \$ 46,905
William T. Townsend

B006**Bauer Associates, Inc.**

177 Worcester Road, #101
Wellesley, MA 02181
617-235-8775

* Measurement of Upper-Mid-Frequency Errors on Arbitrary Grazing Incidence Optics

86-1-08-01-8775	NASA GSFC
I: NAS5-30042	\$ 49,966
II: NAS5-30311	\$273,753

Paul Glenn

* Non-Contact, Self-Referencing, Full-Aperture Metrology for Large Aspheric Mirrors

87-1-08-19-8775	NASA GSFC
I: NAS5-30268	\$ 44,264
II: NAS5-30638	\$497,918

Paul Glenn

B007**Begej Corporation**

5 Claret Ash Road
Littleton, CO 80127
303-973-5042

Fingertip-Shaped Touch Sensor for Teleoperator and Robotic Applications

85-1-05-01-8182	NASA JPL
I: NAS7-968	\$ 40,500

Stefan Begej

Tactile Telepresence System for Dexterous Telerobotics

87-1-05-01-5042B	NASA JPL
I: NAS7-1015	\$ 49,556

Stefan Begej

Glove Controller with Force and Tactile Feedback for Dexterous Robotic Hands

89-1-05-04-5042	NASA JSC
I: NAS9-18308	\$ 49,509

Stefan Begej

B008**Behavioral Research Associates**

693 North 400 West
West Lafayette, IN 47906
Last Known Address

An Optimal Interface for Expert Monitoring Systems

85-1-03-06-0703	NASA ARC
I: NAS2-12360	\$ 49,995

Robert D. Sorkin

B009**Beltran Associates, Inc.**

1133 E 35th Street
Brooklyn, NY 11210
Last Known Address

Heat Pipe Applications in Aircraft Propulsion Systems

83-1-01-04-7900	NASA LeRC
I: NAS3-24095	\$ 50,000

Angelo A. Ferrara

B010**Bend Research, Inc.**

64550 Research Road
Bend, OR 97701-8599
503-382-4100

* Novel Reverse-Osmosis Module for Spacecraft Washwater Recycle

83-1-12-01-4100	NASA JSC
I: NAS9-17031	\$ 49,793
II: NAS9-17306	\$260,000

Walter C. Babcock

* A Novel Membrane-Based Water Reclamation Post-Treatment Unit

84-1-12-01-4100	NASA JSC
I: NAS9-17286	\$ 49,469
II: NAS9-17611	\$405,000

Roderick J. Ray

Energy-Efficient Subsystems for Treating Urine and Concentrated Wastewater

85-1-12-01-4100	NASA JSC
I: NAS9-17581	\$ 49,828

Roderick J. Ray

* Liquid-Sorbent/Membrane-Contactor Subsystem for CO₂ Removal

88-1-12-03-4100	NASA JSC
I: NAS9-18085	\$ 49,953
II: NAS9-T B D	\$ T B D

Scott B. McCray

Membrane-Based, High-Pressure Gas-Dehydration Module

89-1-12-07-4100A	NASA JSC
I: NAS9-18309	\$ 49,445

Rod Ray

B011**Bio-Imaging Research, Inc.**

425 Barclay Boulevard
Lincolnshire, IL 60699
312-634-6425

Portable, Digital, Imaging-Detector System

86-1-13-11-6425	NASA KSC
I: NAS10-11374	\$ 46,475

Thomas P. O'Brien

* Differential-Phase, Acoustic Microscopy for Micro-NDE

88-1-04-09-6425A	NASA LaRC
I: NAS1-18824	\$ 49,890
II: NAS1-19099	\$487,150

M. Nikoonahadd

Slit Digital Radiography for Analysis of Bond Defects in Rocket Motors

89-1-11-04-6425	NASA MSFC
I: NAS8-38459	\$ 41,895

Bruce G. Isaacson

B012**Bio-Metric Systems, Inc.**

9932 West 74Th Street
Eden Prairie, MN 55344
Last Known Address

Rapid Paper Test for Microbial Pathogen Determination

83-1-12-02-0080	NASA JSC
I: NAS9-17034	\$ 49,498

Patrick E. Guire

B013

Biochem Technology, Inc.
 66 Great Valley Parkway
 Malvern, PA 19355
 215-647-8610

* Liquid Carriers in Tissue Culture for Aeration

85-1-15.02-8610	NASA JSC
I: NAS9-17569	\$ 49,000
II: NAS9-17812	\$500,000

John R. Forro

* Liquid Membrane Emulsions in Cell Culture

88-1-12.01-8610	NASA JSC
I: NAS9-18086	\$ 50,000
II: NAS9-T B D	\$ T B D

Lu Kwang Ju

B014

Biospherical Instruments, Inc.
 4901 Morena Boulevard, Suite 1003
 San Diego, CA 92117
 619-270-1315

* Moored Oceanographic Spectroradiometer

83-1-08.15-1315	NASA JPL
I: NAS7-923	\$ 49,526
II: NAS7-934	\$500,000

Jeffrey L. Star

* Measurement of Chlorophyll Related Pigments and Productivity in the Sea

84-1-08.15-1315	NASA JPL
I: NAS7-942	\$ 50,000
II: NAS7-969	\$453,000

Charles R. Booth

Towable, Advanced, Bio-Optical Sensor System

88-1-08.09-1315	NASA JPL
I: NAS7-1044	\$ 49,876

Charles R. Booth

B015

Biotronics Technologies, Inc.
 12020 West Ripley Avenue
 Wauwatosa, WI 53226
 414-475-7653

Fiber Fluorometry for On-Line Chemical Analysis of Nutrient Solutions

89-1-12.12-7653	NASA KSC
I: NAS10-11656	\$ 49,546

Kenneth J. Schlager

B016

Bomed Medical Manufacturing
 15 Musick
 Irvine, CA 92718
 714-770-5322

* Continuous Non-Invasive Determination of Ventricular Parameters

85-1-12.02-5322	NASA JSC
I: NAS9-17578	\$ 47,974
II: NAS9-17809	\$492,560

V. Pat Vysin

B017

Bonneville Scientific, Inc.
 918 E 900 South
 Salt Lake City, UT 84105
 801-359-0402

* Six-Component, Robotic, Force-Torque Sensor

83-1-05.03-7981	NASA LaRC
I: NAS1-17586	\$ 50,000
II: NAS1-17997	\$380,031

Allen R. Grahn

A VLSI Digital Tester Using a Single Custom Chip per Individual Pin

86-1-06.13-0402	NASA JPL
I: NAS7-979	\$ 50,000

Allen R. Grahn

B018

Boundary Technologies, Inc.
 366 Lexington Drive
 Buffalo Grove, IL 60089
 312-537-9399

* Fabrication and Thermal Cycle Testing of Long-Life Radiator Coatings

88-1-04.07-9399	NASA JSC
I: NAS9-18087	\$ 44,832
II: NAS9-T B D	\$ T B D

Robert S. Alwitt

B019

Breault Research Organization, Inc.
 4601 E First Street
 Tucson, AZ 85711
 602-795-7885

Three-Axis, All-Rotary-Motion, Numerically-Controlled Optical Generator

88-1-08.17-7885	NASA GSFC
I: NAS5-30498	\$ 49,425

Robert Parks

B020

Brimrose Corporation of America
 5020 Campbell Boulevard, Bldg 1
 Baltimore, MD 21236
 301-529-5800

An Analog-Digital, Electro-Optical System for Real-Time X-Ray Imaging

84-1-08.07-5800B	NASA GSFC
I: NAS5-28640	\$ 50,000

Ronald G. Rosemeier

Failure Prediction by a Novel Non-Destructive X-Ray Technique

86-1-04.11-5800	NASA LaRC
I: NAS1-18425	\$ 49,868

Ronald G. Rosemeier

Physical Vapor Transport and Crystal Growth of Tellurium: a Novel Acousto-Optic Material

88-1-15.01-5800	NASA LeRC
I: NAS3-25613	\$ 50,000

S. B. Trivedi

Novel In Situ Technique to Visualize Convection on Solid-Liquid Interfaces

89-1-15.02-5800	NASA LeRC
I: NAS3-25874	\$ 50,000

S. B. Trivedi

B021

Bruce G. Jackson and Associates
17629 El Camino Real, Suite 207
Houston, TX 77058
713-486-7817

Automation of Requirements Development Utilizing a Desk Top Computer

86-1-07.11-7817 NASA JPL
I: NAS7-982 \$ 49,653
David L. Hottman

B022

Business and Technological Systems - Now
Coleman Research Corp.
14504 Greenview Dr., Suite 500
Laurel, MD 20708
301-470-3839

Spacecraft Sensor Alignment Estimation

85-1-07.07-8800 NASA GSFC
I: NAS5-29268 \$ 49,300
Malcolm D. Shuster

C

C001

CCE - Robotics
P.O. Box 9315
Berkeley, CA 94709
415-652-4420

Cellulose Conversion for CELSS

84-1-12.05-0298 NASA ARC
I: NAS2-12096 \$ 47,683
Mark J. Malachowski

* Positioning Beam Rider Module for Articulated Robot Manipulator

85-1-05.02-0298 NASA LeRC
I: NAS3-24866 \$ 50,000
II: NAS3-25197 \$500,000
Mark J. Malachowski

High-Resolution Electronic Photography

87-1-12.05-0298B NASA JSC
I: NAS9-17935 \$ 50,000
Mark J. Malachowski

C002

CCS Associates
P.O. Box 563
Bethel Park, PA 15102
412-221-0999

Intercooling and Reheat with Heat Pipes

85-1-01.06-0999 NASA LeRC
I: NAS3-24850 \$ 52,576
Calvin C. Silverstein

Capillary-Pumped Thermal Conditioning System

85-1-09.11-0999 NASA MSFC
I: NAS8-36265 \$ 52,411
Calvin C. Silverstein

Conceptual Design of Ramfan Hypersonic Engine

88-1-01.05-0999 NASA LeRC
I: NAS3-25616 \$ 49,920
Calvin C. Silverstein

C003

CFD Research Corporation
3325 - D Triana Boulevard
Huntsville, AL 35805
205-536-6576

Turbulent Spray Combustion in Liquid Rocket Engine Components

87-1-11.03-6576 NASA MSFC
I: NAS8-37619 \$ 50,000
Ashok K. Singhal

* A Computer Model for Liquid Jet Atomization in Rocket Thrust Chambers

87-1-11.04-6576 NASA MSFC
I: NAS8-37620 \$ 50,000
II: NAS8-38425 \$497,977
Andrzej J. Przekwas

Vented Nozzle Concept for Optimum Performance of Launch Vehicles

88-1-09.06-6576A NASA MSFC
I: NAS8-38041 \$ 50,000
Andrzej J. Przekwas

* Advanced CFD Methodology for Fast Flow-Transients Encountered in Non-Linear Combustion Instability

88-1-11.04-6576A NASA MSFC
I: NAS8-38034 \$ 50,000
II: NAS8-38489 \$497,723
Andrzej J. Przekwas

Rapid-Mix Concepts for Low-Emission Combustors in Gas Turbine Engines

89-1-01.02-6576 NASA LeRC
I: NAS3-25834 \$ 50,000
Clifford E. Smith

A Mathematical Model to Investigate Undercutting and to Optimize Weld Quality

89-1-04.10-6576 NASA MSFC
I: NAS8-38447 \$ 50,000
H. Q. Yang

C004

CLS Laser Systems, Inc.
P.O. Box 767
South Windsor, CT 06074
203-528-7171

Improved Heterodyne Receiver for Coherent Lidar Applications

83-1-08.08-7171 NASA LaRC
I: NAS1-17582 \$ 49,624
Robert J. Mongeon

C005

CPS Superconductor Corp.
155 Fortune Boulevard
Milford, MA 01757
508-634-3422

Ultra-Rapid Textured Growth of Yttrium-Barium-Cuprate Filaments for Composite HTSC Wire

89-1-04.17-3422A NASA LeRC
I: NAS3-25876 \$ 49,928
John W. Halloran

C006

CSA Engineering, Inc.

560 San Antonio Road, Suite 101
Palo Alto, CA 94306-4682
415-494-7351

Advanced Finite-Elements for Structural Analysis
89-1-04.05-7351 NASA LeRC
I: NAS3-25879 \$ 49,860
Warren C. Gibson

C007

CSI, Inc.

1280 Clearmont Street, N.E.
Palm Bay, FL 32905
Last Known Address

Multiple-Band, Near-Field, Antenna Feed System
85-1-14.07-2923 NASA JPL
I: NAS7-948 \$ 49,314
H. E. Bartlett

C008

CTK Enterprises

P.O. Box 17879
Anaheim, CA 92817-7879
714-693-9266

Magnetically-Controlled Power Distribution and Control System
87-1-08.15-2960 NASA GSFC
I: NAS5-30274 \$ 49,220
Charles T. Kleiner

C009

CVC Products, Inc.

P.O. Box 1886
Rochester, NY 14603-1886
716-458-2550

* High-Temperature, Superconducting Thin-Films for Passive
Microwave Devices
88-1-14.09-2550 NASA JPL
I: NAS7-1045 \$ 50,000
II: NAS7-T B D \$ T B D
Paul H. Ballentine

C010

CVD, Inc.

185 New Boston Street
Woburn, MA 01801
617-933-9243

* Light-Weight Si-SiC Lidar Mirrors
85-1-08.08-9243 NASA LaRC
I: NAS1-18222 \$ 49,976
II: NAS1-18476 \$457,397
Jitendra Singh Goela

High-Temperature SiC Continuous Fibers
86-1-04.01-9243 NASA LeRC
I: NAS3-25130 \$ 45,000
Jitendra Singh Goela

C011

Cadetron, Inc. - See Autodesk, Inc.

C012

Cadic, Inc.

7874 SW Nimbus Avenue
Beaverton, OR 97005
Last Known Address

VLSI-State Test Machine
85-1-06.16-7902 NASA JPL
I: NAS7-964 \$ 50,000
Mark Acuff

C013

Cambridge Acoustical Associates

54 Rindge Avenue Extension
Cambridge, MA 02140
617-491-1421

* Analytical Model of the Structureborne Interior Noise Induced
by a Propeller Wake
83-1-02.08-1421 NASA LaRC
I: NAS1-17570 \$ 49,882
II: NAS1-18020 \$317,884
Miguel C. Junger

C014

Cambridge Hydrodynamics, Inc.

P.O. Box 1403
Princeton, NJ 08542
609-683-1515

* Numerical Modelling of Turbulence and Combustion Processes
88-1-01.01-1515 NASA LeRC
I: NAS3-25604 \$ 49,857
II: NAS3-25942 \$395,000
A. Yakhot

C015

Cambridge Research Company

21 Erie Street
Cambridge, MA 02139
617-491-2627

* A Cryogenic, Absolute Radiometer for Earth Radiation Sensing
85-1-08.04-2627 NASA LaRC
I: NAS1-18223 \$ 50,000
II: NAS1-18475 \$242,023
Peter V. Foukal

* Automated Characterization and Calibration of Ultraviolet
Spectrophotometers Using Intensity-Stabilized Lasers
87-1-08.07-2627 NASA GSFC
I: NAS5-30269 \$ 50,000
II: NAS5-30631 \$499,970
Peter V. Foukal

C016

Candela Laser Corporation

19 Strathmore Road
Natick, MA 01760
Last Known Address

Laser for a Time-Averaged Holographic Interferometer
86-1-01.03-7373 NASA LeRC
I: NAS3-25120 \$ 50,000
Harry Ceccon

C017

Cape Cod Research, Inc.
P.O. Box 600
Buzzards Bay, MA 02532
508-759-5911

Hydrogen-Oxygen Monitoring Device
84-1-13.03-5911
I: NAS10-11146
Myles Walsh

NASA KSC
\$ 49,999

Solid-State Modulation of Conductive Heat Transfer
86-1-09.07-5911
I: NAS8-37315
Myles Walsh

NASA MSFC
\$ 50,000

Improved Electro-Rheological Fluids for Lubricant Viscosity Control
89-1-04.11-5911
I: NAS5-30858
Francis Keohan

NASA GSFC
\$ 50,000

C018

Carbotek, Inc.
16223 Park Row, #100
Houston, TX 77084
713-578-8899

* Lunar Oxygen Production from Ilmenite

84-1-15.04-7840
I: NAS9-17287
II: NAS9-17605
Michael A. Gibson

NASA JSC
\$ 50,000
\$592,500

Aspen Simulations--Lunar Production Facility

84-1-15.04-7840A
I: NAS9-17288
Michael A. Gibson

NASA JSC
\$ 50,000

C019

Carlow Associates, Inc.
8315 Lee Highway, Suite 410
Fairfax, VA 22031-2269
703-698-6225

Function Allocation Decision Aid

86-1-12.03-6225
I: NAS9-17725
Thomas B. Malone

NASA JSC
\$ 49,994

C020

Carnegie Group, Inc.
Five PPG Place
Pittsburgh, PA 15222
412-642-6900

An Expert Advisor for Failure Mode and Effects Analysis
89-1-05.05-6900
I: NAS9-18310
David A. Hornig

NASA JSC
\$ 49,670

C021

Cascade Microtech, Inc.
P.O. Box 2015
Beaverton, OR 97075-2015
503-626-8245

High-Accuracy Characterization of Monolithic Millimeter-Wave Devices
86-1-14.01-8245
I: NAS3-25122
Eric W. Strid

NASA LeRC
\$ 49,737

C022

Castle Technology Corp.
262 West Cummings Park
Woburn, MA 01801
617-933-5634

Increasing Critical Current Densities in High-Tc Superconductors
89-1-04.17-5634
I: NAS8-38464
J. Paul Pernier

NASA MSFC
\$ 50,000

C023

Center for Neurodiagnostic Study
275 Hospital Parkway #530
San Jose, CA 95119
408-225-2979

* Electroencephalographic Monitoring of Complex Mental Tasks
87-1-03.03-2975
I: NAS1-18625
II: NAS1-18847
Raul Guisado

NASA LaRC
\$ 49,020
\$413,334

C024

Center for Remote Sensing
P.O. Box 9244
McLean, VA 22102
703-848-0800

Improved Antenna for Synthetic Aperture Radar Calibrator
89-1-08.14-0800
I: NAS7-1084D
Suman Ganguly

NASA JPL
\$ 49,997

C025

Cham of North America, Inc.
1525-A Sparkman Drive
Huntsville, AL 35816
205-830-2620

Computer Model of Thermal Conditioning System for Long-Life Space Craft

85-1-09.11-2620
I: NAS8-36270
Alok K. Majumdar

NASA MSFC
\$ 49,731

Improvements in Three-Dimensional, Navier-Stokes, Two-Phase, Combustion Computer Models

86-1-11.03-2620
I: NAS3-25123
Andrzej J. Przekwas

NASA LeRC
\$ 50,000

A Coupled Jet-Embedding and Eulerian-Lagrangian Approach to Simulate Reactive Fluid Mechanics

86-1-11.06-2620
I: NAS8-37321
Andrzej J. Przekwas

NASA MSFC
\$ 50,000

Computational Methodologies for Convection-Diffusion Phase-Change Problems

87-1-15.03-2620
I: NAS3-25331
C. Prakash

NASA LeRC
\$ 50,000

C026

Charles Evans & Associates
301 Chesapeake Drive
Redwood City, CA 94063
415-369-4567

* Microanalytical Characterization of Biogenic Components in Interplanetary Dust
 87-1-08-13-4567 NASA ARC
 I: NAS2-12818 \$ 49,520
 II: NAS2-13178 \$472,572
 Filippo Radicati Di Brozolo

C027
Charles River Analytics, Inc.
 55 Wheeler Street
 Cambridge, MA 02138
 617-491-3474

Three-Dimensional, Dynamic Robot Vision System
 85-1-05-04-3474 NASA JSC
 I: NAS9-17576 \$ 49,927
 Greg L. Zacharias

* Expert Systems for Real-Time Monitoring and Fault Diagnosis
 87-1-03-07-3474 NASA ARC
 I: NAS2-12725 \$ 49,458
 II: NAS2-13014 \$500,000
 Alper K. Caglayan

EEG-Based Metric for Flight Deck Workload Assessment
 88-1-03-11-3474 NASA LaRC
 I: NAS1-18806 \$ 48,208
 Greg L. Zacharias

A Neural-Net Approach to Space Vehicle Guidance
 89-1-09-02-3474 NASA LaRC
 I: NAS1-19004 \$ 49,600
 Alper K. Caglayan

C028
Charles Systems Corp.
 820 Heatherway
 Ann Arbor, MI 48104
 313-668-2567

* Compact, Six Degree-of-Freedom, Force-Reflecting Hand Controller with Cueing of Modes
 88-1-09-03-2567A NASA JSC
 I: NAS9-18094 \$ 49,374
 II: NAS9-T B D \$ T B D
 Heidi N. Jacobus

C029
Chase Consulting, Inc.
 3543 Caminito Carmel Landing
 San Diego, CA 92130
Last Known Address

Pattern Recognition of Satellite Cloud Imagery for Improved Weather Prediction
 85-1-07-06-4539 NASA GSFC
 I: NAS5-29269 \$ 50,000
 Catherine Gautier

C030
Chemical Dynamics Corporation
 9560 Pennsylvania Ave.
 Upper Marlboro, MD 20772
 301-599-1050

Formation and Quenching of Electronically Excited Molecules on Surfaces
 85-1-02-01-2145 NASA ARC
 I: NAS2-12356 \$ 50,000
 P. K. Swaminathan

Mechanisms of Energy Accommodation on Catalytic Surfaces
 88-1-02-05-1050A NASA ARC
 I: NAS2-12969 \$ 49,955
 B. C. Garrett

Temperature-Dependent, Energy Transfer Recombination on Surfaces
 88-1-02-05-1050B NASA JSC
 I: NAS9-18088 \$ 49,989
 P. K. Swaminathan

C031
Chemical Testing & Consulting Corporation

64 Pinckney Street, Unit #3
 Boston, MA 02114
 617-720-0966

Chemical Sensor System for the Identification of Organic Compounds in Water
 89-1-12-09-0966 NASA MSFC
 I: NAS8-38446 \$ 49,750
 Edward Sinofsky

C032
Chemtech Systems

P.O. Box 1067
 Burlington, MA 01803
 617-273-4170

Super-Sensitive Atmospheric Sensors
 86-1-12-01-4170 NASA MSFC
 I: NAS8-37324 \$ 50,000
 M. L. Gopikanth

C033
Chi Systems, Inc.

Gwynedd Plaza III
 Spring House, PA 19477
 215-542-1400

Capturing Space Crew Representations of Control Systems with Multidimensional Scaling
 89-1-12-05-1400 NASA JSC
 I: NAS9-18311 \$ 50,000
 Wayne W. Zachary

C034
Chronometrics, Inc.

11931 Tech Road
 Silver Spring, MD 20904
Last Known Address

Orbital Debris Monitor
 83-1-08-16-3507 NASA JSC
 I: NAS9-17028 \$ 50,000
 Siegfried Auer

C035
Chronos Research Labs, Inc.

41866 Sorrento Valley Boulevard #H
 San Diego, CA 92121
 619-455-8200

Polarization Stability of a Pyroelectric Conversion Material
 84-1-09-10-1447 NASA JPL
 I: NAS7-936 \$ 49,953
 Randall B. Olsen

* Pyroelectric Belt Radiator
 85-1-09-09-1447 NASA JPL
 I: NAS7-946 \$ 49,329
 II: NAS7-998 \$467,000
 Randall B. Olsen

Polymer with Biaxial Strength for Pyroelectric Applications 87-1-04.06-8200B I: NAS5-30270 Randall B. Olsen	NASA GSFC \$ 49,974	* Measurements of Vortex Flow Fields 86-1-02.09-5630 I: NAS2-12555 II: NAS1-18667 F. K. Owen	NASA ARC \$ 48,116 \$499,552
Low-Cost Space Power Generation 88-1-15.04-8200 I: NAS3-25611 Randall B. Olsen	NASA LeRC \$ 50,000	A Laser-Based Transition Detector 87-1-02.06-5630 I: NAS2-12781 F. K. Owen	NASA ARC \$ 49,389
C036 Cleveland Crystals, Inc. 19306 Redwood Avenue Cleveland, OH 44110 216-486-6100		* An Optical Angle-of-Attack Sensor 87-1-08.20-5630 I: NAS2-12854 II: NAS2-13202 F. K. Owen	NASA ARC \$ 47,070 \$495,550
Tunable, BBO-AgGaSe2, Optical Parametric Oscillator System 88-1-08.08-6100 I: NAS7-1061 Gary C. Catella	NASA JPL \$ 50,000		
C037 Coherent Research, Inc. 100 E Washington Street Syracuse, NY 13202 315-426-0929		C040 Computational Mechanics Company 7701 N. Lamar Street, Suite 200 Austin, TX 78752-1022 512-467-0618	
* A Knowledge-Based Expert System to Coordinate CAD/CAE with Integration and Test 87-1-06.06-0929 I: NAS7-1014 II: NAS7-1068 Charles D. Stormon	NASA JPL \$ 50,000 \$498,482	* Adaptive Computational Methods for Fluid-Structure Interaction in Internal Flow 85-1-01.01-0618 I: NAS3-24849 II: NAS3-25196 Jon M. Bass	NASA LeRC \$ 50,000 \$455,000
C038 Colorado Research Development Corp. 621 17th Street, Suite 1620 Denver, CO 80293-1601 303-293-8633		* Adaptive Schemes for Complex, Subsonic, Three-Dimensional Flow Problems in Arbitrary Domains 87-1-02.01-0618 I: NAS8-37621 II: NAS8-38404 Jon M. Bass	NASA MSFC \$ 47,387 \$489,099
* Narrow-Bandgap, Semiconducting Silicides: Intrinsic Infrared Detectors on a Silicon Chip 85-1-08.06-4131 I: NAS7-950 II: NAS7-994 John E. Mahan	NASA JPL \$ 49,415 \$445,000	* Pre- and Post-Processing Techniques for Determining Goodness of Computational Meshes 88-1-02.01-0618 I: NAS8-38046 II: NAS8-T B D Jon M. Bass	NASA MSFC \$ 49,968 \$ T B D
Asynchronous, Multilevel, Adaptive Methods for Partial Differential Equations on the Navier-Stokes Computer 87-1-06.01-4131 I: NAS1-18606 Daniel J. Quinlan	NASA LaRC \$ 44,334	* A New Approach for Solving Navier-Stokes Equations on Unstructured Grids Based on Adaptive Methods 88-1-02.08-0618 I: NAS2-13000 II: NAS2-T B D Jon M. Bass	NASA ARC \$ 50,000 \$ T B D
Parallel, Multilevel, Adaptive Methods for Flows in Transition 89-1-06.01-8633 I: NAS1-19016 Chaoqun Liu	NASA LaRC \$ 47,500	C041 Computational Mechanics Corporation 601 Concord St., Suite LLC Knoxville, TN 37919 615-546-3664	
C039 Complere, Inc. P.O. Box 1697 Palo Alto, CA 94302 415-321-5620		* An Arbitrary-Grid, CFD Multi-Tasking Code for Configuration Aerodynamics Analysis 85-1-02.07-5494 I: NAS2-12347 II: NAS2-12568 P. D. Manhardt	NASA ARC \$ 49,932 \$482,173
Scanning Laser Velocimeter for Turbulence Research 83-1-02.03-5631 I: NAS1-17572 F. K. Owen	NASA LaRC \$ 44,861	C042 Computer Algorithm Development 2806 A Nueces Austin, TX 78705 512-474-6511	
* Laser Velocimeter Potential in Hypersonic Flows 86-1-02.07-5630 I: NAS2-12556 II: NAS2-12853 F. K. Owen	NASA ARC \$ 49,258 \$494,200	Active Detection and Tracking Sensor for Passive Targets 89-1-05.09-6511 I: NAS8-38458 Richard E. Shultz	NASA MSFC \$ 50,000

C043

Computer Resource Consultants

87 Elsie Street
San Francisco, CA 94110
415-821-3771

Intelligent Interface System

85-1-03-03-8221A
I: NAS2-12361
Morgan P. Caffrey

NASA ARC
\$ 49,781

C044

Computer Science Innovations

1280 Clearmont Street, N.E.
Palm Bay, FL 32905
Last Known Address

Electronically Controllable Reflective Lens

85-1-14.04-2923
I: NAS3-24739
Robert J. White

NASA LaRC
\$ 49,314

C045

Computer Technology Associates - Now named

CTA, Inc.

5670 Greenwood Plaza, Suite 200
Englewood, CO 80111
303-889-1200

* Ada Packages for Computer Access to Coordinate-Referenced Data

83-1-07.02-9800
I: NAS5-27993
II: NAS5-28653
Paul L. Baker

NASA GSFC
\$ 49,022
\$448,000

Expert Systems for Extraction of Data System Requirements

84-1-07.08-5300
I: NAS7-940
Robert W. Hobbs

NASA JPL
\$ 49,919

Applicability of Expert System Techniques to Space Research

85-1-07.05-1200
I: NAS5-29266
Robert W. Hobbs

NASA GSFC
\$ 50,000

Knowledge Base Dictionary for Integration of Engineering and Operations Systems

86-1-06.07-1200
I: NAS7-977
Anthony J. Winkler

NASA JPL
\$ 49,934

C046

Computer Technology, Inc. - Subsidiary of SPS,

Inc. of New York City
328 Avenida De Diego, Suite 301
Santurce, PR 00910
212-686-3790

Reverse Engineering for Information Systems

86-1-07.08-3790A
I: NAS7-980
Peter Goehner

NASA JPL
\$ 46,918

C047

Conax Buffalo Corporation

2300 Walden Avenue
Buffalo, NY 14225
716-684-4500

* Durable, Fast-Response, Optical-Fiber Temperature Sensor
Usable from 200 to 1700C

86-1-01.03-4500
I: NAS3-25128
II: NAS3-25451
George W. Tregay

NASA LeRC
\$ 49,872
\$498,564

C048

Construction Technology Laboratories

5420 Old Orchard Road
Skokie, IL 60077
312-965-7500

Feasibility Study for Lunar Cement Production

89-1-04.18-7500
I: NAS9-18312
T. D. Lin

NASA JSC
\$ 50,000

C049

Consultants Choice, Inc.

8800 Roswell Road, Suite 130
Atlanta, GA 30350
404-992-8340

Symbolic Imagery Management System

87-1-07.08-8430
I: NAS5-30271
Michael D. Condon

NASA GSFC
\$ 47,035

C050

Continuum Dynamics, Inc.

P.O. Box 3073
Princeton, NJ 08543
609-734-9282

* Rotary Wing Hover Performance Prediction

83-1-03.07 9282
I: NAS2-11730
II: NAS2-12148
Donald B. Bliss

NASA ARC
\$ 48,539
\$497,143

* Advanced Free-Wake Analysis for Unsteady Airloads on Rotors

86-1-02.10-9282
I: NAS2-12554
II: NAS2-12838
Todd R. Quackenbush

NASA ARC
\$ 49,645
\$495,416

* Optimization of Rotor Performance Using a Free Wake Analysis

87-1-02.10-9282
I: NAS2-12789
II: NAS2-13092
Todd R. Quackenbush

NASA ARC
\$ 48,885
\$494,378

Main-Rotor-Wake and Tail-Rotor Interaction Noise

87-1-02.12-9282
I: NAS1-18607
Alan J. Bilanin

NASA LaRC
\$ 47,727

* New Computational Method for Aeroelastic Problems in Turbomachines

88-1-01.06-9282
I: NAS3-25574
II: NAS3-T B D
Alan J. Bilanin

NASA LeRC
\$ 49,909
\$ T B D

* An Aircraft-Mounted, Rainfall-Rate Instrument

88-1-03.02-9282
I: NAS1-18819
II: NAS1-19100
Alan J. Bilanin

NASA LaRC
\$ 48,240
\$471,505

General Flow-Field Analysis Methods for Helicopter Rotor Aeroacoustics

89-1-02.09-9282
I: NAS1-19023
Alan J. Bilanin

NASA LaRC
\$ 47,959

C051
Continuum, Inc.
4715 University Drive #118
Huntsville, AL 35805
Last Known Address

* Transient and Three-Dimensional Rocket Engine Analysis
83-1-11.06-9310 NASA MSFC
I: NAS8-35846 \$ 49,450
II: NAS8-35260 \$499,804
Richard C. Farmer

C052
Cordec Corporation
8270-B Cinder Bed Road -- P.O. Box 188
Lorton, VA 22079-0188
703-550-8044

Fabrication of Precision Wires from Ion-Plated,
Aluminum-Graphite Composite Tape
84-1-04.07-7227 NASA JSC
I: NAS9-17284 \$ 48,926
Raymond J. Weimer

Microstructurally Toughened, Intermetallic Matrix Composites
89-1-04.04-8044 NASA LeRC
I: NAS3-25838 \$ 49,880
Raymond J. Weimer

New Fabrication Methods for Dimensionally Stable,
Graphite-Magnesium Space Structures
89-1-04.13-8044 NASA JSC
I: NAS9-18313 \$ 49,950
Raymond J. Weimer

C053
Covalent Associates, Inc.
52 Dragon Court
Woburn, MA 01801
617-938-1140

* Thermally Stable Electrolytes for Chargeable Lithium Batteries
84-1-10.08-1140 NASA JPL
I: NAS7-944 \$ 74,690
II: NAS7-967 \$464,000
Victor R. Koch

High-Cycle-Life, Rechargeable, Aluminum Batteries Employing
Novel Organic Cathodes
87-1-10.02-1140 NASA JPL
I: NAS7-1023 \$ 50,000
Victor R. Koch

C054
Creare, Inc.
P.O. Box 71
Hanover, NH 03755
603-643-3800

* A Reliable, Long-Lifetime, Closed-Cycle Cryocooler for Space
84-1-09.12-3800B NASA GSFC
I: NAS5-28642 \$ 47,147
II: NAS5-29436 \$490,000
Herbert Sixsmith

* An All-Metal, Compact, Heat Exchanger for Spaceborne
Cryocoolers
85-1-09.07-3800 NASA GSFC
I: NAS5-29277 \$ 49,300
II: NAS5-30172 \$499,992
Herbert Sixsmith

* High-Heat-Flux, Evaporating Heat Exchanger for Zero Gravity
85-1-09.14-3800 NASA JSC
I: NAS9-17574 \$ 49,128
II: NAS9-17810 \$499,342
Javier A. Valenzuela

* A Long-Life Centrifugal Pump for Helium II Transfer
86-1-08.06-3800 NASA ARC
I: NAS2-12560 \$ 49,766
II: NAS2-12950 \$499,810
Herbert Sixsmith

* Low-Film-Resistance Condenser for Operation in a Gravity-Free
Environment
86-1-09.13-3800 NASA JSC
I: NAS9-17742 \$ 49,300
II: NAS9-17989 \$498,900
Javier A. Valenzuela

* Numerical Modeling Tools for Chemical Vapor Deposition
86-1-15.06-3800 NASA LaRC
I: NAS1-18413 \$ 48,970
II: NAS1-18648 \$497,587
Thomas Jasinski

* Multigrid Solution of Internal Flows Using Unstructured,
Solution-Adaptive Meshes
87-1-01.01-3800 NASA LeRC
I: NAS3-25405 \$ 49,998
II: NAS3-25785 \$500,000
Wayne Smith

* Compact, High-Performance Heat Exchangers for Space
Station Thermal Control
87-1-09.04-3800 NASA JSC
I: NAS9-17936 \$ 49,880
II: NAS9-18167 \$499,823
Javier A. Valenzuela

* Three-Phase Inverter for Ultra-High-Speed Motor Drive
87-1-09.05-3800 NASA GSFC
I: NAS5-30272 \$ 49,784
II: NAS5-30630 \$491,293
Javier A. Valenzuela

* A 4K Stirling Cryocooler Demonstration
88-1-08.12-3800 NASA JPL
I: NAS7-1041 \$ 49,268
II: NAS7-T B D \$ T B D
W. Dodd Stacy

Advanced Modeling of Combustion Systems
89-1-02.01-3800 NASA LaRC
I: NAS1-19024 \$ 48,945
Jayathi Y. Murthy

Magnetic Bearings for Miniature, High-Speed Turbomachines
89-1-09.12-3800A NASA GSFC
I: NAS5-30854 \$ 48,968
Herbert Sixsmith

Condenser Design for Alkali-Metal Thermoelectric Conversion
Systems
89-1-09.13-3800 NASA MSFC
I: NAS8-38436 \$ 49,901
Christopher J. Crowley

Numerical Modeling of Particle Formation and Growth During
Chemical Vapor Deposition
89-1-15.03-3800 NASA LaRC
I: NAS1-19029 \$ 49,919
Thomas J. Jasinski

C055

Creative Enterprises

10323 Rue Finistere
San Diego, CA 92131
Last Known Address

An Expert System for Space Power Design

84-1-10.07-5030 NASA LeRC
I: NAS3-23900 \$ 49,293
Ralph S. Cooper

C056

Cree Research, Inc.

2810 Meridian Parkway #176
Durham, NC 27713
919-361-5709

* High-Temperature, Silicon Carbide, Power MOSFET
88-1-01.03-5709A NASA LeRC
I: NAS3-25607 \$ 49,529
II: NAS3-25956 \$483,000
John W. Palmour

C057

Cryolab, Inc.

4175 Santa Fe Road
San Luis Obispo, CA 93401
805-541-2796

* Cost-Effective Use of Liquid Nitrogen in Cryogenic Wind Tunnels
85-1-02.02-2796A NASA LaRC
I: NAS1-18216 \$ 49,489
II: NAS1-18481 \$486,425
Glen E. McIntosh

C058

Crystal Research

1441 Sunnyside Terrace
San Pedro, CA 90732
213-831-0760

Miniaturized Fiber-Pulling Apparatus for Producing Single-Crystal-Core Glass Fibers in Microgravity
87-1-15.01-0760 NASA LeRC
I: NAS3-25400 \$ 49,316
Paul J. Shilchta

C059

Crystallume

3180 Porter Drive, Suite 2
Palo Alto, CA 94304
415-494-0660

Diamond Thin-Films for Detectors
87-1-08.16-0660 NASA GSFC
I: NAS5-30273 \$ 50,000
Michael Pinner

D

D001

DCW Industries, Inc.
5354 Palm Drive
La Canada, CA 91011
818-790-3844

Wiener-Hermite Simulation of Turbulence

84-1-02.01-3844 NASA ARC
I: NAS2-12103 \$ 50,000
David C. Wilcox

D002

DSET Laboratories, Inc.
Box 1850 Black Canyon Stage I
Phoenix, AZ 85029
602-465-7356

Thermal Control Coatings for Composite Structures
88-1-04.03-7356R NASA LaRC
I: NAS1-18825 \$ 50,000
John E. Brzuskieicz

D003

DWA Composite Specialties, Inc.
21119 Superior Street
Chatsworth, CA 91311-4393
818-998-1504

High-Temperature, Aluminum-Bronze Matrix Composites
84-1-04.01-1504 NASA LeRC
I: NAS3-23897 \$ 48,480
Edward C. Supan

* Space Structures Concepts and Materials

84-1-04.13-1504 NASA MSFC
I: NAS8-35264 \$ 47,837
II: NAS8-37257 \$498,000
Edward C. Supan

* Electronic Component Temperature Control Using Metal-Matrix Composites

84-1-09.05-1504 NASA LeRC
I: NAS3-24245 \$ 49,818
II: NAS3-24896 \$472,000
Edward C. Supan

* Composite Structural Elements with Integral End Fittings

85-1-04.04-1504 NASA MSFC
I: NAS8-36264 \$ 49,887
II: NAS8-37346 \$497,983
Timothy A. Loftin

* End Fittings for Hinged and Rigid Joints between Graphite-Aluminum Tubular Elements

85-1-04.11-1504 NASA JSC
I: NAS9-17570 \$ 49,745
II: NAS9-17805 \$497,462
Timothy A. Loftin

* Composite Heat-Pipe Concepts Using Pitch-Graphite/Metal Composites

85-1-09.10-1504 NASA JSC
I: NAS9-17571 \$ 49,959
II: NAS9-17806 \$498,256
Timothy A. Loftin

Body-Mounted Radiators on Space Structures

85-1-09.19-1504 NASA MSFC
I: NAS8-36261 \$ 49,854
Timothy A. Loftin

* Ultra-Low-CTE, Discontinuous, Metal Matrix Composite Space Truss
87-1-04.05-1504 NASA JSC
I: NAS9-17938 \$ 49,954
II: NAS9-18168 \$500,000
Olin Hudson

D004
Daedalus Enterprises, Inc.
P.O. Box 1869
Ann Arbor, MI 48106
313-769-5649

* Airborne Multispectral Scanner to Measure Ocean Biomass
83-1-08.15-5649 NASA ARC
I: NAS2-11737 \$ 49,951
II: NAS2-12116 \$476,799
Frederick G. Osterwisch

* Portable Infrared Emission Spectrometer
86-1-08.26-5649 NASA JPL
I: NAST-988 \$ 49,436
II: NAST-1030 \$486,000
James P. Lehotsky

* Airborne Multispectral Scanner to Measure Characteristics of Fires
86-1-08.29-5649 NASA ARC
I: NAS2-12562 \$ 49,457
II: NAS2-13036 \$539,000
Frederick G. Osterwisch

Three-Dimensional Laser Imager
87-1-05.01-5649 NASA GSFC
I: NAS5-30275 \$ 49,487
Scott L. Strodtman

* Portable, Multispectral, Thermal Infrared Camera
87-1-08.06-5649 NASA JPL
I: NAST-1010 \$ 49,260
II: NAST-1063 \$466,031
Frederick G. Osterwisch

* Interferometric Imaging and Frequency Estimation of Surface Vibration Patterns
88-1-03.06-5649 NASA ARC
I: NAS2-12889 \$ 49,970
II: NAS2-T B D \$ T B D
Karl G. Wesclowicz

Feasibility of Modifying a Thermal Scanner to Measure Lava Flow Characteristics
88-1-08.08-5649A NASA JPL
I: NAS7-1054 \$ 49,958
James P. Lehotsky

D005
Dataflow Computer Corp.
85 East India Row
Boston, MA 02110
617-484-8932

Program Mapping Strategies for Multiprocessor Computers
89-1-06.06-2748A NASA ARC
I: NAS2-13165 \$ 49,150
Jack B. Dennis

D006
Datawise, Inc.
1915 E Colonial Drive, Suite 22
Orlando, FL 32803
305-894-7701

Automated Database Design Methodology
87-1-06.02-7701 NASA LaRC
I: NAS1-18621 \$ 50,000
Kathryn C. Kinsley

D007
David Hall Consulting
752 Peakskill Drive
Sunnyvale, CA 94087
408-773-1355

Integrated Design System for High-Altitude, Long-Endurance Aircraft for Micro-Computers
87-1-03.04-9024 NASA ARC
I: NAS2-12773 \$ 50,000
David W. Hall

D008
Deacon Research
2440 Embarcadero Way
Palo Alto, CA 94303
415-493-6100

Simultaneous Temperature, Density, and Flow Diagnostics for Aeropropulsion Systems
87-1-01.03-1520 NASA LaRC
I: NAS3-25401 \$ 47,768
Anthony O'Keefe

Stimulated Brillouin Diagnostics of Hypersonic Flow
87-1-02.06-1520 NASA JSC
I: NAS9-17937 \$ 49,933
Anthony O'Keefe

* Technique to Evaluate UV-Induced Degradation of Space Optics
88-1-08.17-1520 NASA GSFC
I: NAS5-30457 \$ 49,979
II: NAS5-30881 \$480,675
M. H. Bakshi

Remote Measurement System for Arc-Jet Temperature and Density
89-1-02.04-1520 NASA ARC
I: NAS2-13172 \$ 49,773
Douglas Bamford

D009
Decision Science Consortium
1895 Preston White Drive, Suite 300
Reston, VA 22091
703-620-0660

* Aeronautical Human Factors Research
87-1-03.03-0660 NASA ARC
I: NAS2-12795 \$ 47,913
II: NAS2-13056 \$486,959
Marvin S. Cohen

D010

Defense Research Technologies

3454 Hungerford Drive
Rockville, MD 20850
301-762-3077

Acousto-Fluidic Noise Generator for Aircraft Component
Structure Testing
88-1-02.12-3077 NASA LaRC
I: NAS1-18820 \$ 49,062
Allen B. Holmes

D011

Defense Systems, Inc.

7903 Westpark Drive
McLean, VA 22102
703-883-1497

* Low-Power Spectrum Analysis and Real-Time Data
Compression
84-1-07.06-1000 NASA GSFC
I: NAS5-28674 \$ 49,809
II: NAS5-29432 \$207,000
Donald L. Starkey

* Standard Gas Satellite
87-1-09.09-1000 NASA GSFC
I: NAS5-30276 \$ 49,998
II: NAS5-30618 \$485,714
Richard Fleeter

D012

Del-Tech, Inc.

703 Middle Ground Boulevard
Newport News, VA 23606
Last Known Address

Application of Parameter Extraction at Extreme Angles of Attack
84-1-03.05-8747 NASA LaRC
I: NAS1-17933 \$ 29,992
Robert T. Taylor

D013

Delta G Corporation

9960-A Glenoaks Blvd
Sun Valley, CA 91352
818-767-4000

High-Temperature, Hostile-Environment Instruments
Manufactured by CVD
89-1-01.03-4888 NASA LeRC
I: NAS3-25826 \$ 49,984
Robert A. Holzl

D014

Demografx

10720 Hepburn Circle
Culver City, CA 90232
213-837-2985

Application of High-Performance Digital Video to Computer
Storage
89-1-06.06-2985 NASA ARC
I: NAS2-13164 \$ 47,895
Gary Demos

D015

Detector Technology, Inc.

P.O. Box K-300
Brookfield, MA 01506
508-867-5411

* Large-Area Microchannel Plate Manufacture
85-1-08.07-4030 NASA GSFC
I: NAS5-29274 \$ 50,000
II: NAS5-30084 \$499,950
Peter W. Graves

Manufacturing Large Area, High-Gain Microchannel Plates
88-1-08.13-5411 NASA GSFC
I: NAS5-30456 \$ 45,576
Thomas J. Loretz

D016

Diedesdyne Corporation

3044 Middleboro Road
Morrow, OH 45152
513-899-3226

An Advanced Heat Rejection System for an AVCD Engine in a
High-Altitude Research Platform

89-1-03.08-3226B NASA ARC
I: NAS2-13131 \$ 42,650
Richard P. Johnston

D017

Digital Analysis Corporation

1889 Preston White Drive
Reston, VA 22091
703-476-5900

* Communications for Distributed and Concurrent Processing on
Microcomputers
85-1-07.10-0396 NASA GSFC
I: NAS5-29273 \$ 49,588
II: NAS5-30085 \$500,000
John Roy Tole

D018

Digital Signal Corporation

8003 Forbes Place
Springfield, VA 22151
703-321-9200

* Improvement of Range of Coherent Laser Radar
87-1-05.01-4910 NASA LaRC
I: NAS1-18640 \$ 49,986
II: NAS1-18890 \$484,000
Steve Kenyon

Integrated, Fiber-Optic-Coupled, Proximity Sensor for Robotic
End Effectors and Tools
87-1-05.01-4910A NASA JPL
I: NAS7-1004 \$ 49,995
Anthony R. Slotwinski

A Multiple-Read, SAW-Tag Inventory System
88-1-12.06-9200 NASA JSC
I: NAS9-18089 \$ 49,935
John Cater

Wavelength Dplexed, Fiber-Coupled, Coherent Laser Radar
Measurement System
89-1-05.01-9200 NASA LaRC
I: NAS1-19020 \$ 49,560
Anthony R. Slotwinski

D019

Dimension Technologies, Inc.

176 Anderson Avenue
Rochester, NY 14607
716-442-7450

A High-Resolution Autostereoscopic Display

89-1-06.06-7450 NASA ARC
I: NAS2-13177 \$ 47,060
Jesse B. Eichenlaub

D020

Direct Current Light

15116 Gerkin
Lawndale, CA 90260
213-973-5801

Applications of an Automatic Inventory and Personnel Tracking System

88-1-12.05-5801 NASA JSC
I: NAS9-18090 \$ 49,530
Stephen Dale Smith

D021

Displaytech, Inc.

2200 Central Avenue
Boulder, CO 80301
303-449-8933

Multicolor Flat-Panel Display Using Tunable Birefringence Filters

88-1-09.03-8933 NASA JSC
I: NAS9-18091 \$ 49,743
Mark A. Handschy

D022

Down To Earth

2039 Shattuck Avenue #402
Berkeley, CA 94704
415-548-1262

Modular ECLSS for a Mid-Deck Animal Habitat Testbed

87-1-12.06-1262 NASA ARC
I: NAS2-12820 \$ 49,820
Richard C. Mains

D023

Dr. Murray S. Cohen and Associates

103 Washington Street, Suite 305
Morristown, NJ 07960
Last Known Address

Protecting Steel Structures with Polymers That Expand When Cured

84-1-04.12-4495 NASA KSC
I: NAS10-11141 \$ 50,000
Murray S. Cohen

D024

Dynacom Company

1417 Coffeyville Tr.
Plano, TX 75023
214-272-0515

Multiple Access Communication with Noise Cancellation

83-1-14.03-0515 NASA JSC
I: NAS9-17027 \$ 45,170
Timothy R. Minor

D025

Dynamic Analysis & Testing

2231 Faraday Avenue, Suite 103
Carlsbad, CA 92008
619-931-9511

Propeller-Wake-Induced, Structure-Borne Interior Noise

87-1-01.02-9511 NASA LaRC
I: NAS3-25338 \$ 49,915
C. Thomas Savell

D026

Dynamic Microsystems

475E Cannon Green Drive
Goleta, CA 93117
805-961-4974

A VLSI Three-Dimensional Processor for Advanced Robotic Manipulation

89-1-05.06-3729 NASA JPL
I: NAS7-1096 \$ 49,886
Yulan Wang

A Precise, Force-Controlled Robotic System

89-1-05.06-3729A NASA JPL
I: NAS7-1086 \$ 49,976
Yulan Wang

D027

Dynamics Technology, Inc.

21311 Hawthorne Boulevard, Suite 300
Torrance, CA 90503
213-543-5433

* Fiber-Optic Magnetometer for Spacecraft Applications

85-1-08.10-5433 NASA JPL
I: NAST-960 \$ 50,000
II: NAST-1001 \$457,000
C. Michael Dube

E

E001

E-Tek Dynamics, Inc.

1885 Lundy Avenue
San Jose, CA 95131
408-532-6300

Robot Vision Using Multiaperture Optics

83-1-05.01-1820 NASA JSC
I: NAS9-17026 \$ 49,414
M. L. Kao

Fiber-Optic Links for 30/20 GHz Satellite Communication Terminal

83-1-14.03-1820 NASA LeRC
I: NAS3-23786 \$ 49,660
J. J. Pan

* Tunable Laser Diode and Optical Phase-Locked Loop for Lidar Tracking and Sensors

86-1-09.16-3226A NASA JSC
I: NAS9-17739 \$ 49,767
II: NAS9-17992 \$488,950
J. J. Pan

* Microminiature Electro-Optic Switching Matrix Module

86-1-13.04-3226 NASA KSC
I: NAS10-11375 \$ 49,801
II: NAS10-11515 \$482,141
J. J. Pan

* High-Performance, Millimeter-Wave Microstrip Circulators and Isolators

86-1-14.07-3226A NASA JPL
I: NAS7-991 \$ 49,704
II: NAS7-1035 \$225,612
J. J. Pan

Microwave Fiber-Optic Link for Satellite Communications and Antenna Remoting

87-1-13.02-3226 NASA KSC
I: NAS10-11460 \$ 49,854
J. J. Pan

E002

ECO - See *Tracer Technologies*
20 Assembly Square Drive
Somerville, MA 02145
617-776-6610

* Small, High-Rate Battery for Distress Transmitters

83-1-10.08-7010 NASA GSFC
I: NAS5-27994 \$ 49,765
Fraser Walsh

A New Class of High-Performance Lithium Batteries

85-1-10.06-7010 NASA JPL
I: NAS7-958 \$ 49,135
Fraser Walsh

E003

ECON, Inc.
4020 Moorpark Avenue Suite 216
San Jose, CA 95117
408-249-6364

Knowledge-Based-Systems Technologies for Advanced Decision Support System

88-1-06.04-6364 NASA ARC
I: NAS2-12963 \$ 49,352
John P. Skratt

E004

EIC Laboratories, Inc.
111 Downey Street
Norwood, MA 02062
617-769-9450

* Electrochromic Panels for Control of Radiant Energy Transfer

84-1-09.04-9450 NASA MSFC
I: NAS8-35267 \$ 49,595
II: NAS8-37259 \$495,000
R. David Rauh

* Photoelectrochemical Fabrication of Spectroscopic Diffraction Gratings

85-1-08.01-9450 NASA GSFC
I: NAS5-29279 \$ 50,000
II: NAS5-30086 \$498,548
R. David Rauh

Integrated MOS Chemical Sensors Utilizing Inorganic Insertion Compounds

86-1-08.15-9450 NASA JPL
I: NAS7-986 \$ 50,000
R. David Rauh

Photoelectrochemical Fabrication of Spectroscopic Diffraction Gratings in Silicon Carbide

87-1-08.19-9450 NASA GSFC
I: NAS5-30277 \$ 50,000
Michael M. Carrabba

* A Variable-Transmittance, Electrochromic Space Suit Visor

87-1-12.01-9450 NASA JSC
I: NAS9-17939 \$ 50,000
II: NAS9-18169 \$495,000
Stuart F. Cogan

* Long-Cycle-Life, Rechargeable Lithium Batteries

88-1-10.02-9450 NASA JPL
I: NAS7-1042 \$ 50,000
II: NAS7-T B D \$ T B D
K. M. Abraham

High-Temperature Superconducting Composites

88-1-10.06-9450 NASA GSFC
I: NAS5-30494 \$ 50,000
Stuart F. Cogan

* Real-Time Hydrazine Monitoring with Surface-Enhanced Raman Spectroscopy

88-1-13.01-9450A NASA KSC
I: NAS10-11557 \$ 50,000
II: NAS10-11669 \$311,771
M. W. Rupich

Efficient, Far-Infrared, Inductive Mesh Filters by Photoelectrochemical Etching

89-1-08.12-9450 NASA ARC
I: NAS2-13166 \$ 49,605
Michael M. Carrabba

Photoetched Echelle Gratings in Silicon

89-1-08.18-9450 NASA GSFC
I: NAS5-30844 \$ 49,165
Michael M. Carrabba

Robust High-Tc Ribbon for Power Transmission

89-1-10.07-9450 NASA JPL
I: NAS7-1092 \$ 50,000
James D. Klein

E005

EMEC Consultants
R.D. 3, Roundtop Road
Export, PA 15632
412-325-3260

* Dry Extraction of Silicon and Aluminum from Lunar Ores

85-1-04.13-3260 NASA JSC
I: NAS9-17575 \$ 50,000
II: NAS9-17811 \$483,125
Rudolf Keller

Production of Oxygen by Electrolysis of Lunar Soil in Molten Salt

89-1-04.18-3260A NASA JSC
I: NAS9-18325 \$ 50,000
Rudolf Keller

E006

ENSCO, Inc.
445 Pineda Court
Melbourne, FL 32940
703-321-9000

* Kennedy Space Center Atmospheric Boundary Layer Experiment

87-1-13.08-4122 NASA KSC
I: NAS10-11466 \$ 49,890
II: NAS10-11544 \$473,663
Gregory E. Taylor

Meteorological Monitoring System 89-1-13.03-4122 I: NASA10-11660 Gregory E. Taylor	NASA KSC \$ 48,066	Management System for High-Performance Aircraft 88-1-03.03-9316A I: NASA1-18805 John Hodgkinson	NASA LaRC \$ 49,989
E007 ETC - Now the RJ Lee Group 350 Hochberg Road Monroeville, PA 15146 412-325-1776		Aerodynamic Control of the F/A-18 Using Forebody Vortex Blowing 88-1-02.06-8228A I: NASA2-13155 Gerald N. Malcolm	NASA ARC \$ 49,420
Using CCCSEM Cluster and Fractal Analysis Techniques to Characterize Atmospheric Aerosols 86-1-08.07-1776 I: NASA8-37313 Gary S. Casuccio	NASA MSFC \$ 42,784	An Improved Methodology to Assess Departure Susceptibility Versus Agility 89-1-03.03-8228A I: NASA1-19009 Joseph R. Chody	NASA LaRC \$ 49,500
E008 Earth Space Research, Inc. 3840 Sequoia St. San Diego, CA 92109 619-273-5049		E011 Electrasol Laboratories, Inc. 2326 Fieldingwood Road Maitland, FL 32751 <i>Last Known Address</i>	
Software Package to Compute the Incoming and Net Solar Irradiance at the Surface from GOES VISSR Data 87-1-08.05-5049C I: NASA7-1005 Frederick C. Mertz	NASA JPL \$ 49,720	Robotic Interface for Vernier Positioning 83-1-05.06-0511 I: NASA9-17032 Harold R. Dessau	NASA JSC \$ 50,000
E009 Eastern Analytical, Inc. 335 Paint Branch Drive College Park, MD 20742 301-454-7751		E012 Electro Design Manufacturing P.O. Box 2569 Decatur, AL 35602 205-353-3855	
Selective Enrichment of Stable Calcium Isotopes Using Laser Techniques 89-1-12.01-7751I I: NASA9-18314 Larry J. Moore	NASA JSC \$ 49,928	Temperature Measurement by Noncontact Method for Czochralski-Type Crystal Growth 87-1-15.01-3855 I: NASA8-37622 Robert D. Young	NASA MSFC \$ 49,154
E010 Eldetecs International, Inc. 3415 Lomita Boulevard Torrance, CA 90505 213-373-9316		E013 Electro Magnetic Applications P.O. Box 260263 Denver, CO 80226-0263 303-980-0070	
* Cockpit Displays and Cueing Systems Concepts for Operation in an Extended Flight Envelope 86-1-03.08-9316 I: NASA2-12587 II: NASA2-12728 Robert W. Foltyne	NASA ARC \$ 49,939 \$488,875	Triggering of Lightning by Launch Vehicles During Ascent 88-1-13.03-0070A I: NASA10-11564 Rodney A. Peralta	NASA KSC \$ 49,685
Flow Visualization Study of Delta Wings in Wing-Rock Motion 87-1-02.09-9316 I: NASA2-12787 Gerald N. Malcolm	NASA ARC \$ 49,461	E014 Electro-Optek Corporation 3152 Kashiwa Street Torrance, CA 90505 213-534-3666	
* A Gravity-Induced Loss-of-Consciousness Detection and Recovery System - Air Force Phase I 87-1-03.03-8228 II: NASA2-12985 Robert W. Parker	NASA ARC \$498,384	Molecular Beam Epitaxy of HgCdTe in Space 85-1-15.01-8779 I: NASA8-36255 William S. Chan	NASA MSFC \$ 50,060
* Aerodynamic Control of NASP-Type Vehicles Through Vortex Manipulation 88-1-02.08-9316B I: NASA2-12989 II: NASA2-13196 Gerald N. Malcolm	NASA ARC \$ 49,544 \$460,234	* Cryogenically-Cooled InSb JFET 88-1-08.13-3666 I: NASA5-30496 II: NASA5-30909 William S. Chan	NASA GSFC \$ 48,567 \$495,369
		* Fabrication of Photovoltaic, Laser-Energy Converter by MBE 88-1-10.04-3666 I: NASA1-18813 II: NASA1-19090 William S. Chan	NASA LaRC \$ 49,300 \$481,150

E015

Electro-Optics Technology, Inc.

4057 Clipper Court
Fremont, CA 94538
415-651-4022

Multiple-Diode-Pumped Ho:Tm:YAG Planar Ring Laser
89-1-08.08-4022 NASA MSFC
I: NAS8-38441 \$ 50,000
David G. Scerbak

E016

Electroformed Nickel, Inc.

283 Winfield Circle
Corona, CA 91720
714-371-4704

High-Temperature, Oxidation-Barrier Coatings for Refractory Metals
89-1-11.01-4707 NASA LeRC
I: NAS3-25837 \$ 48,761
Glenn A. Malone

E017

ElectroImpact, Inc.

2721 N.E. Blakeley Street
Seattle, WA 98105
206-525-2403

Eddy Current Repulsion De-Icing Strip
89-1-03.01-2403 NASA LeRC
I: NAS3-25836 \$ 49,998
Peter Zieve

E018

Electronic Associates, Inc.

185 Monmouth Parkway
West Long Branch, NJ 07764
201-229-1100

* A Parallel Processor for Simulating Manipulators and Mechanical Systems
88-1-05.03-1100 NASA GSFC
I: NAS5-30497 \$ 46,651
II: NAS5-30905 \$443,756
George Hannauer

E019

Eltron Research, Inc.

4260 Westbrook Drive
Aurora, IL 60505
312-898-1583

* Electrochemical Generation of Useful Chemical Species from Lunar Materials
86-1-04.12-1583B NASA JSC
I: NAS9-17743 \$ 49,969
II: NAS9-17991 \$495,000
Anthony F. Sammells

E020

Emerson & Stern Associates, Inc.

10150 Sorrento Valley Rd #210
San Diego, CA 92121
619-457-2526

Voice Input-Output for Flight Management Systems
88-1-03.11-2526 NASA ARC
I: NAS2-12972 \$ 49,649
S. E. Hutchins

E021

Energy Optics, Inc.

224 North Campo Street
Las Cruces, NM 88001
505-523-4561

* Dead-Reckoning, Optoelectronic, Intelligent Docking System
84-1-05.04-4561 NASA JSC
I: NAS9-17283 \$ 50,000
II: NAS9-17603 \$500,000
Steven M. Ward

* Miniature Infrared Data Acquisition and Telemetry System
84-1-08.13-4561 NASA LaRC
I: NAS1-17944 \$ 50,000
II: NAS1-18285 \$451,000
Steven M. Ward

Non-Flight Equipment Removal Verification Employing IR
86-1-13.08-4561 NASA KSC
I: NAS10-11376 \$ 50,000
Charles Maxwell

E022

Energy Research & Generation - Now Aker

Industries
952 - 57th Street
Oakland, CA 94608
415-658-7248

Light-Weight Linear Alternators for Free-Piston Stirling Power Systems
83-1-10.04-9786 NASA LeRC
I: NAS3-23870 \$ 49,995
Glendon M. Benson

Active Refrigeration and Heat-Pump Thermal Control of Spacecraft
84-1-09.11-9785 NASA MSFC
I: NAS8-35271 \$ 49,992
Glendon M. Benson

E023

Energy Science Laboratories, Inc.

P.O. Box 85608
San Diego, CA 92138-5608
619-455-4688

* Disposable-Tether Payload Deployment System
83-1-09.06-7039 NASA MSFC
I: NAS8-35843 \$ 49,630
II: NAS8-35256 \$497,422
Joseph A. Carroll

* A Deployable, 1 MW, Solar Concentrator with Receiver with Heat Storage
84-1-10.04-7039 NASA LeRC
I: NAS3-24397 \$ 49,881
II: NAS3-24882 \$480,000
Joseph A. Carroll

* Ultrafine Particle and Fiber Production in Micro-Gravity
84-1-15.03-7039 NASA MSFC
I: NAS8-35279 \$ 49,623
II: NAS8-37253 \$469,000
George W. Webb

Controllable Emissivity Coating
86-1-09.07-7039 NASA MSFC
I: NAS8-37316 \$ 49,917
James R. Clinton

Composite Regenerator for Stirling Engine
89-1-10.01-4688 NASA LaRC
I: NAS3-25888 \$ 49,960
Timothy R. Knowles

E024
Energy and Science Consultants

101 Henry Lee Lane
Grafton, VA 23692
Last Known Address

Laminar Flow Control, Supercritical LFC, and Hybrid (NLF/LFC)
Airfoils

84-1-02.02-8218 NASA LaRC
I: NAS1-17950 \$ 52,470

Werner Pfenninger

Design of Multi-Element, Natural Laminar Flow Airfoils
84-1-02-8218A NASA LaRC
I: NAS1-17949 \$ 35,226

Jeffrey K. Viken

E025
Engineering Analysis, Inc.

715 Arcadia Circle
Huntsville, AL 35801-5909
205-533-9391

Calculation of Surface Pressure Fluctuations Based on
Time-Averaged, Turbulent Flow Computations
89-1-02.03-9391 NASA MSFC
I: NAS8-38466 \$ 49,964

Frank B. Tatom

The Applications of Fractional Calculus to Noise Simulation
89-1-02.09-9391 NASA MSFC
I: NAS8-38452 \$ 49,752

Frank B. Tatom

E026
Engineering Analysis, Inc.

Box 1197 Welch Avenue Station
Ames, IA 50010
515-232-3694

* A Robust, Nonequilibrium, Parabolized Navier-Stokes Code
86-1-02.01-4766 NASA ARC
I: NAS2-12552 \$ 49,906
II: NAS2-12861 \$208,007

Philip E. Buelow

E027
Engineering Development Laboratory

11840 Canon Boulevard, Suite 500
Newport News, VA 23606
804-873-0905

Smart Angle-of-Attack and Angle-of-Sideslip Sensor
87-1-03.07-0905 NASA LaRC
I: NAS1-18662 \$ 47,161

Richard E. Campbell

E028
Engineering Mechanics Associates

3820 Del Amo Boulevard, Suite 318
Torrance, CA 90503
213-370-2551

* Methods for Evaluating the Predictive Accuracy of Structural
Dynamic Models
87-1-04.10-2551 NASA JPL
I: NAS7-1020 \$ 49,896
II: NAS7-1064 \$494,478

Timothy K. Hasselman

E029
Engineering Research & Consulting, Inc.
P.O. Box 417
Tullahoma, TN 37388
615-455-9915

* Intelligent Hypertext Systems for Aerospace Knowledge
Representation
88-1-03.09-9915 NASA ARC
I: NAS2-12965 \$ 48,763
II: NAS2-T B D \$ T B D

Z. George Shi

E030
Entech, Inc.
P.O. Box 612246
Dallas-Ft. Worth Airport, TX 75261
214-456-0900

* A Fresnel Lens, Gallium-Arsenide, Photovoltaic Concentrator for
Space Applications
85-1-10.02-0900 NASA LeRC
I: NAS3-24871 \$ 49,955
II: NAS3-25192 \$445,000

Mark J. O'Neill

E031
Epitaxx, Inc.
3490 US Route One
Princeton, NJ 08540
609-452-1188

* A Laboratory-Standard, Indium-Gallium-Arsenide Detector for
the 0.5 - 1.7 Micron Spectral Range
86-1-08.04-1188 NASA GSFC
I: NAS5-30043 \$ 49,223
II: NAS5-30312 \$500,000

Gregory H. Olsen

* High-Performance, Indium-Gallium-Arsenide Detector Arrays for
1.0 - 2.5 Micron Imaging Devices At 300 K
87-1-08.16-1188 NASA GSFC
I: NAS5-30278 \$ 49,959
II: NAS5-30627 \$497,211

Vladimir S. Ban

High-Gain, Avalanche Photodiode Arrays for Long-Wavelength
Applications
88-1-08.01-1188 NASA JPL
I: NAS7-1043 \$ 49,909

Gregory H. Olsen

Visible Semiconductor Diode Lasers Grown by Hydride
Vapor-Phase Epitaxy
89-1-07.06-1188 NASA LaRC
I: NAS1-19030 \$ 49,030

Donald E. Ackley

A 128 X 128 Element Indium-Gallium-Arsenide, IR Detector
Array at 300K
89-1-08.01-1188 NASA JPL
I: NAS7-1087 \$ 49,949

Gregory H. Olsen

E032

Ergo-Tech Systems, Inc.

6937 Estepa Drive
Tujunga, CA 91042
818-352-1759

Direct Simulation Monte Carlo of Vacuum Plumes
87-1-02.08-1759 NASA MSFC
I: NAS8-37623 \$ 49,917
Jose E. Chirivella

Computer Simulation of Transient Operation of Small Bipropellant Engines
89-1-11.06-1759 NASA JPL
I: NAS7-1080 \$ 49,966
Jose E. Chirivella

E033

Essex Corporation

1040 Woodcock Road, Suite 227
Orlando, FL 32803
407-894-5090

* Refinements for Eddy Current Techniques

83-1-13.02-4500 NASA MSFC
I: NAS8-35847 \$ 49,995
II: NAS8-35261 \$436,000
Ronald J. Reiner

Space Adaptation

84-1-12.02-5090A NASA JSC
I: NAS9-17278 \$ 50,773
Robert S. Kennedy

Relevance of Visual Accommodation for Performance in Spacecraft

86-1-12.02-5090 NASA JSC
I: NAS9-17745 \$ 54,667
Robert S. Kennedy

E034

Excel Technology, Inc.

140-20 Keyland Court
Bohemia, NY 11716
516-563-7067

Tunable Solid-State Cr:ZnWO₄ Laser at 1.083 Microns
86-1-08.10-4016 NASA JPL
I: NAS7-984 \$ 52,700
Triveni Srinivasan

SIS Detector for 100-Microns Using Thin Films of

Bi-Ca-Sr-Cu-O Superconductors
88-1-08.07-7067D NASA LaRC
I: NAS1-18803 \$ 49,929
Ramo Rao

E035

Exflour Research Corporation

P.O. Box 7807
Austin, TX 78713-7807
512-471-1032

* New Perfluoroether Fluids with Excellent Oxidative and Thermal Stabilities

84-1-01.05-3812 NASA LeRC
I: NAS3-23896 \$ 50,000
II: NAS3-24856 \$449,000
Thomas R. Bierschenk

Evaluation of Several New Perfluoropolyether Copolymers Containing Tetrafluoroethylene Oxide

88-1-04.07-3812 NASA LeRC
I: NAS3-25564 \$ 50,000
Timothy J. Juhlike

New Perfluoropolyether Elastomers for Low- and High-Temperatures

89-1-04.11-3812 NASA GSFC
I: NAS5-30809 \$ 49,878
Hajimu Kawa

E036

Exotech, Inc.

3935 Beacon Avenue, Suite D
Fremont, CA 94538
415-790-2983

High-Temperature and High-Response Skin Friction Sensor
87-1-08.20-2870 NASA LaRC
I: NAS1-18611 \$ 49,914
Ian N. Moyle

E037

Expert-Ease Systems, Inc.

1301 Shoreway Road, Suite 420
Belmont, CA 94002
415-593-3200

* An Expert Flight System Monitor
86-1-03.03-3200 NASA ARC
I: NAS2-12548 \$ 49,957
II: NAS2-12822 \$481,431
Bjorn Frogner

An Expert System to Troubleshoot Data Management Systems
86-1-05.04-3200 NASA JSC
I: NAS9-17723 \$ 49,982
Bjorn Frogner

* Architectures for Dense Multi-Microprocessor Computers
86-1-06.01-3200 NASA LaRC
I: NAS1-18430 \$ 49,742
II: NAS1-18674 \$469,000
Robert E. Larson

Expert-System-Assisted, Logic-Flowgraph Method for Hardware-Software Interaction Analysis

86-1-13.02-3200 NASA GSFC
I: NAS5-30044 \$ 49,871
Joseph M. Holzer

A System Library Facility for Parallel Computers
88-1-06.07-3200 NASA ARC
I: NAS2-12968 \$ 48,629
John O'Reilly

E038

Exportech Company, Inc.

P.O. Box 588
New Kensington, PA 15068
412-337-4415

Magnetic Beneficiation of Lunar Soil
88-1-04.11-4415 NASA JSC
I: NAS9-18092 \$ 50,000
Robin R. Oder

E039

Extrude Hone Corporation

P.O. Box 527
Irwin, PA 15642
412-863-5900

* Robotic Adaptive Grasping with a Capacitance-Array Tactile Sensor System

88-1-05.04-5900 NASA JSC
I: NAS9-18093 \$ 50,000
II: NAS9-T B D \$ T B D
Donald G. Risko

F**F001**

FTP Software, Inc.
 33 Richdale Avenue
 Cambridge, MA 02140
Last Known Address

High-Level, Protocol-Oriented Network Monitoring
 86-1-07.06-4878 NASA GSFC
 I: NAS5-30046 \$ 34,117
 John L. Romkey

F002

FWG Associates, Inc.
 217 Lakewood Drive
 Tullahoma, TN 37388
 615-455-1982

* Rain-Rate Instrument for Deployment at Sea
 88-1-08.02-1982 NASA MSFC
 I: NAS8-38040 \$ 49,892
 II: NAS8-38481 \$489,002
 Shad Arman

Instrumented-Rocket Wind Profiler
 89-1-13.03-1982 NASA MSFC
 I: NAS8-38465 \$ 49,775
 S. Leon Felkins

F003

Failure Analysis Associates

8411 154th Avenue N.E.
 Redmond, WA 98052
 206-881-1807

* Nonequilibrium Phase Chemistry in High-Temperature Structural
 Alloys - (see *Flow Systems for Phase I*)
 86-1-04.03-8500 NASA LaRC
 II: NAS1-18693 \$496,300
 Rong Wang

F004

Fare, Inc.
 7210 Windsor Lane
 Hyattsville, MD 20782
 301-277-7412

A Composite Material Flywheel for Energy Storage
 89-1-04.11-7412 NASA GSFC
 I: NAS5-30855 \$ 49,410
 Douglas M. Ries

F005

Femtometrics - Originally BC Associates
 1721 Whittier Avenue, Suite A
 Costa Mesa, CA 92627
 714-722-6239

* High-Sensitivity Particle and Gas Instrument Using the
 Acoustic-Wave Piezoelectric Crystal
 86-1-08.07-6239 NASA LaRC
 II: NAS1-18653 \$339,289
 Raymond L. Chuan

Continuous Detection of Toxic Vapors Using a Field-Domain
 Ion-Mobility Spectrometer
 87-1-13.01-6239 NASA KSC
 I: NAS10-11456 \$ 49,591
 Raymond L. Chuan

A Real-Time, Particle Fall-Out Monitor

89-1-13.01-6239
 I: NAS10-11651
 W. D. Bowers

NASA KSC
 \$ 49,928

F006

Fiber Materials, Inc.
 Biddeford Industrial Park
 Biddeford, ME 04005
 207-282-5911

Oxidation-Resistant Coatings for High-Strength Carbon/Carbon
 Composites
 83-1-04.01-5911 NASA LaRC
 I: NAS1-17577 \$ 49,965
 James E. Sheehan

Four-Dimensional, Impact Resistant, and Damage Tolerant
 Composites
 84-1-04.03-5911 NASA LaRC
 I: NAS1-17935 \$ 49,986
 John W. Herrick

* Ceramic-Fiber and Ceramic-Matrix Composites
 84-1-04.05-5911 NASA ARC
 I: NAS2-12104 \$ 49,826
 II: NAS2-12449 \$471,000
 M. K. Cox

F007

Fibre Optics Development Systems, Inc.
 125 South Quarantina Street
 Santa Barbara, CA 93103
 805-965-2589

* Scintillating Optical Fiber Arrays
 83-1-08.07-2589 NASA GSFC
 I: NAS5-27996 \$ 50,000
 II: NAS5-28657 \$316,568
 Harry L. Watts

Scintillating Optical Fiber Trajectory Detectors
 87-1-08.16-2589 NASA GSFC
 I: NAS5-30279 \$ 49,999
 Harry L. Watts

F008

Fleck Aerospace - See *L. W. Fleckenstein for Phase I*
 4740 N. Old Ranch Road
 Tucson, AZ 85743-9744
 602-884-0393

* An Investigation of the Properties of Cooled Supersonic Flows
 86-1-01.06-4490 NASA LeRC
 II: NAS3-25461 \$464,940
 Neil W. Hartman

F009

Fleet Tech, Inc.
 150 Coolidge Avenue
 Watertown, MA 02172
Last Known Address

Flight Recorder with Hazard Detection Capability
 83-1-03.04-1300 NASA GSFC
 I: NAS5-27977 \$ 54,730
 Heinz Wartski

F010

Flexible Computer Corporation

1801 Royal Lane, Suite 810
Dallas, TX 75229
214-869-1234

- * Floating-Point Computer Module for Array Processing on a Flex/32 Multicomputer
- | | |
|-----------------|-----------|
| 84-1-06.03-1234 | NASA LaRC |
| I: NAS1-17939 | \$ 50,000 |
| II: NAS1-18241 | \$500,000 |
- Nicholas Matelan

F011

Florida Maxima Corporation

2180 Forrest Road
Winter Park, FL 32789
407-644-9275

- Performance of Groups in Extreme Environments: A Meta-Analytic Integration
- | | |
|-----------------|-----------|
| 89-1-12.05-9275 | NASA ARC |
| I: NAS2-13159 | \$ 48,617 |
- James E. Driskell

F012

Flow Industries, Inc.

21414 68th Avenue South
Kent, WA 98032
206-872-8500

- * Transonic Wall Interference Assessment and Correction
- | | |
|-----------------|-----------|
| 83-1-04.03-8500 | NASA ARC |
| I: NAS2-11738 | \$ 47,704 |
| II: NAS2-12157 | \$261,000 |
- Magdi H. Rizk
- * Optimization Procedure for Aerodynamic Design for Advanced Turboprop
- | | |
|-----------------|-----------|
| 84-1-01.01-8500 | NASA LeRC |
| I: NAS3-24533 | \$ 49,750 |
| II: NAS3-24855 | \$255,000 |
- Wen-Huei Jou

- * Generating an Artificial Burst in a Turbulent Boundary Layer
- | | |
|------------------|-----------|
| 84-1-02.02-8500A | NASA LaRC |
| I: NAS1-17930 | \$ 50,000 |
| II: NAS1-18292 | \$294,000 |
- Mohamed Gad-El-Hak

- Optical Slip-Ring for High-Density-Data Communication Links
- | | |
|-----------------|-----------|
| 84-1-02.08-8676 | NASA LaRC |
| I: NAS1-17951 | \$ 49,741 |
- Frederich R. Reich

- Turbulence Control on an Airborne Laser Platform
- | | |
|------------------|-----------|
| 85-1-02.04-8500B | NASA LaRC |
| I: NAS1-18213 | \$ 50,000 |
- Mohamed Gad-El-Hak

- Numerical Simulation of Impinging Jets
- | | |
|-----------------|-----------|
| 85-1-02.10-8500 | NASA ARC |
| I: NAS2-12359 | \$ 49,143 |
- Magdi H. Rizk

F013

Flow Research Company

21414 68th Avenue South
Kent, WA 98032
206-872-8500

- * Nonequilibrium Phase Chemistry in High-Temperature Structural Alloys - See Failure Analysis Assoc. for Phase II
- | | |
|-----------------|-----------|
| 86-1-04.03-8500 | NASA LaRC |
| I: NAS1-18415 | \$ 49,932 |
- Rong Wang

- The Synthetic Production of Large Single Crystals
- | | |
|-----------------|-----------|
| 86-1-15.04-8500 | NASA LeRC |
| I: NAS3-25136 | \$ 45,000 |
- Ralph W. Metcalfe

- Shock Waves for Enhanced Mixing in Scramjet Combustors
- | | |
|-----------------|-----------|
| 87-1-01.05-8500 | NASA LeRC |
| I: NAS3-25332 | \$ 48,733 |
- G. Stuart Knoke

F014

Fluid Dynamics International

1600 Orrington Avenue #400
Evanston, IL 60201
312-491-0200

- * Numerical Simulation of Crystal Growth Processes
- | | |
|-----------------|-----------|
| 88-1-15.02-0200 | NASA LeRC |
| I: NAS3-25612 | \$ 49,200 |
| II: NAS3-25946 | \$468,000 |
- Simon Rosenbalt

F015

Foa Engineering

3404 Thornapple St.
Chevy Chase, MD 20815
301-656-2685

- High-Efficiency Flow Induction
- | | |
|-----------------|-----------|
| 89-1-01.04-2685 | NASA LeRC |
| I: NAS3-25941 | \$ 50,000 |
- Joseph V. Foa

F016

Food and Agrosystems, Inc.

P.O. Box 62185
Sunnyvale, CA 94088
408-245-8450

- Methodologies for Processing Plant Materials into Acceptable Food on a Small Scale
- | | |
|------------------|-----------|
| 89-1-12.04-8450B | NASA ARC |
| I: NAS2-13168 | \$ 49,646 |
- Thomas R. Parks

F017

Foster-Miller, Inc.

350 Second Avenue
Waltham, MA 02254
617-890-3200

- Ordered-Polymer-Film Composites Applied to Fluid Deicing Systems for Aircraft
- | | |
|-----------------|-----------|
| 85-1-03.01-3200 | NASA LeRC |
| I: NAS3-24846 | \$ 49,971 |
- Richard W. Lusignea

* High-Performance LaRC-TPI Film

- | | |
|-----------------|-----------|
| 85-1-04.03-3200 | NASA LaRC |
| I: NAS1-18215 | \$ 49,941 |
| II: NAS1-18527 | \$499,280 |
- Richard W. Lusignea

F017 Foster-Miller, Inc., continued

* Enhancement of Contact Heat Transfer Coefficients at Spacecraft Thermal and Structural Joints

85-1-09.12-3200	NASA MSFC
I: NAS8-36262	\$ 49,971
II: NAS8-37341	\$499,225

Roger L. Demler

Centrifugal Separating Pump for the Control of Two-Phase Heat Transport Circuit

85-1-09.15-3200	NASA JSC
I: NAS9-17561	\$ 49,957

Andrew C. Harvey

* In-Situ Fiber-Optic Sensor for FTIR Monitoring of Composite-Cure Cycles

86-1-04.02-3200	NASA LaRC
I: NAS1-18420	\$ 49,951
II: NAS1-18659	\$495,150

Mark Drury

* Continuous Fiber Graphite-Aluminum MMCs for Complex-Shaped Space Structures Joints

86-1-04.06-3200B	NASA JSC
I: NAS9-17731	\$ 49,980
II: NAS9-17997	\$499,500

Uday Kashalikar

Ordered Polymer Films for Scientific Research Balloons

86-1-04.13-3200	NASA GSFC
I: NAS5-30045	\$ 49,581

Richard W. Lusignea

Structural Velcro for Space Applications

86-1-09.14-3200	NASA JSC
I: NAS9-17732	\$ 49,981

Paul J. Marinaccio

* Semicrystalline Thermoplastic Films for Aerospace Structures

87-1-04.02-3200	NASA LaRC
I: NAS1-18636	\$ 49,940
II: NAS1-18846	\$479,758

Richard W. Lusignea

Ultra-High-Stiffness, Net-Shape, Tubular Space Structures

87-1-04.05-3200A	NASA JSC
I: NAS9-17940	\$ 50,000

Ted E. Kirchner

Reduced-Weight Gondolas for Stratospheric Balloons

87-1-04.11-3200	NASA JPL
I: NAS7-1007	\$ 50,000

Joseph Boyce

* Non-Azeotropic Heat Pump for Heating Crew Hygiene Water

87-1-09.04-3200	NASA MSFC
I: NAS8-37624	\$ 50,000
II: NAS8-38407	\$497,087

David H. Walker

Hybrid Measurement of Two-Phase Flows

87-1-09.04-3200A	NASA JSC
I: NAS9-17941	\$ 50,000

Wayne S. Hill

* High-Shear, Rotary Die for Thermoplastics Prepegging

88-1-04.03-3200A	NASA LaRC
I: NAS1-18817	\$ 50,000
II: NAS1-19095	\$491,860

Richard W. Lusignea

A Lightweight, Non-Metallic, Heat-Pipe Radiator

88-1-09.05-3200	NASA JSC
I: NAS9-18098	\$ 50,000

John McCoy

* Binary Mixtures for Spacecraft Heat Transport

88-1-09.06-3200	NASA MSFC
I: NAS8-38050	\$ 50,000
II: NAS8-T B D	\$ T B D

Glen I. Deming

Improved Thermal Energy Storage System for Advanced Solar-Dynamic, Space Power Generation

88-1-10.01-3200A	NASA LeRC
I: NAS3-25558	\$ 50,000

Philip Stark

High-Temperature-Film-Based Polybenzoxazole/Polymide Microcomposite for Turbine Engines

89-1-04.01-3200	NASA LeRC
I: NAS3-25871	\$ 50,000

Ted Kirchner

LaRC-TPI and Liquid Crystal Polymer Blends

89-1-04.03-3200	NASA LaRC
I: NAS1-19025	\$ 50,000

Richard W. Lusignea

Self-Contained, Deployable, Serpentine Truss for Prelaunch Access of Orbiter Payloads

89-1-05.08-3200	NASA KSC
I: NAS10-11659	\$ 50,000

Ken Pasch

Novel Composites for Protection Against Orbital Debris

89-1-09.05-3200	NASA MSFC
I: NAS8-38440	\$ 50,000

J. J. Gassner

Heat Pump for Space Thermal Bus

89-1-09.12-3200	NASA GSFC
I: NAS5-30867	\$ 50,000

Andrew C. Harvey

F018**Frasca-International**

906 East Illini Airport Road
Urbana, IL 61801
217-344-9200

Computer-Interactive Flight Simulator

83-1-03.04-3951	NASA ARC
I: NAS2-11733	\$ 49,710

John Frasca

F019**Fred C. Hart Associates, Inc.**

1110 Vermont Avenue N.W., Suite 410
Washington, DC 20005
202-223-5621

Spectral Methods in the Solution of Multi-Dimensional Diffusion Problems

83-1-15.02-5621	NASA MSFC
I: NAS8-35838	\$ 49,433

Bennett Miller

F020
Frederick A. Costello, Inc.
12864 Tewksbury Drive
Herndon, VA 22071
703-620-4942

* Pumped, Two-Phase, Non-Azeotropic Spacecraft Cooling Systems

84-1-09.14-4942	NASA GSFC
I: NAS5-28643	\$ 48,926
II: NAS5-29439	\$497,750

Frederick A. Costello

Novel Cryocooler Regenerator Designs

88-1-09.07-4942B	NASA GSFC
I: NAS5-30595	\$ 49,760

Frederick A. Costello

* Computing Radiant Interchange Among Real Surfaces

88-1-09.07-4942C	NASA GSFC
I: NAS5-30495	\$ 49,289
II: NAS5-T B D	\$ T B D

Frederick A. Costello

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G001

G & C Systems, Inc.

25176 Danapepper
Dana Point, CA 92629
714-661-0753

A Knowledge-Based Simulation Design, Development, and Coding Environment

89-1-03.10-0753	NASA ARC
I: NAS2-13130	\$ 49,914

David M. Tarr

G002

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P.O. Box 184
Freeport, NY 11520
516-378-8450

* Unsteady Compressible Flows in Intakes and Nozzles

83-1-01.01-8450	NASA LaRC
I: NAS3-24096	\$ 49,272
II: NAS3-24540	\$361,000

Gino Moretti

Fast, Two-Dimensional Euler Solver

85-1-02.01-8450	NASA ARC
I: NAS2-12355	\$ 49,925

Gino Moretti

Three-Dimensional Euler Solver

87-1-02.04-8450	NASA LaRC
I: NAS1-18618	\$ 49,760

Gino Moretti

G003

GMD Systems, Inc.

Old Route 519
Hendersonville, PA 15339
412-746-3600

* Colorimetric Personnel Monitoring Badge for Hydrazines

85-1-13.01-3600A	NASA KSC
I: NAS10-11291	\$ 49,961
II: NAS10-11411	\$216,281

Gerald Moore

G004
GMS Technology

7211 La Entrada Drive
Houston, TX 77083
No Longer In Business

* K-Base: a Hybrid Analogical-Semantic Modeler for Computer-Aided Design

85-1-12.03-5297	NASA JSC
I: NAS9-17582	\$ 49,029
II: NAS9-17808	\$492,303

Robert A. Gallaway

G005
GT-Devices

5705 General Washington Drive
Alexandria, VA 22312
703-642-8150

Numerical Modeling of Fully Viscous, Rocket Plume Flows

87-1-02.08-8150	NASA LeRC
I: NAS3-25407	\$ 49,950

Rodney L. Burton

G006
Galaxy Microsystems, Inc.

10711 Burnet Rd Suite 325
Austin, TX 78758
512-836-7606

High-Speed, Digital Data Transmission

89-1-14.02-7606	NASA GSFC
I: NAS5-30858	\$ 49,529

Robert E. Fosdick

G007
Galileo Electro-Optics Corporation

Galileo Park
Sturbridge, MA 01518
508-347-9191

* Microchannel Plates in Advanced Wind Tunnel Instrumentation

85-1-08.13-9191	NASA LaRC
I: NAS1-18220	\$ 48,000
II: NAS1-18482	\$441,000

W. Bruce Feller

Curved Channel MCP Improvement

86-1-08.04-9191E	NASA GSFC
I: NAS5-30047	\$ 47,212

Bruce N. Laprade

G008
Galloway Research

795 Beaver Creek Way
San Jose, CA 95133
408-259-2490

The LAFS Kernel File System

89-1-06.01-2490	NASA LaRC
I: NAS1-19034	\$ 50,000

John R. Galloway, Jr.

G009
Gamma Research, Inc.

904 Bob Wallace Avenue #124
Huntsville, AL 35801
205-533-7103

* Control of Manual Entry Accuracy in Management and Engineering Information Systems

86-1-07.06-7103	NASA MSFC
I: NAS8-37311	\$ 50,000
II: NAS8-37407	\$470,852

John Woo Jr.

G010

General Digital Industries

6705 Odyssey Drive
Huntsville, AL 35806
205-837-2200

- * A Variable-Polarity, Plasma-Arc Welding Control System
85-1-04.08-6305 NASA MSFC
I: NAS8-36267 \$ 49,474
II: NAS8-37344 \$499,400
Richard E. Reeves
- * An Automated Wire-Guide for Robotic Welding Applications
88-1-05.05-2200 NASA MSFC
I: NAS8-38024 \$ 49,353
II: NAS8-38477 \$494,836
Troy D. Manley

G011

General Optronics Corporation

2 Olsen Avenue
Edison, NJ 08820
201-549-9000

- Intersatellite, Optical-Communications, High-Power-Laser Transmitter
84-1-14.04-9000 NASA GSFC
I: NAS5-28644 \$ 50,000
Chen-Show Wang
- * Continuous Wave, Tunable, Semiconductor 1.08 Micron Laser
86-1-08.10-9000 NASA JPL
I: NAS7-985 \$ 50,000
II: NAS7-1034 \$491,368
Chen-Show Wang

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General Pneumatics Corporation

7662 East Gray Road, Suite 107
Scottsdale, AZ 85260
602-998-1856

- * Temperature Sensitive, Variable-Area Joule-Thomson Nozzles
84-1-11.03-1856A NASA KSC
I: NAS10-11144 \$ 50,000
II: NAS10-11322 \$381,000
Graham Walker
- Spacecraft Stirling Refrigerator
85-1-09.06-1856 NASA MSFC
I: NAS8-36266 \$ 50,000
Graham Walker
- Joule-Thomson Cryorefrigerator for Spaceborne Sensors and Stored Cryogens
88-1-08.12-1856 NASA ARC
I: NAS8-12990 \$ 49,556
Ernest E. Atkins

G013

General Purpose Machines Laboratory

16 Dickens Court
Irvine, CA 92715
715-856-3327

- A Neural-Network, Dynamic Sequencer for Distributed Mission Planning and Control
89-1-07.07-3327 NASA GSFC
I: NAS5-30845 \$ 46,076
Jurn Sun Leung

G014

Geo Centers, Inc.

7 Wells Avenue
Newton Centre, MA 02159
617-964-7070

- * Embedded Fiber-Optic Sensors for Polymer-Matrix-Composite Process Monitoring
87-1-04.01-7070 NASA LeRC
I: NAS3-25337 \$ 49,866
II: NAS3-25817 \$385,932
Ian Aeby
- * Fast Optical Switch for Multimode Fiber-Optic-Based Control Systems
88-1-01.03-7070 NASA LeRC
I: NAS3-25615 \$ 49,905
II: NAS3-25947 \$481,641
Bruce N. Nelson

Composite, Six-Axis Force Sensor with Embedded Optical Sensors
88-1-05.03-7070 NASA GSFC
I: NAS5-30455 \$ 49,844
Bruce N. Nelson

Fiber-Optic Sensor Technology for High-Altitude Balloons
88-1-09.13-7070 NASA GSFC
I: NAS5-30491 \$ 46,385
Ian Aeby

- * Optrode Development for Environmental Ph Monitoring
88-1-12.10-7070 NASA KSC
I: NAS10-11559 \$ 49,732
II: NAS10-11671 \$494,292
Mary Elizabeth Tabacco

Trace Contaminant Vapor Monitors

89-1-12.12-7070 NASA KSC
I: NAS10-11652 \$ 49,306
Mary Elizabeth Tabacco

G015

Geoscience Limited

410 South Cedros Avenue
Solana Beach, CA 92075
619-755-9396

- * A Direct, Metabolic Calorimetry System for Orbital Laboratories
85-1-12.08-9396 NASA ARC
I: NAS2-12348 \$ 48,360
II: NAS2-12638 \$435,707
Heinz F. Poppendiek

A Whole-Body Calorimeter for Space Station Astronauts
88-1-12.01-9396 NASA JSC
I: NAS9-18095 \$ 46,538
Heinz F. Poppendiek

G016

Gerardi-Dahl Engineering - Now Innovative Dynamics

1607 West Fifth Street
Oxnard, CA 93030
607-257-0533

- * Icing Sensor and Ice-Protection System
85-1-03.01-4846 NASA LeRC
I: NAS3-24852 \$ 30,000
Joseph J. Gerardi

G017
Giner, Inc.
14 Spring Street
Waltham, MA 02254-9147
617-899-7270

Positive Electrode for Bipolar Ni-H₂ Batteries
83-1-10.01-7271 NASA LeRC
I: NAS3-23871 \$ 49,904
Jose Giner

* Novel Electrodes for a Hydrogen-Bromine Battery
84-1-10.01-7270 NASA LeRC
I: NAS3-24394 \$ 49,979
II: NAS3-24878 \$500,000
Vinod Jalan

Cathode-Catalyst Support Materials for High-Temperature, Alkaline Fuel Cells
88-1-10.01-7270A NASA LeRC
I: NAS3-25621 \$ 50,000
S. Sarangapani

Nickel-Cadmium Battery Separator Design and Development
89-1-10.03-7270 NASA GSFC
I: NAS3-30843 \$ 49,254
Larry Swette

G018
Global Information Systems Technology
1800 Woodfield Drive
Savoy, IL 61874-9505
217-352-1165

* Intelligent Evaluation System for Simulator Training
87-1-06.05-1165 NASA JSC
I: NAS9-17942 \$ 50,000
II: NAS9-18170 \$500,000
Thomas T. Chen

G019
Growth Systems, Inc.
P.O. Box 2214
Glenview, IL 60025
312-446-3053

Accelerating Seed Germination and Plant Growth Through Manipulating of Atmospheric Pressure
87-1-12.06-3053 NASA KSC
I: NAS10-11467 \$ 50,000
R. Louis Ware

G020
Gull Engineering, Inc.
78 Mitchell Road
Oak Ridge, TN 37830
Last Known Address

Radon Property Detection System for Global Biologic Studies
84-1-12.06-4787 NASA ARC
I: NAS2-12097 \$ 50,000
Graham V. Walford

G021
Gumbs Associates, Inc.
11 Harts Lane
East Brunswick, NJ 08816
201-257-9049

Silicone and Silicone-Imide Copolymers for Solar Cell Encapsulation
84-1-10.02-5110 NASA JPL
I: NAS7-930 \$ 49,400
Ronald Gumbs

Soluble, Conducting Polymer-Based Conductive Coatings
89-1-04.01-9049 NASA LaRC
I: NAS3-25889 \$ 49,922
Prasanna C. Sekhar

H

H001
H & N Instruments, Inc.
P.O. Box 955
Newark, OH 43055
614-927-0156

Effect of Gravity on Foam Decay
87-1-15.01-0156 NASA MSFC
I: NAS8-37625 \$ 49,653
Gary M. Nishioka

* A New Method for the Measurement of Surface Tension
87-1-15.01-0156A NASA MSFC
I: NAS8-37626 \$ 49,937
II: NAS8-38408 \$345,428
Gary M. Nishioka

H002
HITC Superconco, Inc.
140 Tullytown Road
Bordentown, PA 19007-6302
215-943-9023

High-Temperature Superconductor for Passive Magnetic Bearings
89-1-09.07-9722 NASA GSFC
I: NAS5-30852 \$ 49,528
Robert D. DeLuca

H003
HITEC Products, Inc.
P.O. Box 790
Ayer, MA 01432
508-772-6963

* High-Temperature, Capacitive Strain Gauge
86-1-08.08-6963 NASA LaRC
I: NAS1-18411 \$ 49,940
II: NAS1-18668 \$91,155
Stephen P. Wnuk Jr.

H004
HSA, Inc.
3806 Springhill Lane
Sugar Land, TX 77479
713-980-4651

* An Extensible Shell for Information Access in Heterogeneous Environments
88-1-07.10-4651 NASA GSFC
I: NAS5-30483 \$ 49,850
II: NAS5-T B D \$ T B D
Poonam Salona

H005
Hansen Research Associates
P.O. Box 30133
Eugene, OR 97403
503-344-4007

Transport Properties in Non-Equilibrium Air Mixtures
89-1-02.04-4007 NASA LaRC
I: NAS1-19018 \$ 49,766
C. Frederick Hansen

H006

High Technology Services, Inc.

250 Jordan Rd Suite 210
Troy, NY 12180
518-283-8072

Methods for Producing Fine-Particle, Thermoplastic Polyimide Sulfone Powder
89-1-04.03-8072 NASA LaRC
I: NAS1-19013 \$ 50,000
Milton L. Evans

H007

Holometrix, Inc.

99 Erie Street
Cambridge, MA 02139
617-868-8050

A High-Precision, Sun-Tolerant Lidar
88-1-09.09-8050 NASA JSC
I: NAS9-18096 \$ 49,853
P. G. Debaryshe

H008

Holz Industries, Inc.

4393 Viewridge Avenue
San Diego, CA 92123
619-268-4114

* Quartz and Fused Silica Chip Carriers
88-1-14.05-4114 NASA LeRC
I: NAS3-25565 \$ 43,525
II: NAS3-25870 \$432,960
Gary L. Holz

H009

Howlett & Associates, Inc.

800 J Cedar Valley
Radford, VA 24141
Last Known Address

Low Weight-to-Horsepower Ratio Electric Drive
84-1-01.06-0252 NASA LeRC
I: NAS3-23899 \$ 47,186
James F. Howlett

H010

Huntsville Sciences Corporation

3313 Bob Wallace Avenue #201
Huntsville, AL 35805
205-536-8122

Finite-Element Code for Combustion Analysis of Advanced Propulsion Systems
88-1-11.03-8122 NASA MSFC
I: NAS8-38022 \$ 45,987
Lawrence W. Spradley

Finite-Element and Adaptive-Grid Thermal Analyzer with Enhanced Graphics Capability
89-1-09.13-8122 NASA MSFC
I: NAS8-38453 \$ 49,956
James V. McAnally

H011

Hydrogen Consultants, Inc.

12420 N Dumont Way
Littleton, CO 80125
303-791-7972

* Metal Hydrides for Integration of Spacecraft Hydrogen Resources
84-1-09.09-0546 NASA MSFC
I: NAS8-35270 \$ 50,000
II: NAS8-37262 \$500,000
Gregory J. Egan

Thermal Storage in Plastic Crystal Slurries

85-1-09.17-0546 NASA MSFC
I: NAS8-36257 \$ 49,980
Franklin E. Lynch

* Capture and Reliquefaction of Hydrogen Boiloff At Shuttle Launch Site
85-1-13.06-0546 NASA KSC
I: NAS10-11290 \$ 49,977
II: NAS10-11401 \$487,000
Gregory J. Egan

Metal-Hydride Thermal Management Techniques for Future Spacecraft and Planetary Bases

86-1-09.13-0546 NASA JSC
I: NAS9-17740 \$ 49,795
Franklin E. Lynch

Reversible, Oxide Chemical Compressor for Sensor Cryocooling

88-1-08.14-7972 NASA JPL
I: NAS7-1047 \$ 48,552
John R. Riter

Constant-Temperature Heat Storage in Metal Hydrides

89-1-10.01-7972 NASA LeRC
I: NAS3-25885 \$ 48,803
Franklin E. Lynch

H012

Hyperfine, Inc.

4946 North 63rd Street
Boulder, CO 80301
303-530-0709

* Echelle Grating-Ruling
83-1-08.01-6882 NASA GSFC
I: NAS5-27998 \$ 49,623
II: NAS5-28658 \$218,000
Bernhard W. Bach

* Radial Concentric-Grating Ruling Engine
84-1-08.01-6882 NASA GSFC
I: NAS5-28636 \$ 49,610
II: NAS5-29415 \$472,000
Bernhard W. Bach

I

<i>1001</i>	ISM Technologies, Inc. 9965 Carroll Canyon Road San Diego, CA 92131 619-539-2332	Information & Control Systems, Inc. 28 Research Drive Hampton, VA 23666 804-865-0371
<i>1002</i>	Miniature, Thin-Film Deposition System 89-1-04.12-2332 I: NAS7-1079 James R. Treglio	Optimal-Output, Feedback-Regulator Design for Systems with Variable Dynamics 85-1-03.05-0371 I: NAS1-18212 Daniel D. Moerder
<i>1003</i>	ISX Corporation 501 Marin Street, Suite 214 Thousand Oaks, CA 91360 805-495-8265	NASA LaRC \$ 49,998
<i>1004</i>	* Fault-Tolerant, Distributed Intelligent Systems 87-1-06.03-8265 I: NAS2-12777 II: NAS2-13027 Scott Fouse	* A Stochastic, Optimal Feedforward and Feedback Control Methodology for Superagility 88-1-03.03-0371 I: NAS1-18812 II: NAS1-19091 Nesim Halyo
<i>1005</i>	Knowledge-Based, Aerospace Program-Management Decision-Support System 89-1-06.04-8265 I: NAS2-13161 David Rosenberg	A High-Temperature, Directional, Spectral Emissivity Measurement System 89-1-02.08-0371 I: NAS1-19026 Nesim Halyo
<i>1006</i>	Imatron, Inc. 389 Oyster Point Boulevard South San Francisco, CA 94080 415-583-9964	Infrared Fiber Systems, Inc. 2301-A Broadbirch Drive Silver Spring, MD 20904 301-622-9546
<i>1007</i>	Assessment of Materials in Solid Rocket Motors by Real-Time Computer Tomography 89-1-11.04-9964 I: NAS8-38445 Elan Scheinman	* High-Speed, Infrared Fiber-Optic Thermometer and Spectrometer 86-1-13.01-9546 I: NAS9-17724 II: NAS9-17993 Kenneth Levin
<i>1008</i>	Incubator Technologies, Inc. 800 West 14th Street, #111 Rolla, MO 65401 314-364-7747	Infrared Fiber Arrays for Low Background Infrared Astronomy 89-1-08.13-9546 I: NAS5-30850 Danh Tran
<i>1009</i>	Micromechanic Model for Prediction of Failure Modes in Ceramic Matrix Composites 87-1-04.01-7747 I: NAS3-25333 Li Chai	Infrared Laboratories, Inc. 1808 East 17th Street Tucson, AZ 85719 602-622-7074
<i>1010</i>	Industrial Quality, Inc. P.O. Box 2519 Gaithersburg, MD 20879-2519 301-948-2460	* Advanced Components for Spaceborne Infrared Astronomy 83-1-08.10-7074 I: NAS2-11739 II: NAS2-12154 Arnold W. Davidson
<i>1011</i>	* Ultrasonic Correlator for Nondestructive Characterization of Materials 84-1-04.10-0332 I: NAS1-17937 II: NAS1-18258 Harold Berger	* Silicon Bolometer Arrays for Helium-3 Detector Systems 88-1-08.01-7074 I: NAS7-1039 II: NAS7-T B D W. M. Poteet
<i>1012</i>	Innovative Dynamics - Was Gerardi-Dahl Engineering 244 Langmuir Lab, Cornell Research Park Ithaca, NY 14850-1296 607-257-0533	Icing Sensor and Ice-Protection System 85-1-03.01-4846 I: NAS3-25200 Joseph J. Gerardi
		NASA GSFC \$ 49,952
		NASA JSC \$ 47,200
		NASA LaRC \$ 50,000
		NASA LeRC \$ 495,625
		NASA JPL \$ 49,225
		NASA LeRC \$ T B D
		NASA LaRC \$ 495,515

Boundary Layer Transition Detection System
 86-1-08-4846 NASA LaRC
 I: NAS1-18421 \$ 50,000
 Philip R. Dahl

* Smart-Skin Measurement of Aircraft Performance for Ice-Accretion, Stall, and High Angle-of-Attack
 88-1-03-01-0533 NASA LeRC
 I: NAS3-25618 \$ 47,463
 II: NAS3-25968 \$486,984
 Gail A. Hickman

* Boundary-Layer-Flow Analysis System for High-Performance Aircraft
 88-1-03-05-0533 NASA ARC
 I: NAS2-12890 \$ 48,750
 II: NAS2-T B D \$ T B D
 Joseph J. Gerardi

Low-Cost, Angle-of-Attack Sensor for Subsonic Aircraft
 89-1-03-06-0533 NASA LaRC
 I: NAS1-19006 \$ 27,993
 Joseph J. Gerardi

Aircraft Health Monitoring System
 89-1-04-06-0533 NASA LaRC
 I: NAS1-19014 \$ 49,695
 Gail A. Hickman

I010
Innovative Research, Inc.

6735 East 6th Avenue
 Denver, CO 80220
 303-321-4917

An Automatic Scheduling Assistant for the NASA Space Station
 88-1-05-05-4917 NASA JSC
 I: NAS9-18114 \$ 46,267
 Mohsen Pazirandeh

I011
Instrumech
 302 Cheadle Road
 Yorktown, VA 23692
Last Known Address

Demonstration of the Relog Computer Concept Using Potential Flow
 85-1-06-03-6398 NASA LaRC
 I: NAS1-18202 \$ 49,888
 Albert C. Kyser

I012
Integrated Parallel Technology

P.O. Box 908
 Campbell, CA 95008
 408-866-4448

* VME Rollback Hardware Modules for Time Warp Multiprocessor Systems
 88-1-06-08-4448 NASA JPL
 I: NAST-1046 \$ 50,000
 II: NAST-1102 \$499,889
 Calvin Buzzell

I013
Integrated Systems, Inc.
 2500 Mission College Boulevard
 Santa Clara, CA 95054-1215
 408-980-1500

Engineering Workstations for Distributed Parameter Systems
 83-1-06-03-9773 NASA LaRC
 I: NAS1-17580 \$ 50,000
 Robert A. Walker

Real-Time Flutter Prediction and General Modal Parameter Identification
 85-1-02-05-8400 NASA LaRC
 I: NAS1-18203 \$ 50,000
 Robert A. Walker

* Automation Tools for Demonstration of Goal-Directed and Self-Repairing Flight Control
 86-1-03-04-8400 NASA ARC
 I: NAS2-12588 \$ 50,000
 II: NAS2-12738 \$495,233
 Naren K. Gupta

Numerical Optimization of Single-Stage-To-Orbit Configuration with Inequality Constraints
 88-1-03-07-1500 NASA LaRC
 I: NAS1-18801 \$ 49,688
 M. Michael Briggs

* Optimization Algorithms for Controls-Structures Interactions Design Problems
 88-1-09-01-1500 NASA LaRC
 I: NAS1-18818 \$ 49,963
 II: NAS1-19096 \$485,240
 Robert L. Kosut

Control Structure Interaction: Optimization-Based Design Tools
 89-1-09-01-1500 NASA LaRC
 I: NAS1-19015 \$ 45,000
 Robert L. Kosut

I014
Intellicorp, Inc.
 1975 El Camino Real W
 Mountain View, CA 94040-2216
 415-965-5784

* Compiling Knowledge-Based Systems Specified in KEE to Ada
 88-1-05-05-5500 NASA MSFC
 I: NAS8-38036 \$ 50,000
 II: NAS8-T B D \$ T B D
 Robert E. Filman

I015
Intelligent Automation Systems
 300 Bent Street, Suite 200
 Cambridge, MA 02141
 617-322-8622

* Robotic Testbed for Adaptive Grasping of Objects in Space
 88-1-05-04-8622 NASA JSC
 I: NAS9-18097 \$ 49,910
 II: NAS9-T B D \$ T B D
 Steven J. Gordon

I016
Intelligent Automation, Inc.
 1715 Glastonberry Road
 Rockville, MD 20854
 301-424-4007

Telerobot Control Interface Based on Constraints
 89-1-05-03-40071 NASA GSFC
 I: NAS5-30807 \$ 49,960
 Leonard S. Haynes

1017

Intelligent Recognition System

6925 Canoga Avenue, Suite 102
Canoga Park, CA 91303
818-992-8024

A Perception System for Object Recognition, Acquisition, and Tracking in Cluttered Environments
88-1-05.01-8024 NASA MSFC
I: NAS8-38047 \$ 47,224
Jerry A. Burman

1018

Intellitek, Inc.

9653 Reach Road
Potomac, MD 20854-2857
301-340-6543

* Expert Project Management System Generator

85-1-07.11-3317 NASA JPL
I: NAS7-949 \$ 45,517
II: NAS5-30087 \$491,332
Barry G. Silverman

1019

Interdisciplinary Science Applications

613 Muriel Street
Rockville, MD 20852
301-770-7518

A Stochastic Rain Model and Its Application in Rain-Rate Estimation
89-1-08.02-7518A NASA GSFC
I: NAS5-30849 \$ 48,140
Z. H. Karni

1020

Interferometrics, Inc.

8150 Leesburg Pike, Suite 1400
Vienna, VA 22182
703-790-8500

* Interferometric Tracking System for the Tracking and Data Relay Satellite
86-1-07.03-8500 NASA GSFC
I: NAS5-30048 \$ 49,882
II: NAS5-30313 \$504,710
Robert I. Potash

Determination of Orbiting-Spacecraft-Antenna Distortion by Ground-Based Measurements
86-1-14.04-8500 NASA LeRC
I: NAS3-25131 \$ 49,790
David B. Shaffer

Dual K and C Band Transponder for Satellite Altimetric Calibration
89-1-08.17-8500 NASA JPL
I: NAS7-T B D \$ T B D
David B. Shaffer

1021

International Technical Associates

2281 Calle De Luna
Santa Clara, CA 95054
408-748-9955

* Adaptive Vision for Welding Guidance System
87-1-04.08-9955 NASA MSFC
I: NAS8-37627 \$ 48,814
II: NAS8-38409 \$496,571
Paul Lovoi

1022

Intersonics, Inc.

3453 Commercial Avenue
Northbrook, IL 60062
312-272-1772

Stabilized Electromagnetic Levitator
89-1-15.01-1772 NASA MSFC
I: NAS8-38468 \$ 49,977
Robert Schiffman

1023

Iomed, Inc.

2320 S. 1290 W., Suite A
Salt Lake City, UT 84108
801-975-1191

Transdermal Drug Delivery System for Application in Space Flight
89-1-12.01-1191 NASA JSC
I: NAS9-18316 \$ 49,895
Thomas J. Petelenz

1024

Ionwerks

2215 Addison
Houston, TX 77030
713-529-9040

Atomic Oxygen Source for Superconductor Thin-Film Fabrication
88-1-04.10-1691 NASA JPL
I: NAS7-1050 \$ 49,000
J. Albert Schultz

1025

Iowa Thin Film Technologies, Inc.

237 Wildflower Drive
Ames, IA 50010
515-294-7732

Flexible, Lightweight, Amorphous-Silicon Solar Cells Tuned for AM0 Spectrum
89-1-10.01-3203 NASA LeRC
I: NAS3-25825 \$ 49,087
Frank Jeffrey

1026

Irvine Sensors Corporation

3001 Redhill Avenue, Bldg 3 #203
Costa Mesa, CA 92626
714-549-8211

Two-Band IR Detector Array
83-1-08.01-8211 NASA GSFC
I: NAS5-27999 \$ 49,945
S. A. Clark

* HYMOSS™ Signal Processing for Pushbroom Spectral Imaging
87-1-08.01-8211 NASA JPL
I: NAS7-1008 \$ 49,977
II: NAS7-1065 \$496,151
Martin M. Spanish

* On-Focal-Plane Signal Processing for Atmospheric Measurements
87-1-08.10-8211 NASA MSFC

I: NAS8-37628 \$ 47,727
II: NAS8-38410 \$498,819
Martin M. Spanish

Three-Dimensional, Solid-State, Multi-Port Memory System
89-1-06.02-8211 NASA GSFC
I: NAS5-30871 \$ 49,416
David E. Ludwig

Space-Sensor, Common-Module Electronics
89-1-08.09-8211A NASA MSFC
I: NAS8-38451 \$ 49,379
David E. Ludwig

I027
Istar, Inc.
406 Alta Avenue
Santa Monica, CA 90402
213-394-7332

Detonation-Wave Augmentation of Gas Turbines
83-1-01.04-7332 NASA LeRC
I: NAS3-24098 \$ 48,771
A. Wortman

Detonation-Wave Compression in Gas Turbines
85-1-01.06-7332 NASA LeRC
I: NAS3-24854 \$ 49,985
A. Wortman

* Detonation-Duct Gas Generator
86-1-01.06-7332A NASA LeRC
I: NAS3-25143 \$ 50,000
II: NAS3-25453 \$500,000
A. Wortman

I028
Ithaco, Inc.
735 West Clinton Street, Box 6437
Ithaca, NY 14851-6437
607-272-7640

* Autonomous Attitude Sensing System
83-1-08.05-7640 NASA GSFC
I: NAS5-28001 \$ 49,793
II: NAS5-28654 \$500,000
Vaughn H. Selby

* A Full-Sky Scanner
85-1-09.20-7640 NASA GSFC
I: NAS5-29276 \$ 50,000
II: NAS5-30088 \$500,000
Vaughn H. Selby

* Low-Cost, Attitude Control System
86-1-09.20-7640 NASA GSFC
I: NAS5-30049 \$ 49,983
II: NAS5-30307 \$500,000
Vaughn H. Selby

J

J001
JAI Associates, Inc.
P.O. Box 293
Mountain View, CA 94042
415-962-3922

* Computational Fluid Dynamics of Store Separation
87-1-02.01-3922 NASA ARC
I: NAS2-12779 \$ 49,993
II: NAS2-13186 \$445,781
Samuel P. Shanks

J002
JRS Research Laboratories, Inc.
1036 West Taft Avenue
Orange, CA 92665
714-974-2201

Concurrency and Processing Distribution in Horizontally
Microprogrammed Processors
83-1-06.07-2201 NASA ARC
I: NAS2-11726 \$ 45,366
Erwin H. Marshawsky

J003
James G. Boyko
20 West Winkley Street
Amesbury, MA 01913
Last Known Address

A Design Concept for Reducing Dynamic Loads on Spur Gear
Teeth
84-1-01.05-1753 NASA LeRC
I: NAS3-24536 \$ 47,065
James G. Boyko

J004
John M. Cockerham & Associates, Inc.
301 Randolph Avenue SE
Huntsville, AL 35801
205-536-6381

Portable Spectroreflectometer
89-1-04.08-6381 NASA MSFC
I: NAS8-38463 \$ 49,121
Donald R. Wilkes

J005
Johnson Aeronautics
P.O. Box 1253
Palo Alto, CA 94302
415-325-3944

General Time-Domain Unsteady Aerodynamics of Rotors
89-1-02.07-3944 NASA ARC
I: NAS2-13125 \$ 34,899
Wayne Johnson

J006
Johnson Engineering Corporation
3055 Center Green Drive
Boulder, CO 80301-5406
Last Known Address

Trash Compactor Development: Space Station
85-1-12.05-8152 NASA JSC
I: NAS9-17563 \$ 49,993
John A. Cicora

K

K001

KMS Fusion, Inc.

P.O. Box 1567
Ann Arbor, MI 48106-1567
313-769-8500

* Singlet-Oxygen Generator for a Solar-Powered, Chemically Pumped Iodine Laser

83-1-10.05-8500 NASA LaRC
I: NAS1-17584 \$ 49,940
II: NAS1-17988 \$500,000

George E. Busch

* Modular, Digital, Holographic Fringe Data Processing System

84-1-08.13-8500 NASA LaRC
I: NAS1-17945 \$ 49,990
II: NAS2-12531 \$498,000

James G. Downward

Touch Panels and Flat Panel Displays for Space Station System Monitoring

86-1-09.17-8500 NASA JSC
I: NAS9-17737 \$ 49,934

Ryan P. Miller

* High-Performance, View-Generated Database for World Model Definition and Update

87-1-05.01-8500 NASA JPL
I: NAS7-1009 \$ 50,000
II: NAS7-1066 \$493,450

Jerry L. Turney

A Single-View, Three-Dimensional-Object Recognition System

88-1-05.01-8500 NASA LaRC
I: NAS1-18814 \$ 48,000

Theodore B. Ladewski

Global-Local Environment Telerobotic Simulator

89-1-05.06-8500 NASA JPL
I: NAS7-1074 \$ 49,980

Frederick S. Schebor

K002

Ken Wanderman & Associates, Inc.

240 Drake Street
San Francisco, CA 94112
415-584-6211

* A Generalized Strategy for Building Resident Database Interfaces

86-1-07.09-6211 NASA GSFC
I: NAS5-30062 \$ 49,750
II: NAS5-30304 \$499,699

Ken Wanderman

K003

Kestrel Development Corporation

3260 Hillview Avenue
Palo Alto, CA 94304
415-493-6871

Semi-Automatic Data Structure Selection

89-1-06.04-6871 NASA ARC
I: NAS2-13174 \$ 49,982

Lee Blaine

K004

Kopin Corporation

695 Myles Standish Boulevard
Taunton, MA 02780
508-824-6696

* GaAs/AlGaAs Heterostructure Point-Contact Concentrator Cells

86-1-10.02-6696 NASA LeRC
I: NAS3-25135 \$ 50,000
II: NAS3-25449 \$487,417
Ronald P. Gale

* Low-Cost, Epitaxial, Indium-Phosphide Solar Cells

88-1-10.01-6696 NASA LeRC
I: NAS3-25610 \$ 50,000
II: NAS3-25948 \$493,140
M. B. Spitzer

K005

Kuck & Associates

1906 Fox Drive
Champaign, IL 61820
217-356-2288

Software Package for Solving Large Systems of Nonlinear Equations

87-1-02.01-3600 NASA MSFC
I: NAS8-37633 \$ 48,949
Ahmed Sameh

L

L001

L. W. Fleckenstein, Inc. - Now Fleck Aerospace

20580 Enterprise Avenue
Brookfield, WI 53008
414-784-4490

* Unified-Cycle Engine, Continuously Operable from Static to Hypersonic Conditions

86-1-01.06-4490 NASA LeRC
I: NAS3-25124 \$ 49,862
Neil W. Hartman

L002

LINK Corporation

6811 Kenilworth Avenue #306
Riverdale, MD 20737-1333
301-927-3223

Intelligent Data Abstraction and Analysis

87-1-07.05-3223 NASA GSFC
I: NAS5-30280 \$ 50,000
Barbara A. Lambird

L003

LNR Communications, Inc.

180 Marcus Boulevard
Hauppauge, NY 11788
516-273-7111

* High-Frequency (30 GHz) Gallium-Arsenide Materials and Devices

83-1-14.01-7112 NASA LeRC
I: NAS3-23787 \$ 48,911
II: NAS3-24251 \$453,000
Yung L. Cho

* EHF (30 GHz), Reflection-Mode-FET, Solid-State Power Amplifier

87-1-14.01-7111 NASA LeRC
I: NAS3-25339 \$ 49,348
II: NAS3-25637 \$534,080
Eric Ng

Pulsed Solid-State Power Amplifiers for 30/20 GHz Satcom Terminal Uplink Transmitters
88-1-14.08-7111 NASA LeRC
I: NAS3-25606 \$ 49,761
Johannes Degruyl

L004

Laser Data Technology

1244 Dielman Industrial Park
St Louis, MO 63132
314-997-2250

* Multi-Access, Free-Space Laser Communication

88-1-14.02-2250 NASA GSFC
I: NASS-30599 \$ 48,087
II: NASS-31170 \$494,595
Monte Ross

L005

Laser Power Corporation

12777 High Bluff Drive
San Diego, CA 92130
619-755-0700

* Digital Image Profilers for Detecting Faint Sources which Have Bright Companions

88-1-08.18-0700 NASA JPL
I: NAST-1040 \$ 49,508
II: NAST-T B D \$ T B D
Graham Flint

L006

Lasergenics Corporation

P.O. Box 611330
San Jose, CA 95161-1330
408-433-0161

* An All-Solid-State Tunable Laser for Remote Sensing Applications

84-1-08.08-0537 NASA LaRC
I: NAS1-17941 \$ 49,161
II: NAS1-18303 \$489,000
Richard Schlecht

High-Brightness Laser for Deep-Space Optical Communication

85-1-14.11-6790 NASA JPL
I: NAST-955 \$ 49,514
Richard Schlecht

Fiber Sensors for High Temperatures and Pressures

87-1-13.01-0161 NASA JSC
I: NAS9-17943 \$ 48,899
Richard Schlecht

Very-High-Temperature Fiber Sensors

88-1-02.11-0161 NASA LaRC
I: NAS1-18815 \$ 49,286
Richard Schlecht

Superconducting Fibers of Bi(Pb)-Ca-Sr-Cu-O

88-1-04.10-0161 NASA LeRC
I: NAS3-25568 \$ 49,893
Richard Schlecht

L007

Lasertechnics - Was Rothe Technical Research

5500 Wilshire Ave., N.E.
Albuquerque, NM 87113
505-822-1123

* Widely Tunable Gas Laser for Remote Sensing of Stratosphere

84-1-08.11-2227 NASA JPL
I: NAS7-935 \$ 49,826
II: NAS7-970 \$575,500
Dietmar E. Rothe

L008

Light Age, Inc.

6 Powder Horn Dr
Warren, NJ 07060
201-583-0600

Single, Longitudinal-Mode, Alexandrite Lidar Transmitter

89-1-08.06-0600 NASA GSFC
I: NASS-30851 \$ 50,000
Donald F. Heller

L009

Lightwave Electronics Corporation

1161 San Antonio Road
Mountain View, CA 94043
415-962-0755

* Multichannel Infrared Filters

85-1-08.09-0755 NASA ARC
I: NAS2-12352 \$ 49,450
II: NAS2-12639 \$451,795
Verne R. Costich

* Prototype Laser-Diode-Pumped, Solid-State Laser Transmitters

85-1-14.11-0755 NASA JPL
I: NAST-951 \$ 49,470
II: NAST-999 \$479,101
Thomas J. Kane

* Short-Pulse, High-Power Infrared Laser

86-1-08.02-0755 NASA GSFC
I: NASS-30050 \$ 49,428
II: NASS-30305 \$458,771
David S. Gerstenberger

* Tunable, Single-Frequency, Solid-State Laser Transmitter

88-1-08.07-0755 NASA LaRC
I: NAS1-18827 \$ 48,500
II: NAS1-19103 \$499,961
Richard W. Wallace

Coherent Communication Link Using Diode-Pumped Lasers

88-1-14.02-0755 NASA GSFC
I: NASS-30487 \$ 48,203
Thomas J. Kane

Efficient and Low-Timing-Jitter Pulsed Lasers for Space Communications

89-1-14.06-0755 NASA JPL
I: NAST-1076 \$ 49,607
William M. Grossman

L010
Lincom Corporation
1020 Bay Area Boulevard, Suite 200
Houston, TX 77058
713-488-5700

* Advanced Simulation Graphics System
84-1-06.04-1625 NASA JSC
I: NAS9-17277 \$ 50,000
II: NAS9-17606 \$500,000
John Mark Voss

* An Integrated Graphics and On-Orbit Vehicle Dynamics Simulation
88-1-06.06-1625B NASA JSC
I: NAS9-18099 \$ 50,000
II: NAS9-T B D \$ T B D
Randall D. Barnette

L011
Lynntech, Inc.
111 E. 27th Street, #204
Bryan, TX 77803
409-846-4131

Solid-Polymer, Electrolyte-Based Electrolyzers for Water Reclamation Post-Treatment
89-1-12.03-4131 NASA JSC
I: NAS9-18317 \$ 50,000
Ramesh C. Kainthla

M

M001
M. W. Aerospace - Now Maris Worden Aerospace

M002
MCR Technology, Inc.
55 Depot Road
Goleta, CA 93117
805-964-0671

* An Expert-System-Based Software Sizing Tool
86-1-07.10-0671 NASA JPL
I: NAST-981 \$ 50,000
II: NAST-1033 \$487,813
David Friedlander

M003
MESO, Inc. - Was Mesoscale, Inc.
28 Research Drive
Hampton, VA 23666-1325
804-865-7800

A Mesoscale, Numerical, Weather Forecast System for Use in Shuttle Operations
86-1-13.07-7800 NASA KSC
I: NAS10-11377 \$ 49,614
John W. Zack

* A Mesoscale, Statistical Thunderstorm Prediction System
88-1-13.03-7800 NASA KSC
I: NAS10-11562 \$ 49,951
II: NAS10-T B D \$ T B D
Michael L. Kaplan

M004
MIMD Systems, Inc.
1301 Shoreway Road, Suite 430
Belmont, CA 94002
415-595-7303

A Distributed, Object-Oriented, Data Facility for Local-Memory, Parallel Computers
89-1-06.07-7505 NASA JPL
I: NAST-1085 \$ 49,0860
Robert Larson

M005
MJR, Inc.
10400 Eaton Place, Suite 300
Fairfax, VA 22030
Last Known Address

High-Thermal-Capacity Cold Plates and Hot Plates
83-1-09.05-0700 NASA JSC
I: NAS9-17029 \$ 50,000
Han Hwangbo

M006
ML Energia, Inc.
P.O. Box 1468
Princeton, NJ 08542
609-799-7970

* Photochemical Ignition and Enhancement of Supersonic Combustion
87-1-02.06-7970 NASA ARC
I: NAS2-12782 \$ 50,000
II: NAS2-13187 \$499,980
Moshe Lavid

M007
MOCO, Inc.
P.O. Box A
Scituate, MA 02055-0974
617-545-2040

Optimal Workspace Design
89-1-12.05-2040 NASA JSC
I: NAS9-18320 \$ 49,655
Ruth A. Maulucci

M008
MSNW, Inc.
P.O. Box 865
San Marcos, CA 92069
619-744-7648

* Improved Fracture Toughness in Metal-Matrix Composites
85-1-04.03-7648 NASA LaRC
I: NAS1-18219 \$ 48,768
II: NAS1-18479 \$393,000
George H. Reynolds

Chemical Vapor Deposition of TiAl Foils
87-1-04.03-7648 NASA LaRC
I: NAS1-18615 \$ 49,966
George H. Reynolds

Synthesis of High-Purity, Refractory Beryllides
88-1-04.04-7648 NASA LaRC
I: NAS1-18821 \$ 49,700
George H. Reynolds

M009

Machine Vision International Sternberg
 301 North First Street
 Ann Arbor, MI 48103
 313-662-3537

* Integrated Computer Vision for Space Construction
 85-1-05.04-8033 NASA JSC
 I: NAS9-17580 \$ 50,000
 II: NAS9-17814 \$496,000
 Stanley R. Sternberg

M010

Macrodyne, Inc.
 P.O. Box 1079
 Schenectady, NY 12301
 518-356-3500

* Frequency Domain Laser-Velocimeter Signal Processor
 86-1-08.08-3500 NASA LaRC
 I: NAS1-18405 \$ 50,000
 II: NAS1-18661 \$500,000
 R. Jay Murphy

M011

Madison Magnetics, Inc.
 216 Walnut Street
 Madison, WI 53705
 608-238-5903

* Magnetic Suspension and Balance System for Wind Tunnels
 84-1-02.03-5903 NASA LaRC
 I: NAS1-17931 \$ 50,000
 II: NAS1-18279 \$550,000
 Roger W. Boom

M012

Magnetic Concepts
 10313 Ridgemoor Drive
 Silver Spring, MD 20901
 301-593-7241

Electromagnetic Insulators
 88-1-10.06-7241 NASA LeRC
 I: NAS3-25614 \$ 49,700
 Philip A. Studer

M013

Mainstream Engineering Corporation
 200 Yellow Place
 Rockledge, FL 32955
 407-242-7003

* Modular Chemical-Mechanical Heat Pump for Spacecraft Thermal-Bus Applications
 88-1-09.07-7003 NASA GSFC
 I: NASS-30519 \$ 49,997
 II: NASS-T B D \$ T B D
 Robert P. Scaringe

* Improved System for SCAPE Suit Heating
 88-1-13.02-7003B NASA KSC
 I: NAS10-11565 \$ 49,959
 II: NAS10-T B D \$ T B D
 Robert P. Scaringe

M014

Management Project Marketing Consultants
 - Was ISG Associates
 5902 East Hadrians Court
 Anaheim, CA 92807-3919
 714-779-9888

Influence of Tooth-Profile Modification on the Lubrication of Involute Gearing
 89-1-01.02-9888 NASA LeRC
 I: NAS3-25881 \$ 50,000
 Lotfi E. El-Bayoumy

M015

Maris Worden Aerospace, Inc. - Was MW Aerospace
 9301 North A-1-A, Suite 2
 Vero Beach, FL 32963
 407-388-2998

* Airflow Monitor and Stall Warning Device
 86-1-03.08-2413 NASA ARC
 I: NAS2-12592 \$ 49,596
 II: NAS2-12885 \$492,660
 Alfred M. Worden

M016

Mark J. Hommel
 11631 Idlebrook
 Houston, TX 77070
 713-370-2749

Mixed-Convection Heat Transfer from a Sphere
 83-1-15.02-2749 NASA MSFC
 I: NAS8-35821 \$ 50,000
 Mark J. Hommel

M017

Marko Materials, Inc.
 P.O. Box 3
 North Billerica, MA 01862
 617-663-2210

* Advanced, Powder-Metallurgy, Aluminum Alloys via Rapid Solidification Technology
 83-1-04.13-2210 NASA LaRC
 I: NAS1-17578 \$ 50,000
 II: NAS1-18001 \$236,820
 Ranjan Ray

Refractory-Metal Fibers Directly Cast from Melt
 85-1-04.01-2210 NASA LeRC
 I: NAS3-24867 \$ 50,000
 Ranjan Ray

* Fine-Grained, Nickel-Aluminide Alloy with Improved Formability Made via Rapid Solidification
 86-1-15.02-2210 NASA LeRC
 I: NAS3-25132 \$ 50,000
 II: NAS3-25448 \$304,424
 Sunil C. Jha

M018

Martingale Research Corporation
 100 Allentown Parkway #211
 Allen, TX 75002
 214-422-4570

* The Parametric-Avalanche, Control-Module Prototype Cognitive Neurocomputer
 88-1-06.06-4570 NASA JSC
 I: NAS9-18100 \$ 50,000
 II: NAS9-T B D \$ T B D
 Robert L. Dawes

M019

Martini Associates

2303 Harris
Richland, WA 99352
Last Known Address

Free-Piston, Three-Phase Stirling Electric Generator
85-1-10.03-0115 NASA LeRC
I: NAS3-24874 \$ 50,000
W. R. Martini

M020

Material Concepts, Inc. - *Now Fiber Materials, Inc.*
666 North Hague Avenue
Columbus, OH 43204-1492
614-272-5785

* Magnesium Composite Material for Advanced Rotary Aircraft Engines
83-1-04.01-5785 NASA LeRC
I: NAS3-24099 \$ 49,108
II: NAS3-24546 \$497,000
David M. Goddard

* Low-Thermal-Expansion Metal Composite Joints for Space Structures
83-1-04.13-5786 NASA MSFC
I: NAS8-35844 \$ 49,840
II: NAS8-35255 \$498,204
David M. Goddard

Hot-Die-Formed Graphite-Aluminum Wire
83-1-04.13-5786 NASA JSC
I: NAS9-17030 \$ 49,661
Joseph A. Moore

Hot-Pressed, Gr-Al Composites for Low-CTE Fittings
84-1-04.07-5785A NASA JSC
I: NAS9-17293 \$ 47,958
Patrick D. Burke

* Metallized-Kevlar Space Tether System
84-1-09.06-5785 NASA MSFC
I: NAS8-35268 \$ 46,410
II: NAS8-37256 \$471,000
Ralph F. Orban

M021

Materials and Electrochemical Research
7960 S Kolb Road
Tucson, AZ 85706
602-574-1980

* A ZrO₂-Toughened, SiC-Whisker-Reinforced, Alumina Composite
85-1-04.01-3257A NASA LeRC
I: NAS3-24872 \$ 50,000
II: NAS3-25206 \$500,000
J. C. Withers

A Coated, Titanium Boride, Whisker-Toughened, Silicon-Carbide Matrix Composite
89-1-04.01-1980A NASA LeRC
I: NAS3-25630 \$ 50,000
J. C. Withers

A Whisker-Reinforced High-Temperature Structural Insulation
89-1-04.15-1980 NASA JSC
I: NAS9-18318 \$ 50,000
J. C. Withers

M022

Materials Sciences Corporation

930 Harvest Dr., Union Meeting Corp. Ctr., #3
Blue Bell, PA 19422
215-542-8400

* Predicting Thermo-Mechanical Responses of Metal Matrix Composites
83-1-04.03-8400 NASA GSFC
I: NAS5-28002 \$ 47,428
II: NAS5-28651 \$274,925
E. A. Humphreys

Woven-Reinforcement Constructions for Composites
84-1-04.03-5400 NASA LaRC
I: NAS1-17934 \$ 48,685
Norris F. Dow

M023

Mathematical Research, Inc.
1120 NASA Road One, Suite 210
Houston, TX 77058
713-333-3912

System to Create Models of Fluid Flow Phenomena
87-1-06.07-2555 NASA ARC
I: NAS2-12796 \$ 49,981
C. Lamar Wiginton

M024
Maxdem, Inc.

267 S Fair Oaks Avenue
Pasadena, CA 91105
818-793-5224

Thermally Stable, Low-Dielectric Films for Aerospace Applications
88-1-04.03-5224 NASA LaRC
I: NAS1-18832 \$ 48,300
Neil H. Hendricks

* Nonlinear Optical Properties of Polyphenylenes
88-1-04.08-5224 NASA JPL
I: NAS7-1053 \$ 49,274
II: NAS7-1104 \$500,000
Neil H. Hendricks

M025
Mayflower Communications Company
80 Main Street
Reading, MA 01867
617-942-2666

* Autonomous, Integrated GPS/INS Navigation Experiment for OMV and STV
88-1-09.10-8100 NASA MSFC
I: NAS8-38031 \$ 49,879
II: NAS8-T B D \$ T B D
Triveni N. Upadhyay

M026
McMahan Electro-Optics, Inc.

2160 Park Avenue N
Winter Park, FL 32789
407-645-1000

* Double-Pulsed CCD, Phase-Sampled, Laser-Speckle Interferometric Metrology for NDT/E
87-1-13.07-0463 NASA LaRC
I: NAS1-18643 \$ 43,110
II: NAS1-18848 \$495,759
Robert K. McMahan, Jr.

M027

Mega Engineering
10800 Lockwood Drive
Silver Spring, MD 20901
301-681-6903

Reinforced, Inorganic Cement Material for Spark-Wire and Drift-Chamber Wire Frames

86-1-08.04-6803 NASA GSFC
I: NAS5-30051 \$ 45,668
 Richard E. Dame

M028

Membrane Technology & Research
1360 Willow Road, Suite 103
Menlo Park, CA 94025
415-328-2228

Removal of Carbon Dioxide from Spacecraft Atmosphere by Selective Membranes

85-1-12.01-2228 NASA JSC
I: NAS9-17572 \$ 49,996
 Hans Wijmans

* A Membrane Process for Scrubbing Propellant Vapors

85-1-13.06-2228 NASA KSC
I: NAS10-11285 \$ 49,996
II: NAS10-11405 \$357,908
 Hans Wijmans

Novel Heat Pipe Systems

87-1-09.05-2228 NASA GSFC
I: NAS5-30281 \$ 49,596
 Richard W. Baker

M029

Memory Metals, Inc.
84 West Park Place
Stamford, CT 06901
Last Known Address

* Shape-Memory-Alloy Joints and Couplings for Advanced Composite Materials

85-1-04.04-9777 NASA MSFC
I: NAS8-36272 \$ 44,775
II: NAS8-37343 \$495,700
 L. McDonald Schetky

M030

Mercor, Inc - Now Thoratec Laboratories
2023 Eighth Street
Berkeley, CA 94710
415-841-1213

Synthesis and Characterization of Protective Coatings for Aerospace Materials

85-1-04.06-0452 NASA JPL
I: NAS7-957 \$ 49,684
 Judy S. Riffle

M031

Meridian Corporation
4300 King Street, Suite 400
Alexandria, VA 22302
703-998-3600

* Force-Reflecting Hand Controller for Manipulator Teleoperation

87-1-05.01-3600 NASA JPL
I: NAS7-1024 \$ 49,880
II: NAS7-1069 \$499,553
 Mark D. Bryfogle

M032

Merix Corporation
77 Charles Street
Needham Heights, MA 02194
617-455-8877

* Light-Weight Alumina-Aluminosilicate Thermal Protection Materials

85-1-04.05-6630 NASA ARC
I: NAS2-12354 \$ 50,000
II: NAS2-12629 \$472,758
 Thomas W. Mix

M033

Metadyne, Inc.
P.O. Box 242
Elmira, NY 14902
607-732-1300

* High-Strength, Refractory-Metal Fibers by Advanced Powder Metallurgy

85-1-04.01-1300 NASA LeRC
I: NAS3-24865 \$ 49,926
II: NAS3-25149 \$496,741
 Raman L. Daga

M034

Metriwave, Inc.
4040 Spencer Street, #H
Torrance, CA 90503-2440
818-795-0669

* Microwave Network Analyzer for Superconductor-Insulator-Superconductor Mixer Research

87-1-08.18-0669 NASA JPL
I: NAS7-1025 \$ 50,000
II: NAS7-1071 \$524,997
 Wlyman L. Williams

M035

Metrolaser
18006 Skypark Circle #108
Irvine, CA 92714-6428
714-553-0688

Liquid Rocket Atomization: an Innovative Numerical and Experimental Simulation

88-1-11.03-0688 NASA MSFC
I: NAS8-38043 \$ 49,967
 Cecil F. Hess

A Holographic Interferometer Spectrometer for Hypersonic Flow

89-1-02.04-0688A NASA ARC
I: NAS2-13171 \$ 49,950
 James D. Trolinger

M036

Micon Engineering
One Graham Road
College Station, TX 77840
409-690-8911

Intelligent Protection System for Space Power Applications

89-1-10.06-8911 NASA MSFC
I: NAS8-38442 \$ 47,706
 R. Page Heller

M037

Micro Concepts, Inc.
11713 Palmer Drive
Tampa, FL 33624
813-974-2392

Rapid Diagnosis of Bacterial Infectious Diseases Under Microgravity Conditions
86-1-12.02-2392 NASA JSC
I: NAS9-17729 \$ 49,988
II: Hilary P. Stecklein

M038

Micro Craft, Inc.
P.O. Box 370
Tullahoma, TN 37388
615-455-2664

An Improved Quick-Disconnect for Aerospace Fluid Systems
88-1-13.02-2664 NASA KSC
I: NAS10-11556 \$ 49,968
II: Glenn Hardin

M039

Micro-G Research, Inc.
3401 Market Street, Room 345
Philadelphia, PA 19014-3323
215-387-9339

* Variable-Speed, Mid-Deck Centrifuge
85-1-12.09-4908 NASA KSC
I: NAS10-11288 \$ 49,989
II: NAS10-11404 \$499,352
David K. Chapman

Variable-G Facility for LIFESAT
88-1-12.08-9339 NASA ARC
I: NAS2-12999 \$ 49,761
David G. Heathcote

M040

MicroImages, Inc.
932 North Lakeshore Drive
Lincoln, NE 68528
402-435-3864

Portable, Low-Cost, Image Processing Prototype for Use by Individual Scientists
86-1-07.07-3864 NASA SSC
I: NAS13-300 \$ 49,596
Michael J. Unverferth

M041

Microcosm, Inc.
2601 Airport Drive, Suite 230
Torrance, CA 90505
213-539-9444

Spacecraft Attitude Determination Using AI and Attitude Measurement Information Theory
89-1-09.08-9444 NASA GSFC
I: NAS5-30874 \$ 50,000
James R. Wertz

M042

Microexpert Systems, Inc.
24007 Ventura Boulevard, Suite 210
Calabasas, CA 91302
818-712-9934

* The Laser Docking Sensor Intelligent Controller
85-1-05.07-5506 NASA JSC
I: NAS9-17567 \$ 49,950
II: NAS9-17807 \$498,734
Philip Borden

M043

Microgravity Research Associates
P.O. Box 10505
Midland, TX 79702
915-684-5544

* Growth of InGaAs, Bulk Ternary Crystals by Liquid-Phase Electroepitaxy
88-1-15.01-5544 NASA LeRC
I: NAS3-25627 \$ 49,765
II: NAS3-T B D \$ T B D
Tadeusz Bryskiewicz

M044

Microgravity Systems, Inc.
4215 Al 72E
Brownsboro, AL 35741
205-776-2043

Permanent Magnet Flight Furnace
89-1-15.01-2043 NASA MSFC
I: NAS8-38450 \$ 48,408
Billy R. Aldrich

M045

Microtronics Associates, Inc.
4516 Henry Street, Suite 403
Pittsburgh, PA 15213-3728
412-681-0888

* Hardware for Parallel, Asynchronous, Focal-Plane Image Processing
87-1-07.01-0888 NASA LaRC
I: NAS1-18645 \$ 49,022
II: NAS1-18850 \$485,498
Darryl D. Coon

Infrared Detector Systems for High-Dynamic-Range Radiometry and Imaging
87-1-08.16-0888 NASA GSFC
I: NAS5-30282 \$ 49,660
Darryl D. Coon

* Heterostructure Infrared Detectors for Use at Wavelengths Longer than 14 Microns
88-1-08.01-0888 NASA JPL
I: NAS7-1051 \$ 50,000
II: NAS7-T B D \$ T B D
Darryl D. Coon

M046

Microwave Monolithiccs, Inc.
465 East Easy Street, Unit F
Simi Valley, CA 93065
805-584-6642

* Advanced Monolithic Gallium-Arsenide Switch Matrix
83-1-14.02-6642 NASA LeRC
I: NAS3-23788 \$ 50,000
II: NAS3-24252 \$444,000
Daniel R. Ch'en

* Advanced, Low-Cost, Universal, 20 GHz Monolithic Receiver Front-End
84-1-14.01-6642 NASA LeRC
I: NAS3-24246 \$ 50,000
II: NAS3-24894 \$500,000
Wendell C. Petersen

* Advanced, GaAs, Monolithic, 20 GHz, RF Switch Matrix
84-1-14.02-6642 NASA LeRC
I: NAS3-24248 \$ 50,000
II: NAS3-24895 \$497,000
Daniel R. Ch'en

* Advanced On-Chip Divider for Monolithic, Microwave, Voltage-Controlled Oscillators
85-1-14.06-6642A NASA JPL
I: NAS7-947 \$ 50,000
II: NAS7-1000 \$462,000
Wendell C. Petersen

* Advanced Low-Cost, High-Performance Optical Components for CD-ROM Applications
86-1-06.12-6642 NASA ARC
I: NAS2-12564 \$ 50,000
II: NAS2-12909 \$498,911
Daniel R. Ch'en

High-Temperature Superconductors in Monolithic Microwave and Millimeter-Wave Integrated Circuits
87-1-08.18-6642 NASA JPL
I: NAS7-1011 \$ 49,712
Daniel P. Siu

* High-Efficiency, Low-Cost, GaAs Monolithic RF Module SARSAT Distress Beacons
87-1-14.03-6642 NASA LeRC
I: NAS3-25403 \$ 50,000
II: NAS3-25712 \$488,721
Wendell C. Petersen

Advanced Optical Head Technology
89-1-06.06-6642 NASA ARC
I: NAS2-13163 \$ 49,405
Daniel R. Ch'en

Monolithic, Gallium-Arsenide, UHF-IF, Switch Matrix for Space Station Applications
89-1-14.01-6642 NASA JSC
I: NAS9-18319 \$ 50,000
Daniel R. Ch'en

Advanced Monolithic, Gallium Arsenide Receiver Front-End for Spacecraft Transponders
89-1-14.04-6642 NASA JPL
I: NAS7-1098 \$ 50,000
Wendell C. Petersen

M047
Mid-South Engineering, Inc.
2131 Bellcourt Avenue
Nashville, TN 37212
615-383-8877

* Intelligent, Gas-Tungsten-Arc Welding Control
86-1-04.08-0960 NASA MSFC
I: NAS8-37306 \$ 50,000
II: NAS8-37401 \$469,985
Kristinn Andersen

Robotic Weld Path Programming
86-1-04.08-0960 NASA MSFC
I: NAS8-37629 \$ 49,715
Kristinn Andersen

M048
Midwest Research Microscopy
5510 West Florist Avenue
Milwaukee, WI 53218
414-527-2260

Erosion- and Oxidation-Resistant Protective Coating for Polyimide Sheeting
88-1-04.07-2260 NASA JSC
I: NAS9-18101 \$ 49,940
Norman A. Draeger

M049
Millitech Corporation

P.O. Box 109
South Deerfield, MA 01373
413-665-8551

* Space-Qualified Submillimeter Radiometer

83-1-08.02-8591 NASA JPL
I: NAS7-926 \$ 49,928
II: NAS7-933 \$500,000
G. Richard Huguenin

* Submillimeter Sources for Radiometry Using High-Power Indium-Phosphide Gunn Oscillators

85-1-08.02-8551A NASA JPL
I: NAS7-952 \$ 49,997
II: NAS7-996 \$439,116
Naresh C. Deo

A Broadband, Multichannel, Precipitation Sensor

89-1-08.09-8551 NASA MSFC
I: NAS8-38467 \$ 49,544
Ellen L. Moore

M050
Miranda Laboratories

1 De Angelo Drive
Bedford, MA 01730
617-275-1150

* Single-Particle Contaminant-Sizing Spectrometer for Space Application

86-1-08.09-1150 NASA GSFC
I: NAS5-30052 \$ 49,962
II: NAS5-30306 \$492,610
Henry A. Miranda Jr.

M051
Modus, Inc.

515 North Melton Drive
Jonesboro, AR 72401
Last Known Address

Remote, Teleoperator, Manual-Feedback Device with Gyrostatic Force Translation

84-1-05.01-5915 NASA JPL
I: NAS7-939 \$ 49,625
Keith A. Jones

M052
Moller International, Inc.

1222 Research Park Drive
Davis, CA 95616
916-756-5086

Evaluation of PS200 Coating as a Thermal Barrier in an Air-Cooled Rotary Engine
89-1-01.02-5086 NASA LeRC
I: NAS3-25873 \$ 48,319
Mike Griffith

M053

Monat Associates

4 Hollis Court
Centerport, NY 11721-1108
516-261-5449

A Real-Time Ice Detection System

86-1-03.01-5449
I: NAS3-25133
Uriel Vogel

NASA LeRC
\$ 49,972

M054

Monolithic Superconductors, Inc.

P.O. Box 1654
Lake Oswego, OR 97035-9998
503-684-2974

Novel Fabrication of Superconducting Antenna Structures for Space Applications

88-1-09.14-2974
I: NAS5-30504
Lawrence E. Murr

NASA GSFC
\$ 48,986

M055

Mosaic Industries, Inc

1260 L'Avenida, Suite B
Mountain View, CA 94043
415-961-9054

Automated Atmospheric Analysis for Manned Space Missions

87-1-08.10-9054
I: NAS8-37630
Paul K. Clifford

NASA MSFC
\$ 49,991

M056

Multipoint Communications Corporation

1284 Geneva Drive
Sunnyvale, CA 94089
408-734-3900

Programmable-Rate, Digital Modem Utilizing Digital Signal Processing Techniques Support Burst Modes

87-1-14.01-3900A
I: NAS3-25336
Robert Wallace

NASA LeRC
\$ 49,692

M057

Multisignal Technology Corporation

4662 Katella Avenue, Suite J
Los Alamitos, CA 90720
213-431-3503

Computing Range and Three-Dimensional Structure of Rigid Objects Using Stereo and Motion

86-1-05.03-3503
I: NAS8-37308
Thinh V. Nguyen

NASA MSFC
\$ 47,482

A Neural Network Approach for Unsupervised Image Classification

88-1-07.02-3503
I: NAS13-381
Thinh V. Nguyen

NASA SSC
\$ 49,807

N

N001

NDE Technology, Inc.

2909 Oregon Court C8
Torrance, CA 90503
213-320-5782

Acoustic Failure Prevention System for Thermal Control Systems

85-1-09.13-5782A
I: NAS9-17566
John R. Mastandrea

NASA JSC
\$ 49,712

N002

NDT Technologies, Inc.

P.O. Box 637
South Windsor, CT 06074
203-644-5655

A DC-to-400Hz Inverter

87-1-09.06-7958
I: NAS9-17944
Herbert R. Weischadel

NASA JSC
\$ 49,997

N003

Natural Language Products

180 Precora Way
Portola Valley, CA 94025
Last Known Address

Robust Natural Language Processor Transactional Dialogues

84-1-07.09-7511
I: NAS2-12087
Jerrold Ginsparg

NASA ARC
\$ 49,970

N004

Nektonics, Inc.

875 Main Street
Cambridge, MA 01239
617-868-0101

***Chemical-Vapor-Deposition, Fluid-Flow-Simulation Modelling Tool**

88-1-15.03-5777
I: NAS1-18831
II: NAS1-19102

Edward T. Bullister

NASA LaRC

\$ 44,820

\$440,000

Transition to Turbulence in Complex Aerodynamic Flows

88-1-02.03-5750
I: NAS1-19017
Edward T. Bullister

NASA LaRC

\$ 48,700

N005

Neocera Associates, Inc.

P.O. Box 815
Piscataway, NJ 08855
201-647-2694

Microwave-Compatible, High-Tc Superconducting Films on Sapphire Substrates

88-1-04.17-2694
I: NAS3-25869

NASA LeRC

\$ 49,863

Roger Edwards

N006

Netrologic

5080 Shoreham Place, Suite 201
San Diego, CA 92122
619-587-0970

* Space Transportation Analysis and Intelligent Space Systems
 86-1-06.06-5550 NASA JSC
 I: NAS9-17727 \$ 49,939
 II: NAS9-17995 \$473,200
 Daniel R. Greenwood

* Neural-Network Path-Planning and Digital Adaptive Control of Redundant Robots
 88-1-05.01-1225 NASA JPL
 I: NAST-1058 \$ 49,959
 II: NAST-T B D \$ T B D
 Daniel R. Greenwood

Adaptive Image Encoding and Classification Using Neural Networks
 88-1-07.02-1225 NASA GSFC
 I: NASS-30481 \$ 49,629
 Richard S. Cigledy

* A Natural Language Interface to a Geographical Information System
 88-1-07.04-1225 NASA SSC
 I: NAS13-384 \$ 49,054
 II: NAS13-T B D \$ T B D
 Rachel Adar

N007

Neurogen

40 Longwood Avenue
Brookline, MA 02146
617-739-2215

Neural Network Controller for Adaptive Movements in Robots
 87-1-05.01-2215 NASA LaRC
 I: NAS1-18630 \$ 29,000
 Michael Kuperstein

N008

New Horizons Diagnostics

9110 Red Branch Rd
Columbia, MD 21045
301-992-9357

Device for Sample Collection and Rapid Immunological Identification of Biological Specimens
 89-1-12.08-9357 NASA JSC
 I: NAS9-18321 \$ 50,000
 David Bernstein

N009

Newport Electro-Optics Systems, Inc.

4551-B Enterprise Court
Melbourne, FL 32934
407-254-0300

* A Multichannel, Acousto-Optic, Bragg Cell, Spectrum Analyzer System
 88-1-07.05-0300 NASA GSFC
 I: NASS-30486 \$ 49,763
 II: NASS-30885 \$473,035
 Eddie Young

N010

Niagara Scientific, Inc.

4004 New Court Avenue
Syracuse, NY 13206
315-437-0821

Miniature Airborne Dew Point Sensor
 87-1-03.07-0821 NASA LaRC
 I: NAS1-18623 \$ 49,997
 Sylvan Z. Beer

N011

Nichols Research Corporation

4040 South Memorial Parkway
Huntsville, AL 35802
205-883-1140

* Satellite Microwave-Sounder-Based Atlantic Cyclone Forecasts
 83-1-08.04-1140 NASA GSFC
 I: NAS5-28003 \$ 50,000
 II: NAS5-28656 \$499,000
 Herbert E. Hunter

Deductively Augmented, Management Decision Support System
 85-1-07.01-1140 NASA KSC
 I: NAS10-11286 \$ 49,999
 Anne-Marie Gnacek

N012

Nielsen Engineering & Research, Inc.

510 Clyde Avenue
Mountain View, CA 94043-2287
415-968-9457

* Increasing the Convergence Rate Euler Equation Solutions
 83-1-02.01-9458 NASA ARC
 I: NAS2-11740 \$ 49,678
 II: NAS2-12129 \$338,000
 David Nixon

Rapid Computation with Nonlinear Numerical Algorithms
 84-1-02.01-9457B NASA ARC
 I: NAS2-12088 \$ 49,167
 Goetz H. Klopfer

* Supersonic, Turbulent, Reacting Flow Modeling and Calculation
 87-1-01.04-9457 NASA LeRC
 I: NAS3-25285 \$ 49,979
 II: NAS3-25633 \$384,697
 Mohammad Farshchi

* Unsteady Triangular-Mesh, Navier-Stokes Method for Aerodynamics of Aircraft with Ice Accretion
 88-1-03.01-9457 NASA LeRC
 I: NAS3-25601 \$ 50,000
 II: NAS3-T B D \$ T B D
 Steven C. Caruso

A Model for Shock Turbulence Interaction

89-1-02.04-9457 NASA LaRC
 I: NAS1-19027 \$ 50,000
 Robert E. Childs

N013

Nonvolatile Electronics, Inc.

5805 Amy Drive
Edina, MN 55436
612-920-8659

Ultra-Dense Magneto-Resistive Mass Memory
 89-1-07.09-8659 NASA JPL
 I: NAS7-1077 \$ 49,919
 James M. Daughton

N014

North American Aerospace Corporation
 P.O. Box 162284
 Austin, TX 78716-2284
 512-328-0979

Aircraft Flight Testing Techniques and Instrumentation
 87-1-03.07-0979 NASA ARC
 I: NAS2-12741 \$ 45,000
 Larry Bird

N015

Northam Marketing Electronics
 303 Williams Street, Suite 1531
 Huntsville, AL 35801
 205-881-3820

Space Power and Distribution Systems: Remote Power Controller
 83-1-10.06-3820 NASA LeRC
 I: NAS3-23872 \$ 50,000
 Brahm Segal

N016

Northeast Semiconductor, Inc.
 95 Brown Road, #141
 Ithaca, NY 14850
 716-275-4867

* Diode Arrays for Pumping Rare-Earth-Doped, Solid-State Lasers
 88-1-08.06-3409 NASA GSFC
 I: NAS5-30493 \$ 48,000
 II: NAS1-T B D \$ T B D
 A. A. Karpinski

N017

Northwest Research Associates
 P.O. Box 3027
 Bellevue, WA 98009
 206-453-8141

A New Method for Respiratory Monitoring During Space Flight
 88-1-12.08-8141 NASA ARC
 I: NAS2-12994 \$ 49,787
 Robert B. Fraser

N018

Novatech, Inc.
 1745 East 1350 North
 Logan, UT 84321
 801-750-2035

Imaging Altimeter Using Imaging Doppler Interferometry
 87-1-08.06-2035 NASA JPL
 I: NAS7-1016 \$ 50,000
 Bruce R. Peterson

N019

Nuclear Filter Technology, Inc.
 13237 West 8th Avenue
 Golden, CO 80401
 303-237-4024

Low Density, Activated Carbon-Carbon Composite Cryogen Containment System
 86-1-09.19-4024 NASA GSFC
 I: NAS5-30053 \$ 41,957
 Gilbert W. Brassell

N020

Numedloc
 430 Hollybush Rd
 Bryn Mawr, PA 19010
 215-527-4995

Anatomical Image Analysis Techniques
 89-1-12.14-5668A NASA KSC
 I: NAS10-11650 \$ 49,999
 Lon Crosby

O

O001
OI Corporation

P.O. Box 2980
 College Station, TX 77841
 409-690-1711

Water Quality Monitor
 87-1-12.01-1711 NASA JSC
 I: NAS9-17945 \$ 48,136
 Bernie B. Bernard

O002
OPCOA, Inc.

12281 Knott Street, Suite 109
 Garden Grove, CA 92641-3925
 714-558-7377

Holographic-Processor, Optical Wavelength Demodulation in Fiber-Optic Systems
 83-1-08.01-4141 NASA JPL
 I: NAS7-925 \$ 41,120
 William H. Quick

* Fiber-Optic Pressure Sensor for Wind Tunnel Applications
 87-1-08.20-7377 NASA LaRC
 I: NAS1-18626 \$ 49,994
 II: NAS1-18844 \$337,519
 William H. Quick

O003
ORD, Inc.

P.O. Box 148
 North Salem, NH 03073
 603-893-9419

* New Fiber Fluorescence Immunoassay
 83-1-12.02-9111 NASA JSC
 I: NAS9-17035 \$ 48,660
 II: NAS9-17304 \$451,000
 Myron J. Block

O004
Odetics, Inc.

1515 South Manchester Avenue
 Anaheim, CA 92802-2907
 714-758-0300

* Handheld Optical Radar
 84-1-09.13-5000 NASA JSC
 I: NAS9-17289 \$ 50,000
 II: NAS9-17604 \$500,000
 Robert Drap

* Co-Ordinated Control of a Payload Utilizing Multiple Manipulator Arms

85-1-05.07-0300A NASA JSC
 I: NAS9-17577 \$ 49,958
 II: NAS9-17804 \$498,764
 Stephen J. Guzowski

* Adaptive, Focal Plane Processor for Image Enhancement
 85-1-07.04-0300 NASA LaRC
 I: NAS1-18204 \$ 49,812
 II: NAS1-18468 \$483,584
 George B. Westrom

Threat Expert Systems Technology Advisor
 86-1-03.06-5000 NASA ARC
 I: NAS2-12558 \$ 49,932
 Eleanor Kurrasch

* An Integrated Laser Ranger and Camera System
 86-1-07.02-5000 NASA LaRC
 I: NAS1-18408 \$ 50,000
 II: NAS1-18664 \$499,699
 George B. Westrom

* Advanced Object Color Identifier System
 86-1-07.07-5000 NASA SSC
 I: NAS13-302 \$ 50,000
 II: NAS13-339 \$499,857
 Eleanor Kurrasch

* Control Algorithm for Redundant Degree-of-Freedom Manipulators
 87-1-05.01-0300A NASA JPL
 I: NAS7-1006 \$ 50,000
 II: NAS7-1062 \$497,669
 Steven M. Cohan

Telepresence Sensor and Control Helmet
 87-1-05.01-0300C NASA JPL
 I: NAS7-1019 \$ 50,000
 Timothy Larson

* End-Point-Collision-Avoidance Path Planner for Redundant DOF Manipulators
 88-1-05.01-0300A NASA JPL
 I: NAS7-1055 \$ 49,416
 II: NAS7-T B D \$ T B D
 Nigel S. King

Dual-Arm, Collision-Avoidance Algorithm
 88-1-05.01-0300B NASA JPL
 I: NAS7-1038 \$ 49,710
 Timothy Larson

* A Knowledge-Based Imaging System
 88-1-07.01-5000 NASA LaRC
 I: NAS1-18816 \$ 49,848
 II: NAS1-19092 \$492,250
 George B. Westrom

O005
Odyssey Research Associates, Inc.
 301-A Harris B. Dates Drive
 Ithaca, NY 14850
 607-277-2020

Formal Verification of Mathematical Software
 83-1-06.06-2020 NASA LaRC
 I: NAS1-17579 \$ 50,000
 Richard Platek

Formal Verification of C with Unix
 89-1-06.03-2020 NASA LaRC
 I: NAS1-19008 \$ 49,984
 Douglas N. Hoover

O006
Ollis Engineering
 P.O. Box 408 D
 Sedalia, CO 80135
 303-688-0718

* Inflatable End Effectors
 85-1-05.03-0718 NASA MSFC
 I: NAS8-36259 \$ 39,579
 II: NAS8-37339 \$124,602
 Carter M. Lord

Centerline Imaging System for End-Effector Tools
 88-1-05.03-0718 NASA MSFC
 I: NAS8-38029 \$ 37,979
 Carter M. Lord

O007
Omltron, Inc.
 6305 Ivy Lane, Suite 500
 Greenbelt, MD 20770
 301-474-1700

* Adaptable Data Acquisition System
 85-1-07.02-1700 NASA GSFC
 I: NAS5-29270 \$ 49,181
 II: NAS5-30170 \$499,998
 Frederick J. Hawkins

* Concept-Oriented, Distributed, Expert System for Spacecraft Control
 87-1-07.02-1700 NASA GSFC
 I: NAS5-30284 \$ 49,631
 II: NAS5-30637 \$488,055
 David E. Simm

O008
Ontologic, Inc.
 3 Burlington Woods
 Burlington, MA 01803-4514
 617-272-7110

Clips--Vbase Feasibility Study
 87-1-06.05-2383 NASA JSC
 I: NAS9-17946 \$ 31,467
 Michael J. Vilot

O009
Ophir Corporation
 3190 S. Wadsworth Boulevard, Suite 100
 Lakewood, CO 80227
 303-986-1512

* Measurement of the Liquid Water and Ice Water Contents of Snow
 84-1-08.15-1512 NASA JPL
 I: NAS7-943 \$ 47,495
 II: NAS7-966 \$371,000
 Loren D. Nelson

Low-Cost Doppler Micro-Radar Rain Gauge
 87-1-08.02-1512 NASA GSFC
 I: NAS5-30285 \$ 49,930
 Loren D. Nelson

Laser-Doppler-Velocimeter Flow-Rate Measurement in Control Fluid Systems
 87-1-13.06-1512 NASA MSFC
 I: NAS8-37631 \$ 49,673
 Gregory J. Fetzer

P003
PDA Engineering
2975 Redhill Avenue
Costa Mesa, CA 92626
714-540-8900

* Cast SiC-Al Technology with Direct Application to Rotary Engines

85-1-01.02-8402 NASA LeRC
I: NAS3-24847 \$ 50,000
II: NAS3-25201 \$499,972

James R. Carluccio

A Controlled-Interfacial-Bond-Strength Process for Carbon-Phenolic and Carbon-Carbon Composites

86-1-04.02-2800 NASA LaRC
I: NAS1-18418 \$ 49,997
H. M. Stoller

Filament Winding Process for Thermoplastic Matrix Composites

87-1-04.05-8900 NASA MSFC
I: NAS8-37632 \$ 49,587
Ronald E. Allred

Lightweight, Advanced Composite Gondola for Stratospheric Balloons

87-1-04.11-8900 NASA GSFC
I: NAS5-30286 \$ 49,920
Donald C. Guichard

* Generalized Failure Criteria for Two-Dimensional Carbon-Carbon

88-1-11.01-8900B NASA MSFC
I: NAS8-38025 \$ 49,980
II: NAS8-T B D \$ T B D
Douglas A. Marx

Physically Based, Failure Criteria for Carbon-Phenolic Materials

89-1-11.04-8900A NASA MSFC
I: NAS8-38444 \$ 50,000
John P. Norman

P004

PDA Engineering, Albuquerque Div. - Was

Santech
3754 Hawkins NE
Albuquerque, NM 87109
505-344-4967

* Surface Chemical Modification of Graphite Filaments to Improve Graphite-Thermoplastic Composites

85-1-04.03-8402A NASA LaRC
I: NAS1-18208 \$ 50,000
II: NAS1-18469 \$479,100
Ronald E. Allred

P005

PEDA Corporation
4151 Middlefield Road, Suite 7
Palo Alto, CA 94303
415-493-5123

Improved Turbulence Model for Aerodynamic Flows with Massive Separation and Wakes

86-1-02.06-5123 NASA ARC
I: NAS2-12550 \$ 49,840
Jorge Badina

P006
PI, Inc.
P.O. Box 442
Redondo Beach, CA 90277
213-370-9961

Mobile Radios for the Mobile Satellite Service
86-1-14.06-9961 NASA JPL
I: NAS7-990 \$ 49,870
Tai Kao

Collision-Resolution Algorithm for Request Channel Demand Assigned Network Protocols

86-1-14.08-9961 NASA JPL
I: NAS7-992 \$ 49,870
Raymond Cheung

P007
PSI Technology Company
P.O. Box 3100
Andover, MA 01810
508-475-9030

* Production of Oxygen and Other Products by Pyrolysis of Lunar Materials

88-1-04.11-9030 NASA JSC
I: NAS9-18102 \$ 49,983
II: NAS9-T B D \$ T B D
Constance L. Senior

P008
Pacific Monolithics, Inc.
245 Santa Ana Court
Sunnyvale, CA 94086
408-732-8000

* Linear and Bi-Phase Modulator for Integrated Circuits

88-1-14.04-8000 NASA JPL
I: NAS7-1056 \$ 47,787
II: NAS7-T B D \$ T B D
Fazal Ali

P009
Panametrics, Inc.
221 Crescent Street
Waltham, MA 02254
617-899-2719

Ultrasonic Transducers: Deployment and Signal Processing Means for Cryofluids

88-1-08.15-2719 NASA LeRC
I: NAS3-25371 \$ 50,000
Lawrence C. Lynnworth

Cryogenic, Ultrasonic, Mass Flowmeter and Quality Meter

89-1-08.22-2719 NASA LeRC
I: NAS3-25814 \$ 50,000
Lawrence C. Lynnworth

P010
Partnerships Limited
P.O. Box 6503
Lawrenceville, NJ 08648
609-896-2193

High-Altitude, RPV Flight Test Vehicle
83-1-02.09-2193 NASA ARC
I: NAS2-11735 \$ 49,976
Paul H. Kydd

P011

Payload Systems, Inc.
276 Third Street
Cambridge, MA 02142-1112
617-235-2465

Microgravity Accelerometer Package for Spaceflight Applications
86-1-15.08-2465 NASA LeRC
I: NAS3-25125 \$ 50,000
Byron K. Lichtenberg

P012

Penn Laboratories, Inc.
83 Mountain Ridge Road
Cartersville, GA 30120
404-974-8476

* Laser Float-Zone Process Improvements
88-1-04.12-8476 NASA LeRC
I: NAS3-25605 \$ 50,000
II: NAS3-25944 \$500,000
Wayne Penn

P013

Perceptics Corporation
725 Pellissippi Parkway
Knoxville, TN 37933-0991
615-966-9200

Parallel Implementation of Algorithms for Robotic Sensory Fusion
88-1-05.03-9200 NASA GSFC
I: NAS5-30459 \$ 49,280
R. C. Gonzales

P014

Phoenix Engineering & Computing, Inc.
2923 Osmundsen Road
Madison, WI 53711
608-274-1987

Kinematic Data Gathering System for Determining Human Motion in Zero Gravity
87-1-12.04-1987 NASA JSC
I: NAS9-17947 \$ 45,491
Rimantas Buinevicius

P015

Phonon Corporation
7 Herman Drive, P.O. Box 549
Simsbury, CT 06070
203-651-0211

Surface-Acoustic-Wave, Spectral Limiter for Narrow-Band Interference Suppression
89-1-14.02-0211 NASA GSFC
I: NAS5-30842 \$ 49,300
Clement Valerio

P016

Photo-Catalytics, Inc.
2905 Center Green Court South
Boulder, CO 80301
303-444-0052

* Photocatalytic Purification and Sterilization of Water Derived from Recycled Distillates
86-1-12.01-4406 NASA JSC
I: NAS9-17733 \$ 50,000
II: NAS9-17987 \$498,500
Gerald Cooper

P017

Photometrics Limited
3440 E. Britannia Drive, #200
Tucson, AZ 85706-5006
602-623-8961

* Advanced Electronic Imaging System
85-1-08.01-8961 NASA GSFC
I: NAS5-29284 \$ 48,650
II: NAS5-30171 \$472,000
Gary R. Sims

High-Resolution, Multi- CCD TDI Camera System
87-1-08.17-8961 NASA JPL
I: NAS7-1022 \$ 49,885
T. W. McCurnin

Backside-Illuminated, Large-Format, Charge-Coupled Devices and Mosaics
89-1-08.13-8961 NASA GSFC
I: NAS5-30870 \$ 49,233
Gary R. Sims

Charge-Coupled Device Sensors for Electronic Still Photography
89-1-12.06-8961 NASA JSC
I: NAS9-18234 \$ 49,196
Gary R. Sims

P018

Photon Research Associates, Inc.
9393 Towne Centre Drive, Suite 200
San Diego, CA 92121
619-455-9741

Integrated Ergonomic System for Software Development
89-1-05.03-1522 NASA GSFC
I: NAS5-30872 \$ 49,984
James D. Turner

P019

Photon Research Associates, Inc.
1033 Massachusetts Avenue
Cambridge, MA 02138
617-354-1522

Multispectral, Remote Sensing Using Sprite Technology
89-1-08.03-1522 NASA SSC
I: NAS13-406 \$ 49,990
James C. Fraser

P020

Photonic Systems, Inc.
1900 S Harbor City Boulevard
Melbourne, FL 32901
407-984-8181

Wideband Acousto-Optic Spectrometer
88-1-08.16-8181 NASA JPL
I: NAS7-1048 \$ 49,817
Dennis R. Pape

Wideband, Multi-Channel, Acousto-Optic Spectrometer for Radio Astronomy Applications
89-1-07.05-8181 NASA GSFC
I: NAS5-30847 \$ 48,846
Dennis R. Pape

P021

Photonics Technology, Inc.

6967 Wales Road
Northwood, OH 43619
419-666-0762

* Full-Color, AC-Plasma, Flat-Panel Display for Space Station Applications

87-1-09.03-0762	NASA JSC
I: NAS9-17948	\$ 50,000
II: NAS9-18171	\$500,000

Peter S. Friedman

* Spacecraft Thermal-Energy-Accommodation from Atomic Recombination

85-1-02.03-9030	NASA JSC
I: NAS9-17565	\$ 49,920
II: NAS9-17815	\$469,000

William J. Marinelli

P022

Phrasor Scientific, Inc.

1536 Highland Avenue
Duarte, CA 91010
Last Known Address

Electrohydrodynamic Synthesis of Silicon-Nitride, Ultrafine Powders and Coatings

83-1-04.01-3201	NASA LeRC
I: NAS3-23935	\$ 49,375

John F. Mahoney

* Dual-Function, Perovskite Catalysts and Supports for Alkaline, Regenerative, and Pressurized Fuel Cells

85-1-10.01-9030	NASA LeRC
I: NAS3-24870	\$ 49,995
II: NAS3-25199	\$499,795

E. Jennings Taylor

* Multicolor, Imaging Pyrometer for Materials Processing in Space

85-1-15.03-9030	NASA JPL
I: NAS7-954	\$ 49,955
II: NAS7-1002	\$452,000

Michael Frish

Chemically Grown, Gold-Carbon Electrocatalyst Materials for Alkaline Fuel Cell Cathodes

86-1-10.01-9030	NASA LeRC
I: NAS3-25121	\$ 45,000

E. Jennings Taylor

High-Temperature, Seed-Particle Development for Laser Doppler Velocimeters

87-1-01.03-9030	NASA LeRC
I: NAS3-25284	\$ 49,265

Michael Frish

* Propulsion Simulation for Magnetically Suspended Wind Tunnel Models

87-1-02.02-9030	NASA LaRC
I: NAS1-18616	\$ 49,605
II: NAS1-18845	\$493,000

Prakash B. Joshi

* Aerothermodynamic Radiation Studies

87-1-02.06-9030	NASA JSC
I: NAS9-17949	\$ 49,969
II: NAS9-18172	\$496,000

George E. Caledonia

Wind Tunnel Remote Turbulence Characterization

87-1-08.20-9030	NASA LaRC
I: NAS1-18617	\$ 49,716

Lawrence G. Piper

* Arcing on Space Structures in Low Earth Orbit

87-1-10.01-9030	NASA LeRC
I: NAS3-25402	\$ 49,948
II: NAS3-25797	\$491,438

Guy Weyl

* Three-Body Reaction Rates for H₂-O₂ at High Temperatures

88-1-01.04-9030	NASA LeRC
I: NAS3-25566	\$ 49,948
II: NAS3-T B D	\$ T B D

William J. Marinelli

Hypersonic Thermophysics Code

88-1-02.05-9030A	NASA LaRC
I: NAS1-18807	\$ 49,400

Hartmut H. Legner

Laser Technique in Superconducting Film Deposition

88-1-04.10-9030	NASA JPL
I: NAS7-1057	\$ 49,535

Christopher J. Rollins

P025

Physical Sciences, Inc.

20 New England Business Center
Andover, MA 01810
508-689-0003

Solar-Pumped, Alkali-Vapor Laser

83-1-10.05-9030	NASA LaRC
I: NAS1-17585	\$ 49,908

David Ham

* Novel Oxygen-Atom Source for Material Degradation Studies

84-1-04.14-9030	NASA JPL
I: NAS7-938	\$ 49,971
II: NAS7-963	\$449,000

George E. Caledonia

* Laser Spectrometer and Wavemeter

84-1-08.08-9030	NASA LaRC
I: NAS1-17942	\$ 49,986
II: NAS1-18243	\$459,000

Peter E. Nebolsine

Reaction Mechanics and Kinetic Rates for Soot Formation
89-1-01.01-9030 NASA LeRC
I: NAS3-25839 \$ 49,996
W. Terry Rawlins

Laser-Induced Fluorescence Measurements of Velocity in
Supersonic Reacting Flowfields
89-1-01.03-9030 NASA LeRC
I: NAS3-25840 \$ 49,981
Mark G. Allen

High-Velocity Gas-Surface Accommodation
89-1-02.04-9030 NASA JSC
I: NAS9-18326 \$ 49,860
George E. Caledonia

P026
Physical Sciences, Inc.
635 Slaters Lane, Suite G101
Alexandria, VA 22314
703-548-6410

The Stability of High-Temperature Superconducting Materials in
Low Earth Orbit
88-1-04.10-6410A NASA LeRC
I: NAS3-25562 \$ 49,903
J. T. Schriempf

P027
Phytoresource Research, Inc.
707 Texas Avenue, Suite 101-E
College Station, TX 77840
409-693-8606

* Tissue Fixation Apparatus for Flight Experimentation
84-1-12.02-8606 NASA JSC
I: NAS9-17291 \$ 50,000
II: NAS9-17608 \$484,000
H. W. Scheld

* In-Flight Acquisition of Engineering Data for Plant Growth
84-1-12.04-8606 NASA JSC
I: NAS9-17292 \$ 50,000
II: NAS9-17609 \$482,000
H. W. Scheld

* Optimizing Atmospheres for Space Life Support Systems
85-1-12.07-8606 NASA ARC
I: NAS2-12353 \$ 50,000
II: NAS2-12636 \$464,000
John D. Goeschl

A Bioreactor for Screening and Production of High-Value,
Secondary Plant Metabolites
86-1-15.01-8606 NASA ARC
I: NAS2-12565 \$ 50,077
H. W. Scheld

* Space-Rated Nutrient Delivery and Root Support System
87-1-12.07-8606 NASA KSC
I: NAS10-11461 \$ 50,000
II: NAS10-11601 \$499,910
H. W. Scheld

P028
Planar Systems, Inc.

1400 NW Compton Drive
Beaverton, OR 97006
503-690-1100

Metallo-Organic CVD of Electroluminescent Films for Multicolor,
Flat-Panel Displays
86-1-09.15-1100 NASA JSC
I: NAS9-17726 \$ 49,940
Richard Tuenge

P029
PlessCor Optronics, Inc. - Now PCO, Inc.
20200 Sunburst Street
Chatsworth, CA 91311-6289
818-700-1233

Extremely Sensitive Receiver for Laser Communications
85-1-14.10-1233 NASA GSFC
I: NAS5-29283 \$ 50,512
Tran Van Muoi

P030
Polatomic, Inc.
2201 Waterview Parkway, Suite 1.712
Richardson, TX 75080
214-690-2292

* Advanced Helium Magnetometers for Space Applications
85-1-08.10-2753 NASA JPL
I: NAS7-956 \$ 45,450
II: NAS7-993 \$465,000
Robert E. Slocum

* Metal Thin-Film Optical Polarizers for Space Application
86-1-08.24-2727 NASA JPL
I: NAS7-987 \$ 49,961
II: NAS7-1037 \$497,485
Robert E. Slocum

P031
Power Silicon & Monolithic Technologies
750 Braddock Avenue
East Pittsburgh, PA 15112
412-829-1205

Ultra-High-Temperature 20kHz Induction Generator for VSCF
Operating Mode
87-1-10.01-2520 NASA LeRC
I: NAS3-25350 \$ 46,739
Stephen Kuznetsov

P032
Precision Combustion, Inc. - See Wm. Pfefferle
Assoc.
25 Science Park
New Haven, CT 06511
203-786-5216

* Catalytic-Ignition, Rotary, Combustion Engine
86-1-01.02-0664 NASA LeRC
I: NAS3-25784 \$496,759
William C. Pfefferle

P033
Princeton Scientific Enterprises, Inc.
1108 Kingston Road
Princeton, NJ 08540
609-924-0714

An Extreme-Temperature, Ultraclean, Radiant Furnace
86-1-15.01-0714 NASA MSFC
I: NAS8-37325 \$ 50,000
David W. Blair

P034
Pritsker & Associates, Inc.
P.O. Box 2413
West Lafayette, IN 47906
317-463-5557

Generalized Communications Models by Composition from Modules
86-1-14.03-5557 NASA JSC
I: NAS9-17744 \$ 49,918
Charles R. Standridge

P035
Program Development Corp. of Scarsdale
300 Hamilton Avenue Suite 409
White Plains, NY 10601
914-761-1732

Goodness-Of-Grid Measures
88-1-02.01-4456 NASA ARC
I: NAS2-12959 \$ 50,000
Peter R. Eiseman

Computer-Aided Grid Design
88-1-11.04-4456 NASA MSFC
I: NAS8-38037 \$ 50,000
Bharat K. Soni

Grid-Generation Code with Automatic Zoning
89-1-01.01-1732A NASA LeRC
I: NAS3-25880 \$ 50,000
Peter R. Eiseman

P036
Propulsion Research Associates
904 East Colorado Avenue
Urbana, IL 61801-6305
312-654-1708

Efficient Computation of Viscous Internal Flows
88-1-01.01-1708A NASA LeRC
I: NAS3-25573 \$ 46,269
S. P. Vanka

P037
Prospective Computer Analysts
1800 Northern Boulevard
Roslyn, NY 11576
516-484-4610

* CAD/CAE Knowledge-Base Development Tool
87-1-06.06-4610 NASA KSC
I: NAS10-11458 \$ 50,000
II: NAS10-11602 \$487,625
R. Glenn Wright

P038
Protein Technologies, Inc.
1700 E 18th Street, Suite 102
Tucson, AZ 85719
602-629-9626

Supercritical Fluid Solvent System for Solid-Phase Peptide Synthesis
86-1-15.01-9626 NASA ARC
I: NAS2-12563 \$ 50,000
Leon E. Barstow

P039
Proteon, Inc.
Two Technology Drive
Westborough, MA 01581
508-898-2800

* High-Speed Packet Switching
87-1-07.04-2800 NASA GSFC
I: NAS5-30287 \$ 50,000
II: NAS5-30629 \$500,000
Nathan K. Salwen

P040
Pulse Systems, Inc.
140 Meadow Lane
Los Alamos, NM 87544
505-672-1926

* A Pulsed, CO₂ Laser for Remote Atmospheric Sensing from Space
84-1-08.06-1920 NASA GSFC
I: NAS5-28639 \$ 50,000
II: NAS5-29419 \$500,000
Edward J. McLellan

Q

Q001
Q-Dot, Inc.
1069 Elkton Drive
Colorado Springs, CO 80907-3579
719-590-1112

* Focal-Plane Processing of Visual Information
84-1-07.04-1112 NASA LaRC
I: NAS1-17940 \$ 49,993
II: NAS1-18287 \$448,000
Peter C. T. Roberts

Multiple-Access Communication Hybrid Simulation
88-1-14.01-1112 NASA JSC
I: NAS9-18103 \$ 49,993
David E. Reed

High-Instantaneous-Data-Rate, Burst-Signal Receiver
89-1-14.05-1112 NASA LeRC
I: NAS3-25717 \$ 49,954
David E. Reed

Q002
QCI, Inc.
P.O. Box 1067
Oak Ridge, TN 37831
615-483-6498

* Thermoelectric Instrumentation for Characterization of Precipitation-Hardening Alloys
87-1-13.07-6498 NASA LaRC
I: NAS1-18641 \$ 18,796
II: NAS1-18852 \$132,685
Roger W. Derby

Q003
QSource
151 Deercliff Road
Avon, CT 06001
203-677-2206

* Improved Pulsed-Discharge TE Laser
88-1-08.04-2206 NASA MSFC
I: NAS8-38033 \$ 49,920
II: NAS8-T B D \$ T B D
Peter P. Chenausky

Q004

Quanta, Inc.

2778 Hargrove Road, Suite 345
Smyrna, GA 30080
404-955-5811

Universal, Bilateral, Robotic Controller
89-1-09.09-9511
I: NAS9-18327
Gary V. McMurray

NASA JSC
\$ 49,500

Q005

Quantel International
3150 Central Expressway
Santa Clara, CA 95051
408-727-3240

Diode-Pumped, Short-Pulse Laser for Ranging and Altimetry
89-1-08.02-3240
I: NAS5-30868
Jean-Marc Heritier

NASA GSFC
\$ 46,563

Q006

Quantex Corporation
2 Research Court
Rockville, MD 20850
301-258-2701

* Large-Area Nuclear Particle Detectors Using Electron-Trapping Materials
86-1-08.04-2701
I: NAS5-30054
II: NAS5-30310
Charles Y. Wrigley

NASA GSFC
\$ 49,997
\$499,502

Q007

Quantic Industries, Inc.
990 Commercial Street
San Carlos, CA 94070
415-595-1100

Long-Life, Three-Axis Satellite Attitude Sensing
86-1-09.03-1100
I: NAS5-30055
Oliver J. Edwards

NASA GSFC
\$ 53,090

Q008

Quantum Composites, Inc.
4702 James Savage Road
Midland, MI 48640
517-546-7789

* Low-Cost Tooling Material and Process for Graphite and Kevlar Composites
83-1-04.03-7789
I: NAS2-11736
II: NAS2-12016
Norman S. Strand

NASA ARC
\$ 29,916
\$490,000

Q009

Quintus Computer Systems, Inc.
1310 Villa Street
Mountain View, CA 94041
415-965-7700

Knowledge-Based Process Control
86-1-06.05-3612
I: NAS2-12549
Edward P. Stabler Jr.

NASA ARC
\$ 48,056

R

R001

R Scan Corporation
1200 Washington Avenue South
Minneapolis, MN 55415
612-333-1424

* Forecasting Sea Breeze Thunderstorms Using a Mesoscale Numerical Model

84-1-13.05-1424
I: NAS10-11142
II: NAS10-11321
Walter A. Lyons

NASA KSC
\$ 49,146
\$476,000

R002

RAI Associates
432 Stonehenge
Arlington, TX 76014
Last Known Address

High Energy Trib-Elements
84-1-01.05-8279A
I: NAS3-24537
Roger Iverson

NASA LeRC
\$ 41,532

R003

REI Systems
P.O. Box 9183
McLean, VA 22102-0183
703-281-1745

A Distributed, Object-Type Management System for Heterogeneous Environments
89-1-07.08-1745
I: NAS5-30840
Veer V. Bhartiya

NASA GSFC
\$ 49,101

R004

RISC Associates
3112 Devon Road
Durham, NC 27707
919-493-7978

* Parallel Image Compression
86-1-07.04-3673
I: NAS5-30056
II: NAS5-30308
John H. Reif

NASA GSFC
\$ 49,932
\$496,780

R005

Radiation Monitoring Devices, Inc.
44 Hunt Street
Watertown, MA 02172
617-926-1167

* Soft X-Ray Window Encapsulant for Mercuric Iodide Detectors
83-1-08.07-1167
I: NAS7-927
II: NAS7-931
Gerald Entine

NASA JPL
\$ 50,000
\$358,000

* Portable Nuclear Cardiology Ejection Fraction Monitor
83-1-12.02-1167
I: NAS9-17033
II: NAS9-17303
Gerald Entine

NASA JSC
\$ 50,000
\$459,000

* Proportional Proximity Sensor for Autonomous Space Based Robots
86-1-05.01-1167
I: NAS7-975
II: NAS7-1032
Michael R. Squillante

NASA JPL
\$ 50,000
\$500,000

High-Resolution, Avalanche-Diode, X-Ray Spectrometer for Planetary Exploration 87-1-05.05-1167 I: NAS7-1018 Gerald Entine	NASA JPL \$ 50,000	* Space Flight Gas Temperature Probe 84-1-13.08-8581C I: NAS8-35276 II: NAS8-37258 Robert L. Bender	NASA MSFC \$ 50,000 \$482,000
High-Field, High-Tc Superconducting Magnets 89-1-04.17-1167 I: NAS1-19012 Micheal Squillante	NASA LaRC \$ 47,796	* Space-Based Solar Water Heater 85-1-09.19-8581 I: NAS8-36256 II: NAS8-37338 Richard E. Somers	NASA MSFC \$ 50,000 \$499,933
Solid-State Neutron Dosimeter for Space Applications 89-1-12.01-1167 I: NAS9-18328 Gerald Entine	NASA JSC \$ 50,000	Induced Contamination Environment of the Space Station 85-1-13.07-8581B I: NAS8-36258 Carl D. Engel	NASA MSFC \$ 50,000
R006 Radiometrics Corporation P.O. Box 215 Altadena, CA 91001 818-798-0071		* Aerodynamic Heating Upgrade of the Parabolized Navier-Stokes Code 85-1-13.08-8581A I: NAS8-36271 II: NAS8-37345 Sarat C. Prahraj	NASA MSFC \$ 50,000 \$498,399
High-Sensitivity, Active, Cavity Radiometer 87-1-08.02-0071 I: NAS5-30288 Richard C. Willson	NASA GSFC \$ 49,578	* Navier-Stokes Computations of the Near-Wake, Hypersonic, Rarefied Flow on a Blunt AOTV Body 86-1-02.08-8581 I: NAS8-37305 II: NAS8-37400 A. C. Jain	NASA MSFC \$ 50,000 \$495,187
R007 Raman Aeronautics, Inc. 734 Melville Avenue Palo Alto, CA 94301 415-327-4037		* Aeroheating Flight Instrumentation 86-1-08.20-8581 I: NAS8-37314 II: NAS8-37409 S. A. Bancroft	NASA MSFC \$ 50,000 \$493,644
* Shear-Stress Sensor Development Using Surface Acoustic Waves 84-1-02.06-4037 I: NAS2-12121 II: NAS2-12481 K. R. Raman	NASA ARC \$ 49,941 \$221,000	* Rarefied-Gas, Aerodynamic Bridging Procedures 87-1-02.07-8581 I: NAS8-37635 II: NAS8-38416 E. C. Knox	NASA MSFC \$ 49,979 \$490,710
R008 Refractory Composites, Inc. 12220-A Rivera Road Whittier, CA 90606 213-698-8061		* Vacuum Plume Impingement Evaluator 87-1-02.08-8581A I: NAS8-37636 II: NAS8-38423 Robert L. Bender	NASA MSFC \$ 49,921 \$490,724
Ceramic-Matrix-Composite for Hypersonic Engine Structures 89-1-03.07-8061 I: NAS1-19011 Edward L. Paquette	NASA LaRC \$ 49,851	Viscous Flow Field Calculations in Regeneratively Cooled Nozzles 87-1-11.04-8581 I: NAS8-37637 Sarat C. Prahraj	NASA MSFC \$ 49,947
R009 Remote Sensing Systems 1101 College Avenue, #220 Santa Rosa, CA 95404 707-545-2904		Effects of Charge Separation in Hypersonic, Ionized Flows 88-1-02.07-8581 I: NAS8-38032 Peter A. Liver	NASA MSFC \$ 50,000
* West Coast Storm Forecasting with Satellite Data 84-1-07.06-8911 I: NAS5-28634 II: NAS5-29438 Frank J. Wentz	NASA GSFC \$ 50,000 \$491,000	Coupling of Unsteady Fluid Dynamics and Structures in Low-Density, High-Speed Flows 89-1-02.05-8581 I: NAS8-38456 Sarat C. Prahraj	NASA MSFC \$ 50,000
R010 Remtech, Inc. 3304 Westmill Drive Huntsville, AL 35805 205-536-8581		Integrated CAD Venting Analysis Package 89-1-09.14-8561 I: NAS8-38457 G. Hamilton Woods	NASA MSFC \$ 50,000
Nonadiabatic Compartment Venting Heating 84-1-13.08-8581 I: NAS8-35277 Carl D. Engel	NASA MSFC \$ 50,000		

R011**Research Innovation Implementation**

8222 Bent Tree, #148
Austin, TX 78759
512-346-0533

Sensors for Flight Research

88-1-03.06-5287

I: NAS2-12886

Jon M. Schroeder

NASA ARC

\$ 47,802

R012**Resoft, Inc.**

9837 Gene Street
Cypress, CA 90630
714-952-8307

Artificial Intelligence System Applying Reusable Software Components

86-1-06.04-8307A

I: NAS5-30057

Richard Cooper

NASA GSFC

\$ 49,871

R013**Resource Technologies Group, Inc.**

400 Mississippi Street
Morgantown, WV 26505-6751
304-291-6706

Thin Membrane Sensors

89-1-12.02-6706

I: NAS8-38470

George D. Case

NASA MSFC

\$ 50,000

R014**Ressler Associates, Inc.**

14440 Cherry Lane Court Suite 212
Laurel, MD 20707
301-206-3232

An Airborne, Laser-Depolarization, Imaging Sensor for Terrestrial Measurements

89-1-08.05-3232

I: NAS5-30863

Gerald M. Ressler

NASA GSFC

\$ 49,958

R015**Ribbon Technology Corporation**

P.O. Box 30758
Gahanna, OH 43230
614-864-5444

*** Rapidly Solidified Titanium Alloys by Melt Overflow**

84-1-01.03-5444

NASA LaRC

I: NAS1-17978

\$ 48,662

II: NAS1-18288

\$460,000

James Dickson

Rapidly Solidified, Narrow, Titanium-Aluminide Strip

89-1-04.04-5444A

NASA LeRC

I: NAS3-25872

\$ 31,583

Mark Farrell

Process Control for Melt-Overflow, Rapid Solidification Technology

89-1-04.09-5444

NASA LaRC

I: NAS1-19019

\$ 49,790

Thomas Lease

R016**Roberts Associates, Inc.**

1726 Pine Valley Drive
Vienna, VA 22180
703-938-1757

*** Three-Dimensional Electrophoresis Code**

85-1-15.02-1757

I: NAS8-36263

II: NAS8-37342

Glyn O. Roberts

NASA MSFC

\$ 50,000

\$480,292

R017**Robo-Tech Systems**

5701 North High Street
Worthington, OH 43085
614-431-9418

Control Theory and End-Effector Laws Using an Advanced, Multiple Prehension Grip

85-1-05.06-9418

I: NAS1-18217

NASA LaRC

\$ 50,000

Frank R. Skinner

R018**Robotics Research Corporation**

5400 Dupont Circle
Milford, OH 45150
513-831-9570

Telerobot Collision and Obstacle Avoidance Based on Real-Time Proximity Sensors

87-1-05.01-9570

I: NAS1-18629

NASA LaRC

\$ 47,961

Jack M. Thompson

R019**Rochelle Crystal Corporation**

2004 Randolph Avenue
St. Paul, MN 55105
Last Known Address

Spontaneous Resolution of Organic Compounds in Space

85-1-15.01-1161

NASA MSFC

I: NAS8-36269

\$ 48,667

Ruth B. Kress

R020**Rocky Research**

P.O. Box 1086
Boulder City, NV 89005
702-293-0851

High-Density, Chemical-Thermal Storage System for Low Gravity Environments

89-1-09.11-0851A

NASA JSC

I: NAS9-18329

\$ 50,000

Uwe Rockenfeller

High-Lift, Heat-Actuated, Solid-Vapor Heat Pump for Simultaneous Refrigeration and Water Heating

89-1-09.13-0851A

NASA MSFC

I: NAS8-38469

\$ 49,848

Uwe Rockenfeller

R021**Rose Engineering & Research**

P.O. Box 5146
Incline Village, NV 89450
702-831-5094

* Boundary Layer Control Methods in High-Speed Inlet Systems
 87-1-01-5094 NASA LaRC
 I: NAS3-25408 \$ 49,949
 II: NAS3-25783 \$490,591
 William C. Rose

Innovative Shear-Layer Control Methods for Large Scale Airborne Telescopes.
 88-1-08.19-5094 NASA ARC
 I: NAS2-13034 \$ 49,301
 William C. Rose

R022
Ross-Hime Designs, Inc.
 1313 5th Street, S.E., #221
 Minneapolis, MN 55414
 612-379-3808

* Computer-Controlled Telerobot Wrist Module
 86-1-05.01-5860 NASA LaRC
 I: NAS1-18422 \$ 50,000
 II: NAS1-18673 \$498,834
 Mark Elling Rosheim

* Telerobot Hand Joint
 87-1-05.01-3808 NASA MSFC
 I: NAS8-37638 \$ 50,000
 II: NAS8-38417 \$500,000
 Mark Elling Rosheim

R023
Rupprecht & Patashnick Company, Inc.
 17 Maple Road, Drawer H
 Voorheesville, NY 12186
 518-765-4520

* Particulate Monitor for Comet and Planetary Atmospheres
 84-1-08.03-4520 NASA JPL
 I: NAS7-941 \$ 49,898
 II: NAS7-962 \$456,000
 George Rupprecht

S

S001
S. R. Taylor & Associates
 516 South Kaw
 Bartlesville, OK 74003
 918-337-0264

* Zero-Gravity Phase Separation
 87-1-12.01-0264 NASA JSC
 I: NAS9-17950 \$ 48,904
 II: NAS9-18173 \$311,000
 Scott R. Taylor

S002
SCS Telecom, Inc.
 107 Haven Avenue
 Port Washington, NY 11050
 516-883-0760

Hybrid Projection Coding for the CCSDS Standard
 88-1-14.01-0760B NASA JSC
 I: NAS9-18105 \$ 49,990
 Gary Lomp

Novel Direction-Finding for Robotic Tracking in the Space Station
 89-1-09.04-0760 NASA JSC
 I: NAS9-18333 \$ 49,843
 Tuvia Apelewicz

Power- and Bandwidth-Efficient Digital Communications
 89-1-14.01-0760A NASA JSC
 I: NAS9-18322 \$ 49,847
 Gary Lomp

S003
SEES, Inc.
 11020 Solway School Road
 Knoxville, TN 37931
 Last Known Address

Human Envelope Manipulator
 87-1-13.04-2060 NASA KSC
 I: NAS10-11463 \$ 49,910
 R. L. Andrew

S004
SKW Corporation
 1815 N. Fort Meyer Drive, #1100
 Arlington, VA 22209
 703-243-3888

* Free-Space Particulate Contamination Sizing and Counting System
 87-1-08.11-3888A NASA GSFC
 I: NAS5-30290 \$ 49,339
 II: NAS5-30636 \$481,626
 Scott J. Bartel

S005
SRS Technologies - Was Spectra Research System
 990 Explorer Boulevard NW
 Huntsville, AL 35806
 205-895-7000

* Automatic Fire Detection Systems for Large Facilities
 83-1-13.12-0375 NASA KSC
 I: NAS10-10917 \$ 48,946
 II: NAS10-11127 \$416,922
 Rodney Bradford

An In Situ Particle Sizing System
 85-1-08.13-0375 NASA LaRC
 I: NAS1-18218 \$ 49,999
 Ashoke Ghosh

* Portable, Low-Temperature Cooler for Space Station
 86-1-09.07-7000A NASA MSFC
 I: NAS8-37317 \$ 49,999
 II: NAS8-37402 \$479,602
 Joseph C. Cody

Air-Mass Measurement Indicator for Portable, Liquid-Air Dewar
 88-1-13.06-7000 NASA KSC
 I: NAS10-11563 \$ 50,000
 Joe C. Cody

S006
SSG, Inc.
 150 Bear Hill Road
 Waltham, MA 02154
 617-890-0204

* Multi-Spectral, High-Resolution Remote Sensor
 88-1-08.03-0204 NASA SSC
 I: NAS13-385 \$ 50,000
 II: NAS13-414 \$459,167
 Harold A. Graham

Diagnostic Contamination Measurements in Space
 88-1-08.23-0204 NASA GSFC
 I: NAS5-30489 \$ 48,334
 Andrew A. Mastandrea

S007
ST&E, Inc.
1214 Concannon Boulevard
Livermore, CA 94550
415-829-7847

* Analysis of Atmospheric Aerosols with -0.3 Micrometer Spacial Resolution
84-1-08.12-7847 NASA LaRC
I: NAS1-17943 \$ 48,293
II: NAS1-18253 \$486,000
Stanley M. Klainer

S008
San Diego Semiconductors, Inc.

9030 Carroll Way, Suite 8
San Diego, CA 92121
619-549-4645

Position-Sensitive CdTe Detector Using Improved Crystal Growth Method
87-1-08.16-4645 NASA GSFC
I: NAS5-30289 \$ 49,911
E. Raiskin

S009
Santech, Inc. - Santech acquired by PDA Engineering

S010
Sarcos Research Corporation
261 E. 300 S. Suite 150
Salt Lake City, UT 84111
801-531-0560

High-Performance, Multiaxis Strain Sensing
89-1-05.03-0559B NASA GSFC
I: NAS5-30853 \$ 50,000
Ian D. McCammon

Using Robots in the Testing of NASA EVA Space Suits
89-1-12.07-0559A NASA JSC
I: NAS9-18330 \$ 49,980
Fraser M. Smith

S011
Satcon Technology Corporation
12 Emily Street
Cambridge, MA 02139-4507
617-661-0540

* Magnetic Bearings a High-Performance Optical Disk Buffer
86-1-08.01-0540A NASA GSFC
I: NAS5-30058 \$ 48,900
II: NAS5-30309 \$497,628
Richard L. Hockney

Advanced Actuators for the Control of Large Space Structures
86-1-09.01-0540 NASA LaRC
I: NAS1-18426 \$ 48,900
Bruce G. Johnson

* A Superconducting, Large-Angle, Magnetic Suspension
87-1-09.01-0540A NASA LaRC
I: NAS1-18632 \$ 49,746
II: NAS1-18853 \$488,400
James R. Downer

* Active Magnetic Micro-Gravity Isolator for Space Station
87-1-15.01-0540 NASA MSFC
I: NAS8-37639 \$ 49,780
II: NAS8-38418 \$499,974
Bruce G. Johnson

Magnetic Spindle Bearing for an Optical-Disk Buffer
88-1-07.06-0540 NASA LaRC
I: NAS1-18822 \$ 46,332
Richard L. Hockney

Magnetostrictive, Active-Member Control of Space Structures
89-1-04.14-0540 NASA JPL
I: NAS7-1091 \$ 49,973
Bruce G. Johnson

Direct Measurment of Bolt Tension Utilizing Magnetostriction
89-1-04.15-0540 NASA JSC
I: NAS9-18331 \$ 49,940
James H. Goldie

Integrated Power and Attitude Control System for the Space Station and Other Applications
89-1-10.01-0540 NASA MSFC
I: NAS8-38461 \$ 49,919
Richard L. Hockney

S012
Schmidt Instruments, Inc.
2476 Bolsover Suite 234
Houston, TX 77005
713-660-8414

* Autonomous Leak Detector for Orbiting Spacecraft
88-1-08.24-9040 NASA LeRC
I: NAS3-25372 \$ 50,000
II: NAS3-25971 \$499,228
Howard K. Schmidt

Very-Large-Scale-Integration Time Interval Units
89-1-08.02-9040 NASA GSFC
I: NAS5-30864 \$ 50,000
Howard K. Schmidt

Time-of-Flight Mass Spectrometry Instruments for Monitoring Contaminants in Space
89-1-08.20-9040 NASA GSFC
I: NAS5-30865 \$ 50,000
Howard K. Schmidt

S013
Schmitt Technology Associates
25 Science Park
New Haven, CT 06511
203-786-5130

Gas-Jet Deposition of Optical Thin-Films for Extreme Ultra-Violet and Soft X-Ray Applications
89-1-08.18-5130 NASA GSFC
I: NAS5-30873 \$ 50,000
Bret L. Halpern

S014
Schwartz Electro-Optics, Inc.
3404 N. Orange Blossom Trail
Orlando, FL 32804
407-298-1802

* Cobalt-Doped, Magnesium Fluoride Laser for Remote Sensing
85-1-08.08-1802 NASA LaRC
I: NAS1-18210 \$ 49,433
II: NAS1-18442 \$499,258
Peter F. Moulton

Novel Cobalt-Doped, Magnesium-Fluoride Lidar Aerosol Profiler
89-1-08.04-1802 NASA LaRC
I: NAS1-19007 \$ 49,983
M. Acharekar

S015

Schwartz Electro-Optics, Inc.

45 Winthrop Street
Concord, MA 01742
508-371-2299

A Microsecond-Pulse Neodymium Laser
86-1-08.05-2299 NASA LaRC
I: NAS1-18429 \$ 49,656
Peter F. Moulton

* Diode-Pumped Laser Altimeter
88-1-08.02-2299 NASA GSFC
I: NAS5-30482 \$ 48,978
II: NAS5-T B D \$ T B D
Peter F. Moulton

Lasers Optimized for Pumping Titanium-Alumina Lasers
89-1-08.07-2299 NASA LaRC
I: NAS1-19003 \$ 49,310
Glen A. Rines

Space-Qualified Laser for Microgravity Experiments
89-1-15.02-2299 NASA LaRC
I: NAS3-25813 \$ 49,800
Peter F. Moulton

S016
Science & Engineering Associates

P.O. Box 3722
Albuquerque, NM 87190
505-884-2300

* Contamination Return Flux
85-1-08.16-1572 NASA GSFC
I: NAS5-29278 \$ 49,680
II: NAS5-30089 \$375,186
Raymond O. Rantanen

* Space Station Contamination Modeling
85-1-13.07-1572 NASA MSFC
I: NAS8-36273 \$ 49,945
II: NAS8-37337 \$426,215
Raymond O. Rantanen

S017
Science & Engineering Services, Inc.
17 Serpentine Ct.
Silver Spring, MD 20904
301-236-4161

Systems for Continuous Tuning and Single-Mode Operation of Solid-State Lasers
89-1-08.06-4161 NASA GSFC
I: NAS5-30857 \$ 49,009
Hyo Sang Lee

S018
Science and Technology Corporation
101 Research Drive
Hampton, VA 23666-1340
804-865-1894

Multibeam Lidar System for Tropospheric Measurements
83-1-08.08-1834 NASA MSFC
I: NAS8-35839 \$ 21,904
Geoffrey S. Kent

* Automatic Scanning Lidar System to Map Upper Tropospheric Aerosols and Cloud
87-1-08.09-1894 NASA LaRC
I: NAS1-18631 \$ 46,087
II: NAS1-18851 \$485,288
Geoffrey S. Kent

S019

Science Research Laboratory, Inc.

15 Ward Street
Somerville, MA 02143
617-547-1122

Compact, Lightweight, Expanding-Beam CO₂ Laser Amplifiers for Spaceborne Applications
89-1-08.08-1122A NASA MSFC
I: NAS8-38462 \$ 49,848
Jonah Jacob

S020
Scientific Materials Corporation - Replaces Solidstate Lasers, Inc., of Oregon
P.O. Box 786
Bozeman, MT 59715
406-585-3772

* A Method to Provide Lower Cost Crystal Properties Study Samples
87-1-08.08-0438A NASA LaRC
I: NAS1-18639 \$ 50,000
II: NAS1-18857 \$436,140
Ralph L. Hutcheson

S021
Scientific Research Associates, Inc.
P.O. Box 1058
Glastonbury, CT 06033
203-659-0333

Improved Accuracy and Efficiency of Three-Dimensional Flow Algorithms
83-1-02.01-0511 NASA ARC
I: NAS2-11741 \$ 49,816
W. Roger Briley

Three-Dimensional, Unsteady, Viscous-Flow Analysis Over Airfoil Sections
83-1-02.02-0511 NASA LaRC
I: NAS1-17573 \$ 49,478
Bernard C. Weinberg

* Computation of the Tip-Vortex Flow Field Advanced Propellers
84-1-01.01-0511A NASA LeRC
I: NAS3-24532 \$ 49,763
II: NAS3-24881 \$476,000
Ralph Levy

* Internal Fluid Mechanics of Liquid-Propellant Rocket Thrust Chambers
84-1-11.06-0511 NASA MSFC
I: NAS8-35274 \$ 49,985
II: NAS8-37255 \$494,000
Howard J. Gibeling

Optimum Ducts Using an Efficient, Three-Dimensional, Viscous Computation
85-1-01.01-0333 NASA LeRC
I: NAS3-24853 \$ 49,856
Ralph Levy

Solution of the Inlet Buzz Problem by the Navier-Stokes Equations
85-1-01.01-0333B NASA LeRC
I: NAS3-24851 \$ 49,879
Richard C. Buggeln

* Calculation of Helicopter Rotor Blade and Vortex Interactions by Navier-Stokes Procedures
85-1-03.07-0333 NASA ARC
I: NAS2-12363 \$ 49,879
II: NAS2-12635 \$568,522
Young-Nam Kim

Transient Radiation Effects in Silicon CCDs
 85-1-08.05-0333 NASA GSFC
 I: NAS5-29281 \$ 50,000
 Bernard C. Weinberg

* Efficient Navier-Stokes Flow-Prediction Algorithms
 85-1-11.05-0333 NASA MSFC
 I: NAS8-36260 \$ 49,955
 II: NAS8-37340 \$493,143
 W. Roger Briley

Solution Adaptive Mesh
 86-1-01.01-0333C NASA LeRC
 I: NAS3-25138 \$ 50,000
 Ralph Levy

* Velocimetry with Refractive Index Matching for Complex Flow Configurations
 86-1-11.04-0333A NASA MSFC
 I: NAS8-37320 \$ 50,000
 II: NAS8-37410 \$488,096
 Brian E. Thompson

* Intelligent Manipulation Technique for Mobile, Multi-Branch Robotic Systems
 87-1-05.01-0333 NASA JPL
 I: NAS7-1012 \$ 49,979
 II: NAS7-1072 \$496,247
 Alexander Y. K. Chen

Automated Application of Navier-Stokes Solutions to Mechanical Design
 88-1-02.01-0333A NASA MSFC
 I: NAS8-38020 \$ 50,000
 Ralph Levy

Fluorescence Spectroscopy and Thermometry for Hypersonic Flight Research
 88-1-03.06-0333 NASA LaRC
 I: NAS1-18804 \$ 49,500
 Brian E. Thompson

* Autonomous, Magnetic Float-Zone, Microgravity Crystal Growth for TiC and GaAs
 88-1-15.01-0333 NASA MSFC
 I: NAS8-38030 \$ 50,000
 II: NAS8-38487 \$491,226
 Y. T. Chan

Flow in Turbine Blade Passages
 89-1-01.01-0333B NASA LeRC
 I: NAS3-25835 \$ 49,866
 Brian E. Thompson

An Eulerian-Lagrangian Analysis for Liquid Flows with Vapor Bubbles
 89-1-11.02-0333 NASA MSFC
 I: NAS8-38438 \$ 50,000
 Jayant S. Sabins

S022
Scientific Systems, Inc.
 500 West Cummings Park Suite 3950
 Woburn, MA 01801
 617-933-5355

Control of Large Space Structures Using Stable Factorization
 84-1-09.01-6364 NASA LaRC
 I: NAS1-17946 \$ 49,999
 Hamid Razavi

Nonlinear Control Design for Turbofan Jet Engines
 85-1-01.03-6364 NASA LeRC
 I: NAS3-24845 \$ 49,991
 Hamid Razavi

Real-Time Adaptive Identification and Prediction of Flutter
 89-1-03.05-5355 NASA ARC
 I: NAS2-13132 \$ 49,870
 Shahjahan Mahmood

S023
Scientific Technology, Inc.

2 Research Place
 Rockville, MD 20850
 301-948-6070

Microstrip, Multiple-Function Antenna Feed
 87-1-14.05-6070 NASA JPL
 I: NAS7-1017 \$ 50,000
 Ting I Wang

A Compact, Optical, Rain Droplet Distrometer for Unattended Field Operation
 88-1-08.02-6070 NASA GSFC
 I: NAS5-30484 \$ 48,242
 Ting I Wang

S024
Scott Science and Technology

17625 El Camino Real, Suite 401
 Houston, TX 77058
Last Known Address

Application of a Handheld Force Analyzer to Human Factor Measurements in Space
 85-1-12.03-7335 NASA JSC
 I: NAS9-17573 \$ 49,796
 Gary L. Doerre

S025
Sea Data Corporation

One Bridge Street
 Newton, MA 02158
 617-244-3216

Towed Sensor for Sea Water Nutrient Analysis
 83-1-08.15-3216 NASA JPL
 I: NAS7-924 \$ 49,951
 Dennis N. Crouse

S026
Search Technology, Inc.

4725 Peachtree Corners Circle, Suite 200
 Norcross, GA 30092
 404-441-1457

Methods and Tools for Assessing Limits of System Intelligence
 89-1-03.09-1457B NASA LaRC
 I: NAS1-19021 \$ 49,859
 William B. Rouse

S027
Seca, Inc.
 3311 Bob Wallace Avenue #203
 Huntsville, AL 35805
 205-534-2008

* The Use of Variational Principles in Improving CFD Methodology
 86-1-02.01-2008 NASA MSFC
 I: NAS8-37304 \$ 49,875
 II: NAS8-37408 \$493,210
 Richard C. Farmer

* Model Development for Exhaust-Plume Effects on Launch-Stand Design

88-1-02-06-2008A NASA MSFC
I: NAS8-38028 \$ 49,801
II: NAS8-38472 \$499,860
S.D. Smith

Heat Transfer in Rocket Engine Combustion Chambers and Regeneratively Cooled Nozzles

89-1-11-02-2008 NASA MSFC
I: NAS8-38454 \$ 49,932
Yen-Sen Chen

S028

Seer Systems, Inc.

119 Cardiff Road
Pittsburgh, PA 15237
412-366-4502

* An Artificial Intelligence System Process for Monitoring, Situation Assessment, and Response Planning

88-1-05-05-4502 NASA JSC
I: NAS9-18104 \$ 49,364
II: NAS9-T B D \$ T B D
Harry E. Pople Jr.

S029

Sensor Frame, Inc.

4516 Henry Street, Suite 308
Pittsburgh, PA 15213-3729
412-683-9500

* Sensor Frame Graphic Manipulator

86-1-12-03-3770 NASA JSC
I: NAS9-17741 \$ 50,000
II: NAS9-17986 \$500,000
Paul McAvinney

S030

Sets, Inc.

300 Kahelu Avenue
Mililani, HI 96789
808-625-5262

* Imaging IR Spectrometer

86-1-08-27-8712 NASA JPL
I: NAS7-989 \$ 50,000
II: NAS7-1029 \$483,551
Thomas Lundeen

Multichannel Occultation Photometer

89-1-08-15-5262 NASA JPL
I: NAS7-1106 \$ 50,000
Jonathan Gradie

Atmospheric Opacity Monitor

89-1-08-15-5262B NASA JPL
I: NAS7-1088 \$ 49,951
Jonathan Gradie

S031

Shason Microwave Corporation

1730 NASA Road 1, Suite 101
Houston, TX 77058
409-948-4241

* Integrated, Active-Antenna Module for Space Station Multiple-Access Communication

88-1-14-01-4341 NASA JSC
I: NAS9-18106 \$ 48,091
II: NAS9-T B D \$ T B D
Roland Shaw

S032

Sierra Nevada Corporation

P. O. Box 6900
Reno, NV 89503
702-345-2722

Airborne Weather Radar for Windshear Warning

86-1-03-02-7064 NASA LaRC
I: NAS1-18417 \$ 49,874
John P. Chisholm

S033

Slevers Research, Inc.

1930 Central Avenue, Suite C
Boulder, CO 80301
303-444-2009

Organic Removal Module for Ultra-Pure Water Recycle Systems

88-1-12-02-2009 NASA MSFC
I: NAS8-38045 \$ 50,000
Richard Godec

S034

Silicon Engines

955 Commercial Street
Palo Alto, CA 94303
415-967-5544

* SETI Signal Detector

86-1-07-14-2140 NASA ARC
I: NAS2-12566 \$ 50,000
II: NAS2-12936 \$500,000
Jerome F. Duluk

SETI CW Signal Detector

87-1-07-09-2140 NASA ARC
I: NAS2-12808 \$ 50,000
Jerome F. Duluk

S035

Software & Engineering Associates

1000 E William Street #200
Carson City, NV 89701
702-882-1966

* The Chemical Kinetics of LOX-Hydrocarbon Combustion

88-1-11-03-1966 NASA MSFC
I: NAS8-38052 \$ 49,989
II: NAS8-T B D \$ T B D
Gary R. Nickerson

S036

Software Productivity Solutions, Inc.

P.O. Box 361697
Melbourne, FL 32936-1697
407-984-3370

* Knowledge-Based, Reusable, Software Synthesis System

86-1-06-04-6510 NASA LaRC
I: NAS1-18418 \$ 45,862
II: NAS1-18663 \$496,320
J. Kaye Grau

* Reliable Specification and Execution Tool for Ada Software

88-1-06-03-3370 NASA LaRC
I: NAS1-18826 \$ 47,500
II: NAS1-19101 \$498,840
Andres Rudmik

Design Knowledge Capture

88-1-06-05-3370 NASA MSFC
I: NAS8-38027 \$ 49,093
Vincent Kovarik

CASE Visualization System 89-1-06.02-3370 I: NAS5-30848 Andres Rudnik	NASA GSFC \$ 48,567	S043 Southwest Sciences, Inc. 1570 Pacheco Street #E-11 Santa Fe, NM 87501 505-984-1322
Passive Knowledge Acquisition System 89-1-06.05-3370 I: NAS9-18334 Vincent Kovarik	NASA JSC \$ 49,475	* Nonintrusive, Fast-Response, Oxygen Monitoring System for High-Temperature Flows 88-1-02.11-1322 I: NAS1-18829 II: NAS1-19097 Alan C. Stanton
S037 Sohar, Inc. 8500 Wilshire Boulevard #1027 Beverly Hills, CA 90211 213-855-2595		Combustion Diagnostics for Microgravity Research Using Near-Infrared Diode Lasers 89-1-15.02-1322 I: NAS3-25815 Joel A. Silver
Enhanced Condition Tables for Verification of Fault-Tolerant Software 88-1-06.03-2595 I: NAS1-18811 Herbert Hecht	NASA LaRC \$ 49,600	S044 Space Computer Corporation 2800 Olympic Boulevard, Suite 104 Santa Monica, CA 90404-4119 213-829-7733
* Gas Turbine Combustor for Low Pattern Factor and Low NOx Emission 88-1-01.02-0731 I: NAS3-25563 II: NAS3-T B D Jerry O. Melconian	NASA LeRC \$ 50,000 \$ T B D	* Passive, Electro-Optical Sensor for Processing Helicopter Obstacle Avoidance 87-1-03.06-8740 I: NAS2-12774 II: NAS2-13060 William B. Kendall
S038 Sol-3 Resources, Inc. 76 Beaver Road Reading, MA 01867 617-942-0731		S045 Space Instruments, Inc. 4403 Manchester Avenue, Suite 203 Encinitas, CA 92024 619-944-7001
* Improved Mirror Facet for Space Applications 87-1-10.01-2376 I: NAS3-25335 II: NAS3-25632 David L. White	NASA LeRC \$ 49,662 \$494,227	* Nonscanning Climate Sensor 85-1-08.04-6745 I: NAS5-29275 II: NAS5-30090 James W. Hoffman
S040 Solidstate Lasers, Inc. - See Scientific Materials Corp.		Cloud Top Radiometer 89-1-08.02-7001 I: NAS5-30846 James W. Hoffman
S041 Solidlite Corporation 16150 NE 85th Street #217 V Redmond, WA 98052 206-882-7528		S046 Space Projects Limited 9288 Prince William Street, #106 Manassas, VA 22110 703-368-0707
Four-Level All-Solid-State Laser Source within the 1.5 - 4 Micron Range 87-1-08.08-7528 I: NAS1-18619 Larry G. Deshazer	NASA LaRC \$ 50,000	* Enhanced Bidirectional Communication with Low-Cost Payloads 83-1-14.03-0707 I: NAS5-28004 II: NAS5-28649 Donald A. Bass
S042 Source Technical Appl. Metallurgical 885 Waterman Avenue East Providence, RI 02914 Last Known Address		S047 Space Tech Corporation 125 Crestridge Drive Ft. Collins, CO 80525 303-223-8166
High-Energy-Product Permanent Magnets 83-1-11.02-6784 I: NAS3-23873 Mandayam C. Narasimhan	NASA LeRC \$ 50,000	Optimizing Compiler for Massively Parallel Processors 85-1-06.15-9903 I: NAS5-29282 Michael Andrews

S048

Spaceborne, Inc.

742 Foothill Boulevard, Suite 2B
La Canada, CA 91011
818-952-0126

* High-Speed, Self-Testing Microprocessor for Spacecraft Applications

83-1-06.09-3770 NASA LaRC
I: NAS1-17583 \$ 47,078
II: NAS1-18005 \$497,000

Constantin C. Timoc

* Error Detection and Correction Unit with Built-in, Self-Test Capability for VLSI Circuits

86-1-06.11-0126 NASA JPL
I: NAS7-978 \$ 50,000
II: NAS7-1028 \$499,886

Constantin C. Timoc

A High-Speed, Fault-Tolerant Microprocessor for Space Applications

89-1-09.02-0126 NASA LaRC
I: NAS1-19033 \$ 50,000

Constantin C. Timoc

S049

Sparta Technology, Inc.

258 East Altamonte Drive
Altamonte Springs, FL 32701
Last Known Address

Innovative Rotary Power System Recharger Subsystem

84-1-13.10-0900A NASA KSC
I: NAS10-11143 \$ 50,000

Lester J. Owens

S050

Sparta, Inc.

4901 Corporate Drive
Huntsville, AL 35805-6201
205-837-5200

* Distributed, Finite-Element Analysis Using a Transputer Network

86-1-04.04-5200 NASA LeRC
I: NAS3-25126 \$ 50,000
II: NAS3-25422 \$493,977

James A. Favenesi

Reaction Compensation System for Microgravity Tele-Robots

88-1-05.01-5200 NASA MSFC
I: NAS8-38021 \$ 49,997

William Teoh

S051

Sparta, Inc.

23041 Avenida de la Carlotta, #400
Laguna Hills, CA 92653-1507
714-768-8161

* Applications of Transputers in Aircraft Flight Research

88-1-03.05-8161A NASA ARC
I: NAS2-12887 \$ 49,581
II: NAS2-T B D \$ T B D

Marie D. Hewett

Expert Systems for Flight Control Systems Verification

88-1-03.10-8161 NASA ARC
I: NAS2-12888 \$ 49,468

P. De Feo

S052

Sparta, Inc.

3440 Carson Street, #300
Torrance, CA 90503
213-542-6090

* Thrust Vector Control

87-1-11.01-3350 NASA MSFC
I: NAS8-37640 \$ 50,000
II: NAS8-38419 \$495,204

Irving B. Osofsky

S053

Sparta, Inc.

24 Hartwell Avenue
Lexington, MA 02173
617-863-1060

Solid-State, Laser-Scanning Device

83-1-14.03-1060 NASA JSC
I: NAS9-17037 \$ 50,000

Philip D. Henshaw

S054

Spatial Information Sciences, Inc.

Mississippi Tech Transfer Office
Stennis Space Center, MS 34529
703-430-6685

Raster and Vector Data Integration, Interactive Edit and Analysis

89-1-07.04-6685 NASA SSC
I: NAS13-410 \$ 49,963
Gregory T. Reinecke

S055

Spectra Research Systems - *Name changed to SRS Technologies*

S056

Spectral Sciences, Inc.

99 South Bedford Street, #7
Burlington, MA 01803-5169
617-273-4770

Hydrogen-Oxygen Concentration Monitor

83-1-13.01-4770 NASA KSC
I: NAS10-10916 \$ 50,000
Michael Gersh

* Hydrogen Laser Monitoring System

86-1-13.06-4770 NASA KSC
I: NAS10-11379 \$ 50,000
II: NAS10-11514 \$483,495
Steven M. Adler-Golden

Surface Organic Contamination Sensor

87-1-13.01-4770 NASA KSC
I: NAS10-11459 \$ 50,000
Steven M. Adler-Golden

* Trace, Atmospheric, Carbon-Monoxide Sensor

88-1-08.22-4770 NASA MSFC
I: NAS8-38048 \$ 48,828
II: NAS8-T B D \$ T B D

Steven Richtsmeier

* Conducting Organic Polymer Environmental Sensor

88-1-13.08-4770 NASA JSC
I: NAS9-18107 \$ 50,000
II: NAS9-T B D \$ T B D

Mitchell Zakin

S057
Spectrex Corporation
P.O. Box 707
Gloucester, VA 23061
804-693-9778

Modelling of Massively Separated Flows - Renormalization Group Formulation
87-1-02.03-9778 NASA LaRC
I: NAS1-18610 \$ 49,460
R. Balasubramanian

S058
Spectron Development Laboratories, Inc.
3535 Highland Avenue, #102
Costa Mesa, CA 92626
714-549-8477

* Dual Thermoplastic Holography Recording System for Flow Diagnostics
83-1-02.03-8477 NASA ARC
I: NAS2-11732 \$ 49,953
II: NAS2-12150 \$250,084
James D. Trolinger

* Non-Destructive Inspection Techniques for Multi-Layer and Foam Insulations
83-1-13.02-8477 NASA MSFC
I: NAS8-35849 \$ 49,997
II: NAS8-35258 \$389,000
Dennis R. Krause

Pulsed Laser Holography for Wind Tunnel Testing
84-1-02.06-8477 NASA ARC
I: NAS2-12120 \$ 49,982
James D. Trolinger

* Optical Method to Determine the Impact of Heavy Rain on Aircraft Performance
84-1-03.02-8477 NASA LaRC
I: NAS1-17932 \$ 49,924
II: NAS1-18242 \$497,825
Cecil F. Hess

An Optical Detector for High-Sensitivity Density Measurements
85-1-02.02-8477A NASA LaRC
I: NAS1-18207 \$ 49,896
Dariush Modarress

Improved Signal Processor Enhancement of Laser Doppler Velocimeters
85-1-03.07-8477 NASA ARC
I: NAS2-12362 \$ 49,988
Dariush Modarress

High-Efficiency Laser for Spaceborne Lidar Applications
85-1-08.08-8477 NASA LaRC
I: NAS1-18205 \$ 49,951
James D. Trolinger

S059
Spectron Development Laboratories, Inc.
1010 Industry Drive
Seattle, WA 98188
Last Known Address

Quantitative Holographic Imaging
83-1-04.10-9324 NASA MSFC
I: NAS8-35842 \$ 49,937
T. J. Davis

S060
Spectrum Management Group, Inc.
7330 San Pedro Avenue #104
San Antonio, TX 78216-6236
512-496-3221

Intelligent Information Management with Xy Imaging
88-1-07.09-3221 NASA JPL
I: NAS7-1049 \$ 49,846
Michael R. Thomas

S061
Speech Systems, Inc.
18356 Oxnard Street
Tarzana, CA 91356
818-881-0885

* Phoneme-Based, Speech-Recognition System for Mission Planning and Control
86-1-06.06-0881 NASA JSC
I: NAS9-17736 \$ 46,723
II: NAS9-17994 \$475,470
Philip Shinn

Site-Specific, Air-Traffic-Control, Training Simulator with Speech Input and Output
89-1-06.04-0885 NASA ARC
I: NAS2-13175 \$ 44,888
Philip Shinn

S062
Spire Corporation
Patriots Park
Bedford, MA 01730
617-275-6000

* Dry-Film Lubricant for Bearings Using Ion Implantation
83-1-11.07-6000 NASA MSFC
I: NAS8-35848 \$ 49,903
II: NAS8-35262 \$195,995
Bing Whey Shen

* High-Efficiency, Radiation-Resistant, Indium-Phosphide Solar Cells
84-1-10.03-6000 NASA LeRC
I: NAS3-24395 \$ 49,501
II: NAS3-24857 \$500,000
Mark B. Spitzer

Dry-Film Lubrication of Cryogenic Turbopump Bearings Using Cubic Boron-Nitride
84-1-11.07-6000 NASA MSFC
I: NAS8-35275 \$ 49,980
Piran Sioshansi

Advanced Seal Materials by Ion Beam Enhanced Deposition
86-1-01.02-6000 NASA LeRC
I: NAS3-25146 \$ 49,831
James K. Hirvonen

* Low-Cost AlGaAs Laser Arrays for Solid-State Laser Pumps
86-1-08.05-6000 NASA LaRC
I: NAS1-18428 \$ 49,841
II: NAS1-18660 \$484,441
Kurt J. Linden

Oxidation Resistant Ti-6Al-4V-SiC Composite Materials
87-1-04.01-6000 NASA LeRC
I: NAS3-25326 \$ 49,826
James K. Hirvonen

* Indium-Phosphide Solar Cells on Silicon Substrates
87-1-10.01-6000A NASA LeRC
I: NAS3-25283 \$ 49,867
II: NAS3-25798 \$499,994
Christopher J. Keavney

A 2.1 Micron Lidar Detector
88-1-08.07-6000 NASA LaRC
I: NAS1-18828 \$ 48,090
Kurt J. Linden

Preparation of Superconducting Wire
88-1-10.06-6000 NASA MSFC
I: NAS8-38039 \$ 49,480
Anton C. Greenwald

Thermal-Tile-Bond Inspection by Gamma Ray Scattering
88-1-13.04-6000 NASA KSC
I: NAS10-11558 \$ 50,000
Charles C. Blatchley

Development of 780 and 792 Nanometer Diode Laser Pumps
for Solid-State Lasers
89-1-08.07-6000A NASA LaRC
I: NAS1-19035 \$ 49,934
Kurt J. Linden

Vertical, Multijunction, Photovoltaic Cells with Buried Silicide
Interconnections
89-1-10.04-6000 NASA LaRC
I: NAS1-19028 \$ 49,941
Fereydon Namavar

High-Indium-Content High Electron Mobility Transistors for RF
Communications Devices
89-1-14.05-6000A NASA LeRC
I: NAS3-25867 \$ 49,942
Patricia Sekula-Moise

S063 **Springborn Laboratories, Inc.**

10 Springborn Center
Enfield, CT 06082
203-749-8371

Anti-Bacterial Agent for Water Post-Treatment Sorbent Beds
84-1-12.01-8371 NASA JSC
I: NAS9-17285 \$ 49,945
Bernard Baum

* Specialized Floor Coverings for Launch Site Facilities
87-1-04.07-8371 NASA KSC
I: NAS10-11455 \$ 49,900
II: NAS10-11552 \$315,662
James P. Galica

S064
Stanford Telecommunications, Inc.
2421 Mission College Boulevard
Santa Clara, CA 95054
408-748-1010

Power- and Bandwidth-Efficient, Coded Modulation for
Satellite-Based Communications
85-1-14.05-1010 NASA JPL
I: NAS7-945 \$ 49,963
D. Thomas Magill

S065
Stanford Telecommunications, Inc.
1761 Business Center Drive
Reston, VA 22090-5337
703-438-8000

* Application of Pseudo-Noise Correlation and Bandwidth
Synthesis for Orbit Determination
83-1-07.05-3220 NASA GSFC
I: NAS5-28005 \$ 50,307
II: NAS5-28655 \$500,000
Aaron Weinberg

* Integrated Receiver Using Programmable Charge Coupled
Devices
84-1-08.05-3220 NASA GSFC
I: NAS5-28638 \$ 49,990
II: NAS5-29416 \$493,000
Aaron Weinberg

* Integrated System Testing for the Space Station
Communication and Tracking System
84-1-14.03-3220 NASA JSC
I: NAS9-17281 \$ 49,990
II: NAS9-17607 \$480,000
Edwin Zakrzewski

Fault Processing Using Axiomatic, and Hypothetical Methods
85-1-06.08-3220 NASA GSFC
I: NAS5-29280 \$ 49,993
Steven G. Miksell

A Novel High-Speed Viterbi Decoder Design with Robust
Attributes
85-1-14.02-3220A NASA LeRC
I: NAS3-24742 \$ 49,981
Robert G. Harkness

S066
Star Enterprises, Inc.
P.O. Box 1748
Bloomington, IN 47402
812-855-3309

* An Animal Development Habitat for Space Biology
84-1-12.05-3309 NASA ARC
I: NAS2-12113 \$ 50,370
II: NAS2-12476 \$500,000
Jeffrey R. Alberts

* Breeding Facilities for Rodents and Amphibians in Space
85-1-12.08-3309 NASA ARC
I: NAS2-12357 \$ 63,689
II: NAS2-12641 \$521,052
Jeffrey R. Alberts

Automated Food Delivery to Rodents in Space
89-1-12.11-3309 NASA ARC
I: NAS2-13167 \$ 50,000
Jeffrey R. Alberts

S067
Star Microwave - Now M-Square Microtech
2525 Barrington Court
Hayward, CA 94545-1134
415-732-1122

* Textured-Oxide Cathode Substrates
86-1-14.01-6868A NASA LeRC
I: NAS3-25116 \$ 49,563
II: NAS3-25452 \$290,000
Robert M. Phillips

S068
Statistical Sciences, Inc.
P.O. Box 85625
Seattle, WA 98145-1625
206-322-8707

Statistical Tools for Spatial Processes
88-1-07.03-8707 NASA SSC
I: NAS13-383 \$ 49,835
Stephen Kaluzny

S069
Stirling Technology Company
2952 George Washington Way
Richland, WA 99352
509-375-4000

* Advanced Stirling Engine Heater Head
87-1-10.01-4000 NASA LeRC
I: NAS3-25334 \$ 50,000
II: NAS3-25819 \$497,467
Peter Riggle

* Stirling Cryocooler with Extremely Low Vibration
88-1-09.07-4000 NASA GSFC
I: NAS5-30458 \$ 49,880
II: NAS5-31176 \$498,224
Peter Riggle

A High-Efficiency, Low-Vibration, Long-Life, Stirling Cryogenic Pre-Cooler
89-1-09.12-4000 NASA GSFC
I: NAS5-30860 \$ 49,960
Peter Riggle

S070
Stoddard-Hamilton Aircraft, Inc.
18701 58th Avenue, N.E.
Arlington, WA 98223
206-435-8533

Lightning Protection Technology for Smaller General Aviation Aircraft
89-1-03.02-8533 NASA LaRC
I: NAS1-19010 \$ 49,422
J. A. Plumer

S071
Strainoptic Technologies, Inc.
21 Terrace Road
Norristown, PA 19401
215-279-3383

* Spectral Contents Readout of Birefringent Sensors
85-1-03.09-3383 NASA ARC
I: NAS2-12351 \$ 50,000
II: NAS2-12666 \$447,700
Alex S. Redner

* Fiber-Optic, Photoelastic, Pressure Sensor for High-Temperature Gases
86-1-01.03-3383A NASA LeRC
I: NAS3-25134 \$ 50,000
II: NAS3-25419 \$423,001
Alex S. Redner

S072
Structural Analysis Technology, Inc.
4677 Old Ironside Drive, Suite 250
Santa Clara, CA 95054
408-496-1120

* An Expert System for Integrated Analysis and Optimization of Aerospace Structures
87-1-04.04-1319 NASA LeRC
I: NAS3-25327 \$ 47,534
II: NAS3-25642 \$491,545
Hasan Kamil

S073
Sunpower, Inc.
6 Byard Street
Athens, OH 45701
614-594-2221

* Measurement of Reversing-Flow Pressure Drop in Stirling Engine Heat Exchangers
84-1-10.04-2221A NASA LeRC
I: NAS3-24396 \$ 50,000
II: NAS3-24879 \$468,000
Gary Wood

A Test Rig for Measuring Thermal Performance of Stirling Cycle Regenerators
88-1-10.01-2221 NASA LeRC
I: NAS3-25620 \$ 49,481
Gary Koester

S074
Superconductor Technologies, Inc.
460 Ward Drive, Suite F
Santa Barbara, CA 93111-2310
805-683-7646

In Situ Thallium Films by Laser Ablation
89-1-04.16-7646A NASA JPL
I: NAS7-1090 \$ 49,989
J. L. Nilsson

S075
Surface Alloys Corporation
35 Cherry Hill Drive
Danvers, MA 01923
617-777-5110

Fracture-Toughened Ceramics for Rolling Element Bearings
86-1-04.01-5110 NASA LeRC
I: NAS3-25127 \$ 49,812
Anthony J. Armini

S076
Symbiotics, Inc.
875 Main Street
Cambridge, MA 02139
617-876-3635

* A Development Framework for Distributed Artificial Intelligence
87-1-06.03-3635 NASA KSC
I: NAS10-11464 \$ 50,000
II: NAS10-11606 \$495,508
Bruce H. Cottman

S077

Synetics Corporation
540 Edgewater Drive
Wakefield, MA 01880
617-245-9090

Highly Survivable Orthogonal Mesh Network

86-1-07.01-1203 NASA LaRC
I: NAS1-18410 \$ 49,842
Richard A. Fastring

S078

System Specialists
3125 E 47th Street
Tucson, AZ 85713
602-622-7513

* Color Schlieren System for Large-Scale, Low-Gravity MPS Fluids Experiments

84-1-15.01-7307 NASA MSFC
I: NAS8-35278 \$ 47,858
II: NAS8-37254 \$402,000

Wade M. Poteet

Detailed Visualization of Protein Crystal Growth

88-1-08.25-7513 NASA MSFC
I: NAS8-38026 \$ 49,763

Wade M. Poteet

S079
Systematix, Inc.

5029 Edmondson Pike
Nashville, TN 37211
615-834-1319

Implementation of Fault-Tolerant Control Algorithms Using Neural Networks

88-1-10.05-1319 NASA MSFC
I: NAS8-38049 \$ 49,990

Steven W. Welch

S080

Systems & Processes Engineering Corp.
1406 Smith Road Suite A
Austin, TX 78721
512-385-0318

* GaAs RISC Array Processor

87-1-07.03-0081 NASA GSFC
I: NAS5-30291 \$ 49,940
II: NAS5-30619 \$497,972

Gary B McMillian

Digital, Optical Phase-Lock-Loop for Non-Destructive Evaluation

89-1-04.06-0318 NASA LaRC
I: NAS1-19032 \$ 50,000

Gary B. Mcmillian

S081

Systems Engineering, Inc.
7833 Walker Drive, Suite 308
Greenbelt, MD 20770
Last Known Address

Frequency Domain Design of Robust Controllers for Large Space Structures

85-1-09.01-1692 NASA LaRC
I: NAS1-18209 \$ 49,985

William Bennett

S082

Systems Technology, Inc.
13766 S. Hawthorne Boulevard
Hawthorne, CA 90250-7083
213-679-2281

* Advanced Aircraft Flight Control System

83-1-03.05-2281 NASA LaRC
I: NAS1-17574 \$ 50,000
II: NAS1-17987 \$263,000

Thomas T. Myers

Improved Outside Visual Cues for Aeronautical Simulators

83-1-03.09-2281 NASA ARC
I: NAS2-11731 \$ 50,000
Roger H. Hoh

* Decision-Making Modeling Theory of Human Error

84-1-03.09-2281 NASA ARC
I: NAS2-12094 \$ 50,000
II: NAS2-12540 \$250,000

R. Wade Allen

* Fully Automatic Guidance for Rotorcraft Nap-of-the-Earth Flight

85-1-03.08-4675 NASA ARC
I: NAS2-12364 \$ 49,971
II: NAS2-12640 \$488,347

Warren F. Clement

A Quantitative and Qualitative Data Base Display of Content, Format, and Arrangement Factors

86-1-03.03-4675B NASA LaRC
I: NAS1-18414 \$ 49,995

Warren F. Clement

* Task-Tailored Flight Control and Flying Qualities

86-1-03.05-2281B NASA LaRC
I: NAS1-18427 \$ 49,954
II: NAS1-18669 \$494,500

Roger Hoh

Practical Application of Multivariable Robustness Methods to Advanced Aircraft Flight Control

87-1-03.05-2281 NASA LaRC
I: NAS1-18634 \$ 49,925

Peter M. Thompson

Real-Time Identification of Structural Modes

87-1-03.07-4674 NASA ARC
I: NAS2-12726 \$ 49,996

Wayne F. Jewell

S083

Systolic Technology, Inc. - See ZeroOne
883 A North Shoreline Boulevard
Mountain View, CA 94043-1940
415-962-1467

Optical Drum for Space and Ground Applications

88-1-06.07-1467 NASA ARC
I: NAS2-12964 \$ 49,610

John R. Wilson

T**T001
TNA Technologies, Inc.**

P.O. Box 3118
Bozeman, MT 59715
406-586-7684

Broadband Source for a Three-Dimensional Reflectometer
89-1-08.19-5976 NASA GSFC
I: NAS5-30841 \$ 49,975
John C. Stover

**T002
TPI, Inc.**
100 Via Florence
Newport Beach, CA 92663
714-675-4256

A Repair Coating for Cryogenic Transfer Lines
89-1-13.02-4256 NASA KSC
I: NAS10-11654 \$ 50,000
Larry A. Harrah

**T003
TPI, Inc.**
105 N. Virginia Avenue, #305
Falls Church, VA 22046
703-237-1830

* Magnetically Suspended, Composite Flywheels for Inertial Energy Storage
85-1-10.08-7115 NASA GSFC
I: NAS5-29272 \$ 49,954
II: NAS5-30091 \$492,408
D. K. Anand

**T004
TS Infosystems, Inc.**
10905 Fort Washington Road, #201
Fort Washington, MD 20744
301-292-0100

High-Resolution Remote Sensing for Earth Observation
87-1-08.03-4080 NASA ARC
I: NAS2-12815 \$ 46,809
Warren A. Hovis

**T005
Talandic Research Corporation**
P. O. Box 9503
Azusa, CA 91702
818-793-4161

Advanced Torque Converters for Robotics and Space Applications
84-1-05.06-4161 NASA LaRC
I: NAS1-17938 \$ 49,983
John Tracy

**T006
Tau Corporation**
485 Alberto Way, Bldg. D
Los Gatos, CA 95032-5405
408-395-9191

* Optimal Guidance with Obstacle Avoidance for NOE Flight
84-1-03.08-9191 NASA ARC
I: NAS2-12092 \$ 50,000
II: NAS2-12402 \$487,000
Richard V. Denton

* Worldwide, Differential GPS, Space Shuttle Landing Operations
88-1-09.09-9191 NASA JSC
I: NAS9-18108 \$ 49,826
II: NAS9-T B D \$ T B D
Peter V. W. Loomis

**T007
Technical & Administrative Service**
600 Maryland Avenue, S.W.
Washington, DC 20024
202-554-8677

Improvements in Man-Machine Allocation and Effectiveness for Control Centers
84-1-06.05-8677 NASA GSFC
I: NAS5-28632 \$ 49,270
Manfred Von Ehrenfried

**T008
Technical Measurements, Inc.**
P.O. Box 838
La Canada, CA 91011
818-24810350

Cavity Radiometer for Earth Albedo Measurements
86-1-08.02-1035 NASA GSFC
I: NAS5-30059 \$ 50,000
James M. Kendall

**T009
Technical Research Associates, Inc.**
410 Chipeta Way, Suite 222
Salt Lake City, UT 84108
801-582-8080

New Titanium Alloy
83-1-04.01-3742 NASA LeRC
I: NAS3-23936 \$ 46,457
Guy B. Alexander

RS ODS Titanium-Molybdenum Alloy
86-1-04.03-8080A NASA LaRC
I: NAS1-18424 \$ 50,000
Joseph K. Weeks

ODS Solder
86-1-04.07-8080 NASA GSFC
I: NAS5-30060 \$ 50,000
Joseph K. Weeks

Switched Hemispherical Antenna
87-1-14.04-8080 NASA JSC
I: NAS9-17951 \$ 50,000
Stephen C. Peterson

**T010
Techno-Sciences, Inc.**
1011-114 M L King Jr Highway
Bowie, MD 20715
301-731-4288

CDMA System Capacity
87-1-14.02-4288A NASA JPL
I: NAS7-1027 \$ 49,901
Lee D. Davisson

T011

Technology Development of California -
See ZeroOne Systems, Inc., for project information.

T012

Technology Group

3231 Ocean Park Boulevard, Suite 110
Santa Monica, CA 90405
213-552-1000

- * Trellis Coding with Continuous-Phase Modulation for Satellite-Based, Land-Mobile Communications

85-1-14.05-6455 NASA JPL
I: NAS7-965 \$ 49,225
II: NAS7-1003 \$467,000
Farrokh Abrishamkar

T013

Technology Integration & Dev. Group

One Progress Road
Billerica, MA 01821
508-667-3779

- * Active Control of Interior and Exterior Propeller Noise with Exterior Acoustic Sources

85-1-02.08-3779 NASA LaRC
I: NAS1-18214 \$ 49,500
II: NAS1-18477 \$500,000
Nathan B. Higbie

Continuous On-Board Non-Destructive Monitoring of Degradation of Fiber Composites

88-1-04.02-3779 NASA LeRC
I: NAS3-25575 \$ 50,000
Gino A. Pinto

Automatic Fault-Detection and Failure-Prediction for Spacecraft Systems

89-1-15.05-3779 NASA MSFC
I: NAS8-38455 \$ 49,000
Nathan B. Higbie

T014

Technology International, Inc.

429 West Airline Highway, Suite S
Laplace, LA 70068
504-652-1127

Application of Fractals to Smoothing over the Parameter Space

89-1-07.03-1127 NASA SSC
I: NAS13-411 \$ 50,000
Abdo A. Husseiny

T015

Tekmat Corporation - Now Mattek Corp.

200 Homer Avenue
Ashland, MA 01721
508-881-6772

Surface Fluorination of Polymers for Use in Space

85-1-04.06-6315 NASA JPL
I: NAS7-953 \$ 49,650
Ih-Houng Loh

T016

Teknowlogica, Inc.

P.O. Box 145
Princeton Junction, NJ 08550
609-799-9654

Non-Intrusive, Single-Point Pressure and Temperature Sensor for Aeronautical Propulsion Applications

89-1-01.03-9654A NASA LeRC
I: NAS3-25828 \$ 49,948
Robert W. McCullough

T017

Telecomm Science Associates, Inc.

591 Camino de la Reina, #1100
San Diego, CA 92108-3113
Last Known Address

Multi-User Programmable Modem

84-1-14.02-2913 NASA LeRC
I: NAS3-24247 \$ 49,769
B. R. Eisenberg

T018

Telerobotics International, Inc.

7325 Oak Ridge Highway
Knoxville, TN 37921
615-690-5600

Dual-Arm Robotic Manipulator Control Based on Teleoperated Manipulation Methods

86-1-05.01-5600B NASA LaRC
I: NAS1-18423 \$ 47,275
H. Lee Martin

* Electro-Optical Pan, Tilt, and Zoom: A Miniature Viewing System

87-1-07.01-5600 NASA LaRC
I: NAS1-18627 \$ 49,755
II: NAS1-18855 \$482,960
Paul E. Satterlee Jr.

* A Visual-Language, Telerobotic Operator Interface for Rapid Implementation of Autonomous Tasks

88-1-05.01-5600 NASA LaRC
I: NAS1-18823 \$ 48,000
II: NAS1-19094 \$488,348
H. Lee Martin

T019

Tennessee Space Laboratories, Inc.

UTSI Research Park #2
Tullahoma, TN 37388
615-455-7211

Sensor Computer Aided Design

86-1-08.22-7211 NASA GSFC
I: NAS5-30061 \$ 48,672
Charles W. Pender

T020

Textile Technologies, Inc.

2800 Turnpike Drive
Hatboro, PA 19040
215-443-5325

Composite Structures with Enhanced Damage Tolerance

87-1-04.02-5325 NASA LaRC
I: NAS1-18628 \$ 46,782
Janice R. Maiden

Multi-Angular Weaving Composite Preforms
 89-1-04.03-5325 NASA LaRC
 I: NAS1-19002 \$ 42,733
 Steve Walker

T021
The Eppley Laboratory, Inc.

12 Sheffield Avenue
 Newport, RI 02840
 401-847-1020

* Improved Cavity Radiometer for Radiance Measurement
 88-1-08.02-1020 NASA GSFC
 I: NAS5-30597 \$ 50,000
 II: NAS5-T B D \$ T B D
 John R. Hickey

T022
The Holotronics Corporation

424 North Main Street
 Findlay, OH 45840
Last Known Address

Spatial Light Modulator: Optical Tunnel Array
 83-1-08.01-4270 NASA LeRC
 I: NAS3-24097 \$ 49,981
 Ronald L. Kirk

T023
The Navtrol Company, Inc.

9204 Markville Drive
 Dallas, TX 75243
 214-234-3319

* Low-Power, Digital Controller for Laser Communications
 84-1-14.07-3319 NASA GSFC
 I: NAS5-28645 \$ 50,000
 II: NAS5-29437 \$500,000
 Richard J. Brown

* Telerobotic, Digital Controller System
 87-1-35.01-3319 NASA GSFC
 I: NASS-30283 \$ 50,000
 II: NASS-30633 \$492,388
 Richard J. Brown

T024
Thermacore, Inc.

780 Eden Road
 Lancaster, PA 17601
 717-569-6551

* Heat Transport Across Structural Boundaries
 83-1-09.02-6885 NASA MSFC
 I: NAS8-35841 \$ 49,900
 II: NAS8-35263 \$499,000
 Robert M. Shaubach

* High-Performance, Flexible, Heat Pipes
 83-1-09.08-0376 NASA JSC
 I: NAS9-17036 \$ 49,744
 II: NAS9-17305 \$454,000
 G. Yale Eastman

* Heat-Pipe Cooling of Thrust Chambers
 83-1-11.04-6551 NASA LeRC
 I: NAS3-23874 \$ 48,685
 II: NAS3-24634 \$500,000
 Donald M. Ernst

* High-Performance, Ambient-Temperature Heat Pipes
 84-1-09.08-6551 NASA MSFC
 I: NAS8-35269 \$ 49,997
 II: NAS8-37261 \$500,000
 Robert M. Shaubach

T024 Thermacore, Inc., continued

Self-Maintaining Thermal Surfaces
 84-1-09.15-12300 NASA MSFC
 I: NAS8-35272 \$ 49,994
 Donald M. Ernst

* Modular Cold Plates for High Heat Fluxes
 84-1-09.16-1227 NASA JSC
 I: NAS9-17280 \$ 49,998
 II: NAS9-17610 \$500,000
 Donald M. Ernst

Titanium-Water, Capillary-Pumped Loop for Manned
 Environments
 86-1-09.07-1342A NASA MSFC
 I: NAS8-37319 \$ 49,907
 Peter M. Dussinger

Advanced Heat-Pipe, Body-Mounted Radiators
 86-1-09.07-1343B NASA MSFC
 I: NAS8-37318 \$ 49,907
 Jerome E. Toth

Sintered Powder, Artery-Free Wicks for Low-Temperature Heat
 Pipes
 89-1-09.12-6551 NASA GSFC
 I: NASS-30861 \$ 49,996
 John H. Rosenfeld

Composite Material Heat Pipes
 89-1-09.13-6551 NASA MSFC
 I: NAS8-38437 \$ 49,995
 Nelson J. Germert

T025
TINI Alloy Company
 1144 65th Street, Suite A
 Oakland, CA 94608
 415-658-3172

* Digital Storage Device Using Thin-Film Shape-Memory Alloy
 87-1-06.07-4109 NASA ARC
 I: NAS2-12797 \$ 49,780
 II: NAS2-13113 \$496,461
 A. David Johnson

T026
Time & Space Processing, Inc.
 705 East Evelyn Avenue
 Sunnyvale, CA 94086
 408-730-0200

Low-Overhead, Error Protection for LPC+ Digitized Speech
 84-1-14.06-0200 NASA JPL
 I: NAS7-929 \$ 49,680
 Lon Radin

T027
Togai Infralogic, Inc.
 30 Corporate Park, Suite 107
 Irvine, CA 92714
 714-975-8522

Fuzzy-Clips Expert System
 89-1-06.05-8522 NASA JSC
 I: NAS9-18335 \$ 47,220
 Masaki Togai

T028

Top Vu Technology
2650 14th Street NW
New Brighton, MN 55112
512-633-5952

* GaAs Readout and Preprocessing Electronics for Two-Dimensional, Focal-Plane-Array, IR Astronomy
88-1-08.12-5925 NASA ARC
I: NAS2-12987 \$ 49,890
II: NAS2-T B D \$ T B D
Ngoc-Chi N Vu

T029

Tracer Technologies, Inc. - See also ECO
20 Assembly Square Drive
Somerville, MA 02145
617-776-6410

* Small, High-Rate Battery for Distress Transmitters
88-1-10.08-7010 NASA GSFC
II: NAS5-28650 \$256,000
Fraser Walsh

Titanium-Carbide Used to Protect Carbon Composites
88-1-04.07-6410 NASA JSC
I: NAS9-18109 \$ 48,967
Fraser Walsh

A Low-Thermal-Conductivity Connector
88-1-09.07-6410 NASA GSFC
I: NAS5-30862 \$ 50,000
Fraser Walsh

T030

Transducer Research, Inc.
1228 Olympus Drive
Naperville, IL 60540
312-369-1336

An Improved Toxic-Vapor Detector for Hydrazine, Monomethylhydrazine, and Hydrochloride
88-1-13.06-1336 NASA KSC
I: NAS10-11380 \$ 49,893
Joseph R. Stetter

Energy-Modulated Toxic Vapor Detector
88-1-13.01-1336A NASA KSC
I: NAS10-11561 \$ 50,000
Joseph R. Stetter

T031

Transitions Research Corporation
15 Great Pasture Road
Danbury, CT 06810
203-798-8988

* Tracking System Applications of an Exponential Sensor Array System
88-1-09.16-8988 NASA JSC
I: NAS9-17728 \$ 51,107
II: NAS9-17990 \$493,800
Carl Weiman

Tortuous-Path Robot Transport
88-1-05.08-8988 NASA KSC
I: NAS10-11658 \$ 41,461
J. F. Engelberger

T032

Transmission Research, Div. of NASTEC
10823 Magnolia Drive
Cleveland, OH 44106
216-231-1391

* Roller-Gear Drive Robotic Manipulators
88-1-05.03-1391A NASA LeRC
I: NAS3-25282 \$ 48,760
II: NAS3-25803 \$455,000
William J. Anderson

Torque Balanced Drives for Space Station Applications
88-1-05.03-1391 NASA LeRC
I: NAS3-25576 \$ 49,550
William J. Anderson

T033
Transmission Technology Company, Inc.
216 Horseneck Road
Fairfield, NJ 07006
201-575-0418

* High-Speed, Helical-Gear Power Transmissions
88-1-01.05-0418 NASA LeRC
I: NAS3-23937 \$ 49,702
II: NAS3-24539 \$478,000
D. J. Folenta

T034
Triangle R&D Corporation
P.O. Box 12696
Research Triangle Park, NC 27709
919-781-8148

* Energy Storage System Using Microencapsulated Phase-Change Material
88-1-09.14-2878 NASA MSFC
I: NAS8-35840 \$ 47,903
II: NAS8-35259 \$495,000
David P. Colvin

System Constitution and Intravenous Administration of Fluids in Microgravity
88-1-12.02-2878 NASA JSC
I: NAS9-17568 \$ 49,157
David P. Colvin

* Telerobotic Rendezvous and Docking Vision System Architecture
88-1-05.01-2878 NASA GSFC
I: NAS5-30292 \$ 48,491
II: NAS5-30709 \$500,000
Benjamin T. Gravely

Space Suit Thermal Control Using Non-Toxic, Microencapsulated-PCM, Two-Phase Fluids
88-1-12.01-2878 NASA JSC
I: NAS9-17952 \$ 49,993
David P. Colvin

Vibration Isolation of Exercise Treadmill in Microgravity
88-1-12.05-8148 NASA JSC
I: NAS9-18111 \$ 49,995
Amit L. Patra

Spacesuit Glove-Liner with Enhanced Thermal Properties for Improved Comfort
88-1-12.07-8148 NASA JSC
I: NAS9-18110 \$ 49,996
Yvonne G. Bryant

T035

Turbulence Prediction Systems

3131 Indian Road
Boulder, CO 80301
303-443-2150

- * Airborne Advance Warning of Air Turbulence
87-1-03-02-2150 NASA LaRC
I: NAS1-18637 \$ 50,000
II: NAS1-18854 \$500,000
H. Patrick Adamson

U

U001

UFA, Inc.

335 Boylston Street
Newton, MA 02159
617-964-5172

- Telerobotics and Artificial Intelligence: System Design
Architecture
86-1-05-01-5172 NASA JPL
I: NAS7-976 \$ 49,702
Arthur Gerstenfeld

- * Integration of Task-Level Planning and Diagnosis for an
Intelligent Robot
87-1-05-02-5172A NASA MSFC
I: NAS8-37641 \$ 48,394
II: NAS8-38420 \$454,056
Arthur Gerstenfeld

U002

Ultramet

12173 Montague Street
Pacoima, CA 91331
818-899-0236

- * High-Temperature, Oxidation-Resistant Thruster Materials
85-1-11-04-0236C NASA LeRC
I: NAS3-24868 \$ 49,954
II: NAS3-25203 \$499,975
John T. Harding
- * Lightweight Mirror Structures
86-1-10-03-0236B NASA LeRC
I: NAS3-25145 \$ 49,994
II: NAS3-25418 \$493,891
Richard B. Kaplan

Advanced Thermal Protection Materials

- 87-1-01-02-0236 NASA LeRC
I: NAS3-25411 \$ 50,000
Richard B. Kaplan

High-Performance, High-Temperature Heat Pipes

- 87-1-03-08-0236 NASA LaRC
I: NAS1-18644 \$ 49,553
J. Grady Sheek

* High-Temperature Turbine Blades

- 87-1-04-03-0236A NASA LeRC
I: NAS3-25349 \$ 49,513
II: NAS3-25650 \$496,050
John T. Harding

Hydrogen Collectors for Space Flight Applications

- 88-1-04-06-0236 NASA GSFC
I: NAS5-30485 \$ 49,589
Richard B. Kaplan

CVD Chromium-Diboride Fibers for Metal Matrix Composites

- 89-1-04-04-0236 NASA LeRC
I: NAS3-25886 \$ 50,000
Andrew J. Sherman

U003

Ultrasystems, Inc.

2400 Michelson Drive
Irvine, CA 92715
714-833-2670

- * Improved Perfluoroalkylether Fluid Development
83-1-01-05-2670 NASA LeRC
I: NAS3-23938 \$ 49,940
II: NAS3-24632 \$240,543
K. L. Paciorek

U004

Umpqua Research Company

P.O. Box 791
Myrtle Creek, OR 97457
503-863-5201

- * Space Station, Hygiene Water, Prefilter Device
86-1-12-01-5201 NASA JSC
I: NAS9-17730 \$ 49,662
II: NAS9-17996 \$440,000
Gerald V. Colombo

- * Bio-Catalytic Reactors for Removal of Volatile Contaminants
87-1-12-02-5202B NASA MSFC
I: NAS8-37642 \$ 47,105
II: NAS8-38421 \$499,976
Gerald V. Colombo

- Space Laundry Cleansing Agent and Filter Development
87-1-12-05-5201 NASA JSC
I: NAS9-17953 \$ 49,939
Gerald V. Colombo

- * Regenerable Biocide Delivery Unit
88-1-12-01-5201A NASA JSC
I: NAS9-18113 \$ 49,990
II: NAS9-T B D \$ T B D
Gerald V. Colombo

- * Catalytic Methods Using Molecular Oxygen Treatment of PMMS
and ECLSS Waste Streams
88-1-12-02-5201 NASA MSFC
I: NAS8-38038 \$ 49,990
II: NAS8-38490 \$499,928
Gerald V. Colombo

- * Single-Phase Space Laundry
88-1-12-06-5201B NASA JSC
I: NAS9-18112 \$ 49,990
II: NAS9-T B D \$ T B D
Gerald V. Colombo

- A Reagentless Separator for Removal of Inorganic Carbon from
Solution
89-1-12-02-5201B NASA MSFC
I: NAS8-38460 \$ 50,000
Clifford D. Jolly

- Electrochemical Water Recovery Process for Direct Removal of
Impurities
89-1-12-03-5201 NASA JSC
I: NAS9-T B D \$ T B D
David F. Putnam

- Thermally Desorbable Toxin and Odor Control Cartridge
89-1-12-08-5201 NASA JSC
I: NAS9-18337 \$ 50,000
Gerald V. Colombo

U005
Unique Mobility, Inc.
3700 South Jason Street
Englewood, CO 80110
303-761-2137

Robotic Actuator Optimization
89-1-05.07-2137
I: NAS3-25833
David W. Parish

NASA LeRC
\$ 49,586

U006
Universal Analytics, Inc.
7740 West Manchester Boulevard, #208
Playa Del Rey, CA 90293
213-822-4422

A Fully Automated Structural Design Software System
85-1-06.03-4422
I: NAS1-18221
David L. Herendeen

NASA LaRC
\$ 49,981

U007
Universal Energy Systems, Inc.
4401 Dayton-Xenia Road
Dayton, OH 45432
513-426-6900

Response of Rapidly Solidified Titanium Alloys to
Thermochemical Treatment
87-1-04.03-6900B
I: NAS1-18620
Rabi S. Bhattacharya

NASA LaRC
\$ 49,437

V

V001
VRA, Inc.
P.O. Box 60
Blacksburg, VA 24060
703-552-0769

Aerothermodynamic Performance of Lifting AOTVs at High
Altitudes
84-1-02.01-0769
I: NAS2-12102
Clark H. Lewis

NASA ARC
\$ 49,946

Nonequilibrium Flows and Catalytic Surfaces on Spacecraft
Reentry
84-1-02.04-0769
I: NAS9-17290
Clark H. Lewis

NASA JSC
\$ 49,993

* Prediction of Hypersonic External and Internal Flows for NASP
Applications
86-1-01.05-2036
I: NAS3-25137
II: NAS3-25450
Clark H. Lewis

NASA LeRC
\$ 49,221
\$485,006

V002
Verac - See Netrologic, Inc.

V003
Vexcel Corporation
2477 55th Street, #201
Boulder, CO 80301-5703
303-444-0094

* EOS Workstation
87-1-07.07-0094
I: NAS7-1026
II: NAS7-1070
Franz W. Leberl

NASA JPL
\$ 49,502
\$499,385

Polarimetry-Based SAR-Shape from Shading Terrain
Reconstruction
88-1-07.02-0094
I: NAS5-30596
Franz W. Leberl

NASA GSFC
\$ 49,998

HIRIS-Oriented Visualization Software System
89-1-07.02-0094
I: NAS5-30869
Wolfgang Kober

NASA GSFC
\$ 49,855

V004
Vigyan Research Associates, Inc.
30 Research Drive
Hampton, VA 23666-1325
804-865-0794

Design of Fuselage Shapes for Natural Laminar Flow
84-1-02.02-0794
I: NAS1-17926
Cornelis P. Van Dam

NASA LaRC
\$ 48,866

Application of the Weis-Fogh Principle of High Lift to
Turbomachinery Flows
86-1-01.01-0794
I: NAS3-25139
P. Sundaram

NASA LeRC
\$ 48,807

* Generation of Unstructured Grids in Three Dimensions
86-1-02.04-0794
I: NAS1-18419
II: NAS1-18670
Paresh C. Parikh

NASA LaRC
\$ 49,986
\$498,332

Flow Fields around Hypervelocity Vehicles in a Low-To-High
Density Flight Regime
86-1-02.07-0794
I: NAS2-12551
Roop N. Gupta

NASA ARC
\$ 48,854

* Low-Speed Visualization Studies of Coupled and Uncoupled
Vortex Systems on Chine-Forebody/Delta Wing
87-1-02.09-0794A
I: NAS2-12780
II: NAS1-18856
Dhanvada M. Rao

NASA ARC
\$ 49,962
\$497,700

* Control of Large Cryogenic Wind Tunnel: Study of NTF
Controls
88-1-02.02-0794
I: NAS1-18810
II: NAS1-19125
W. Allen Kilgore

NASA LaRC
\$ 49,400
\$448,410

V005**Viking Instruments Corporation**

103B Carpenter Drive
Sterling, VA 22170
703-689-2214

- * An Advanced, Tandem Mass Spectrometer for Spacecraft
88-1-08.10-2214A NASA MSFC
I: NAS8-37643 \$ 49,061
II: NAS8-38422 \$496,990
Russell C. Drew

V006**Visual Computing, Inc.**

883 N Shoreline Boulevard, #B-210
Mountain View, CA 94043
415-961-5682

- * Three-Dimensional, Interactive, Grid-Generation Project
88-1-02.01-5682 NASA ARC
I: NAS2-12960 \$ 47,600
II: NAS2-T B D \$ T B D
Jeffrey Q. Cordova

W**W001****Waddan Systems**

6585 Neddy Avenue
Canoga Park, CA 91307
818-704-9783

- Integrated Computer-Aided Optical Instrument Design
86-1-08.22-9783 NASA SSC
I: NAS13-301 \$ 49,973
Mahendra Singh

W002**Wavemat, Inc.**

44780 Helm Street
Plymouth, MI 48170
313-971-2010

- Sintering of Advanced Ceramic Materials with a Tuneable
Microwave Cavity
88-1-04.12-2010 NASA LeRC
I: NAS3-25608 \$ 48,300
Raymond F. Decker

W003**Weather Corporation**

46 Kendal Common Road
Weston, MA 02193
617-899-1834

- * Solid-State Instrumentation for Electric Field Detection of
Lightning Potential
85-1-13.05-1834 NASA KSC
I: NAS10-11292 \$ 50,000
II: NAS10-11412 \$493,544
Ralph J. Markson

W004**William Pfefferle Associates - See Precision**

Combustion
51 Woodland Drive
Middletown, NJ 07748
201-671-0664

- Catalytic-Ignition, Rotary, Combustion Engine
86-1-01.02-0664 NASA LeRC
I: NAS3-25129 \$ 50,000
William C. Pfefferle

W005**Wilson Greatbatch Ltd.**

10000 Wehrle Drive
Clarence, NY 14031
716-759-6901

- * Battery Using Low-Temperature Electrolytes for the Emergency
Locator Transmitter
88-1-14.07-6901 NASA GSFC
I: NAS5-30492 \$ 46,978
II: NAS5-T B D \$ T B D
Esther S. Takeuchi

Rechargeable Lithium/Titanium-Disulfide Cells with Long
Cycle-Life

- 89-1-10.02-6901 NASA JPL
I: NAS7-1081 \$ 48,290
Esther S. Takeuchi

W006**Wilton Industries, Inc.**

66 Sugar Hollow Road
Danbury, CT 06810
203-743-6544

- * Multi-User, Multi-Access, Wireless, IR Communication System
86-1-14.03-6544A NASA JSC
I: NAS9-17738 \$ 44,582
II: NAS9-17988 \$419,000
James W. Crimmins

W007**Winzen International, Inc.**

12001 Network Blvd Suite 200
San Antonio, TX 78249
512-692-7062

- Stress Analysis of an Ascending Balloon
86-1-04.13-6366 NASA JPL
I: NAS7-973 \$ 49,790
James L. Rand

Automated Seal-Flaw Detection

- 89-1-09.06-7062 NASA GSFC
I: NAS5-30856 \$ 49,987
Thomas M. Lew

X**X001****X2Y2 Corporation**

5765 Uplander Way
Culver City, CA 90230
Last Known Address

- Conversion of Carbon Monoxide and Carbon Dioxide to
Methane in a Gravity-Free Environment
86-1-15.07-8492A NASA JSC
I: NAS9-17735 \$ 50,000
Walter W. Yuen

Z

2001

ZeroOne Systems, Inc. - Contact Systolic Technology
for information about these projects.

* Optimal Systolic Architectures for Numerical Linear
Algebra

83-1-02.01-3030	NASA ARC
I: NAS2-11728	\$ 49,999
II: NAS2-12091	\$500,000

Simon K. Fok

* Optimal Systolic Architectures for the Navier-Stokes Equations

84-1-06.01-3030K	NASA ARC
I: NAS2-12082	\$ 50,000
II: NAS2-12444	\$331,000

Simon K. Fok

* Systolic Ray Tracing Processor

85-1-06.11-3030A	NASA ARC
I: NAS2-12349	\$ 50,000
II: NAS2-12637	\$480,000

Simon K. Fok

INDEX OF SUBJECTS

Introduction

The Index of Subjects for NASA SBIR projects is provided to assist the reader in locating projects of interest in various technical areas or disciplines. This index is not based on key words; rather the subjects for this index were chosen by consolidating similar subtopics contained in all of the annual Program Solicitations issued by NASA through 1989. The projects are related to these subjects through the subtopics chosen by the proposers.

The key lists all the subject titles used. These are shown in normal type. It also contains cross-references to variants of the headings used or other potential locations of the desired information. Cross-references are in italic type.

The index itself is arranged alphabetically by subject titles. For each subject, projects are listed by title in order of the program year and topic and subtopic numbers. After a particular SBIR project has been located in this subject index, the user who wishes additional information can refer to the main Composite List via the firm's index number.

Key to subject titles

A

Aerodynamics: Configurations and Theory
Aerodynamics: Unsteady Flows and Flutter
Aerodynamics: Viscous Flows
Aeronautics: Applications of Expert Systems
Aeronautics: Computational Fluid Dynamics
Aeronautics: Experimental Fluid Dynamics & Wind Tunnel Tests
Aeronautics: Human Factors
Aeronautics: Rotorcraft Aerodynamics and Dynamics
Aeropropulsion: Computational & Experimental Fluid Dynamics
Aeropropulsion: Drive Trains, Transmissions, and Lubrication
Aeropropulsion: Gas Turbine and Rotary Engine Components
Aeropropulsion: Hypersonic Flight
Aeropropulsion: Instrumentation and Control
Aeropropulsion: Novel Concepts
Aerothermodynamics: Hypersonic Flight
Airborne Observations Technology
Aircraft Control: Fixed Wing
Aircraft Control: Rotorcraft
Aircraft Distress Beacons
Aircraft Electric Power Systems
Aircraft Flight Environment Sensing and Analysis
Aircraft Flight Management
Aircraft Flight Test Techniques and Instruments
Aircraft Icing Phenomena and Instruments
Aircraft Propulsion Noise and Acoustics
Aircraft: High-Altitude, Remotely Piloted Vehicles
Aircraft: Powered-Lift
Animal Experiments: See Biota Life Support System Dev.
Antennas
Artificial Intelligence for Space Station Applications
Astronomy, Infrared, Ultraviolet, Xray - *See also* Sensors
Automation and Robotics: End Effectors and Actuators
Automation and Robotics: Telerobotic System Concepts
Automation and Robotics: Telepresence

B

Balloons: *See* High-Altitude Balloons
Biological Science Experiment Operations
Biota Life Support System Development

C

CAE,CAD,CAM: *See* Computer Science
CELSS: *See* Manned Space Flight
Chemical Vapor Deposition Process Modelling

Climate: *See* Earth Sensing

Combustion: *See* Aeropropulsion and Space Propulsion

Cometary Particle Sensing and Analysis

Commercial Space: Supporting Technology - *See also* Chemical Vapor Deposition

Communications: Advanced Satellite Technology

Communications: Deep Space

Communications: Ground Mobile Service

Communications: Laser

Communications: Manned Space Flight

Communications: RF Components, Processing, and Switching

Composite Materials: *See* Materials

Computational Fluid Dynamics: *See* Aeronautics, Aeropropulsion, and Space Propulsion

Computer Science Advances in Computational Physics

Computer Science: Automation of Technical Documentation

Computer Science: CAD, Knowledge Systems, & CAD

Integration Computer Science: Data Base Storage and Networks

Computer Science: Engineering

Computer Science: Expert Project Management

Computer Science: Expert Information Systems

Computer Science: Fault Tolerant Systems

Computer Science: Graphics and Displays

Computer Science: Multiprocessors

Computer Science: Software Engineering

Contamination Effects and Venting

Control Center Human Factors

Control of Large Space Structures: *See* Structures

Cryocoolers for Spaceborne and Ground-Based Sensors

Cryogenic Fluid Systems Technology for Spacecraft

E

Earth Atmosphere Sensors: Aerosols and Clouds

Earth Sensing: Climate

Earth Sensing: Environmental Sciences

Earth Sensing: Geology

Earth Sensing: Global Biology

Earth Sensing: Oceanographic Instruments

ECLSS: *See* Manned Space Flight

Environment: *See* Earth Sensing

EVA: *See* Manned Space Flight

Exobiology Flight Experiment Instrumentation

Expert Systems: *See* Aeronautics, Artificial Intelligence, and Computer Science

Extraterrestrial Intelligence: Search for

G

Gas Turbines: See Aeropropulsion
Geology: See Earth Sensing

H

Heat Pipes: See Thermal Control
Helicopters: See Aeronautics and Aircraft Control
High-Altitude Balloon Technology
High Temperature Superconductors: See Superconductivity
High-Altitude Research Aircraft: See Aircraft
Holography: See Aeronautics: Experimental Fluid Dynamics
Human Factors: See Aeronautics, Control Center, Manned Space Flight, and Work Stations

I

Icing: See Aircraft
Imaging Systems: Data Compression and Analysis
Instrumentation: Ground Test Facilities

L

Lasers: See Communications and Sensing
Laser Velocimeters: See Aeronautics: Experimental Fluid Dynamics
Launch Vehicle Ground Operations and Flight Environment
Liquid Rockets: See Space Propulsion
Lunar Materials Utilization

M

Manned Space Flight: Refrigeration Systems
Manned Space Flight: EVA Systems
Manned Space Flight: Medical Sciences
Manned Space Flight: Intra-Vehicular Equipment
Manned Space Flight: Environmental Control and Life Support
Manned Space Flight: Human Factors
Manned Space Flight: Food Systems
Manned Space Systems: Mission Planning and Control Software
Materials Processing in Microgravity - See also Commercial Space
Materials: Composites for Aerospace Propulsion and Power
Materials: High-Temperature Alloys & Metal Matrix Composites
Materials: Launch Site Facilities
Materials: Special Purpose for Spacecraft
Materials: Structural Composites
Materials: Structural Metals for Aerospace Applications
Materials: Thermal Protection Insulation
Medical Science: See Manned Space Flight
Microgravity Science and Engineering - See also Commercial Space

N

National Aerospace Plane (NASP): See Aeropropulsion, Aerothermodynamics, and Aircraft Control
NDE: Launch Readiness Verification
NDE: Techniques for Characterization of Aerospace Materials
NDE: VLSI Testing and Evaluation
Noise: See Aircraft

O

Oceans: See Earth Sensing
Optical Systems: See Communications, Sensors, and STS Tracking Systems

P

Plant Growth Experiments: See Biota Life Support System

R

Rarified Gas Dynamics and Vacuum Plumes
Refrigeration: See Manned Space Flight and Cryocoolers
Robots and Robotics: See Automation and Robotics
Rotary Engines: See Aeropropulsion
Rotorcraft: See Aeronautics and Aircraft Control

S

Sensing: LIDAR Systems and Laser Technology
Sensors: Detectors and Detector Arrays
Sensors: Electromagnetic Radiation
Sensors: Magnetometers
Sensors: Millimeter and Submillimeter Radiometry
Sensors: Optical Materials, Components, and Systems
SETI: See Extraterrestrial Signal and Information Processing
Solar System Exploration - See also Cometary Particle Sensing
Solid Rockets: See Space Propulsion
Space Environmental Effects
Space Power Management and Distribution
Space Power Transmission: Laser Photovoltaic Converter
Space Power: Advanced Systems Technology
Space Power: Automation and Artificial Intelligence
Space Power: Batteries for Spacecraft
Space Power: Dynamic Conversion Systems
Space Power: Electro-Chemical Power
Space Power: Inertial Energy storage
Space Power: Novel Concepts
Space Power: Photovoltaic Materials and Devices
Space Propulsion
Space Propulsion: LRE Internal Fluid Dynamics
Space Propulsion: LRE Bearing Lubrication
Space Propulsion: LRE Combustion
Space Propulsion: Materials Fabrication
Space Propulsion: Solid Rocket Motor Technology
Space Tether Applications and Technology
Spacecraft Flight Dynamics
Spacecraft Operations and Data Management Systems
Spacecraft Tracking and Attitude Sensing
Statistics of Spatial Patterns
Structural Design: Computational Methods and Optimization
Structures: Concepts for Space Applications
Structures: Control of Large Space Systems
Structures: Space Construction Tools
Structures: Welding In Space
STS Tracking Systems: Station-Keeping, Rendezvous, & Docking
STS: GAS and Spartan Spacecraft Systems and Operations
STS: Guidance, Navigation, and Control
Superconductivity: Materials Processing and Applications

T

Thermal Control: Advanced System Concepts
Thermal Control: Advanced Heat Pipes
Thermal Control: Energy Storage
Thermal Control: Heat Transport Across Structural Boundaries
Thermal Control: Long Duration Space Missions
Thermal Control: Passive
Thermal Control: Spacecraft Electronics
Thermal Control: Two Phase Systems
Two-Phase Flows: See Cryogenic Fluid Systems and Thermal Control

V

Venting: See Rarified Gas Dynamics

W

Welding: See Structures
Work Stations for Space Crews
Work Stations for Data management

Projects by subject

Aerodynamics: Configurations and Theory

- 83-1-02.07
* A001 Joined Wing Aircraft
* A052 Prediction Methods for Powered-Lift Vehicle Aerodynamics
85-1-02.07
* C041 An Arbitrary-Grid, CFD Multi-Tasking Code for Configuration Aerodynamics Analysis
86-1-02.04
* V004 Generation of Unstructured Grids in Three Dimensions
86-1-02.09
* C039 Measurements of Vortex Flow Fields
87-1-02.04
G002 Three-Dimensional Euler Solver
87-1-02.09
E010 Flow Visualization Study of Delta Wings in Wing-Rock Motion
* V004 Low-Speed Visualization Studies of Coupled and Uncoupled Vortex Systems on Chine-Forebody/Delta Wing
88-1-02.08
* C040 A New Approach for Solving Navier-Stokes Equations on Unstructured Grids Based on Adaptive Methods
* E010 Aerodynamic Control of NASP-Type Vehicles Through Vortex Manipulation
89-1-02.06
E010 Aerodynamic Control of the F/A-18 Using Forebody Vortex Blowing

Aerodynamics: Unsteady Flows and Flutter

- 85-1-02.05
I013 Real-Time Flutter Prediction and General Modal Parameter Identification

Aerodynamics: Viscous Flows

- 83-1-02.02
S021 Three-Dimensional, Unsteady, Viscous-Flow Analysis Over Airfoil Sections
84-1-02.02
* F012 Generating an Artificial Burst in a Turbulent Boundary Layer
E024 Design of Multi-Element, Natural Laminar Flow Airfoils
E024 Laminar Flow Control, Supercritical LFC, and Hybrid (NLF/LFC) Airfoils
V004 Design of Fuselage Shapes for Natural Laminar Flow
85-1-02.04
F012 Turbulence Control on an Airborne Laser Platform
86-1-02.06
P005 Improved Turbulence Model for Aerodynamic Flows with Massive Separation and Wakes
87-1-02.03
S057 Modelling of Massively Separated Flows - Renormalization Group Formulation
87-1-02.05
A071 Computations of Separated Flows with an Improved K-Epsilon Model
89-1-02.03
N004 Transition to Turbulence in Complex Aerodynamic Flows
E025 Calculation of Surface Pressure Fluctuations Based on Time-Averaged, Turbulent Flow Computations

Aeronautics: Applications of Expert Systems

- 84-1-03.03
A063 Expert Systems for Accident Investigations
85-1-03.03
C043 Intelligent Interface System
86-1-03.04
* I013 Automation Tools for Demonstration of Goal-Directed and Self-Repairing Flight Control
87-1-03.04
D007 Integrated Design System for High-Altitude, Long-Endurance Aircraft for Micro Computers
88-1-03.09
* E029 Intelligent Hypertext Systems for Aerospace Knowledge Representation
88-1-03.10
S051 Expert Systems for Flight Control Systems Verification
89-1-03.10
G001 A Knowledge-Based Simulation Design, Development, and Coding Environment

Aeronautics: Computational Fluid Dynamics

- 83-1-02.01
* T011 Optimal Systolic Architectures for Numerical Linear Algebra
* N012 Increasing the Convergence Rate Euler Equation Solutions
S021 Improved Accuracy and Efficiency of Three-Dimensional Flow Algorithms
84-1-02.01
V001 Aerothermodynamic Performance of Lifting AOTVs at High Altitudes
N012 Rapid Computation with Nonlinear Numerical Algorithms
D001 Wiener-Hermite Simulation of Turbulence
84-1-06.01
* Z001 Optimal Systolic Architectures for the Navier-Stokes Equations
85-1-02.01
G002 Fast, Two-Dimensional Euler Solver
C030 Formation and Quenching of Electronically Excited Molecules on Surfaces
86-1-02.01
* S027 The Use of Variational Principles in Improving CFD Methodology
* E026 A Robust, Nonequilibrium, Parabolized Navier-Stokes Code
* A050 Three-Dimensional Navier-Stokes Analysis for Evaluation of Hypersonic Vehicles
87-1-02.01
* C040 Adaptive Schemes for Complex, Subsonic, Three-Dimensional Flow Problems in Arbitrary Domains
* J001 Computational Fluid Dynamics of Store Separation
K005 Software Package for Solving Large Systems of Nonlinear Equations
88-1-02.01
S021 Automated Application of Navier-Stokes Solutions to Mechanical Design
P035 Goodness-Of-Grid Measures
* C040 Pre- and Post-Processing Techniques for Determining Goodness of Computational Meshes
* V006 Three-Dimensional, Interactive, Grid-Generation Project
89-1-02.01
A071 Two-Equation Turbulence Modeling of Hypersonic Transitional Flows with the UPS Code
C054 Advanced Modeling of Combustion Systems
A050 Coupling Grid Adaption to an Implicit Navier-Stokes Solution Procedure

Aeronautics: Experimental Fluid Dynamics & Wind

Tunnel Tests

83-1-02.03

- * S058 Dual Thermoplastic Holography Recording System for Flow Diagnostics
- * A060 Technology for Pressure-Instrumented Thin Airfoil Models
- * F012 Transonic Wall Interference Assessment and Correction
- C039 Scanning Laser Velocimeter for Turbulence Research

84-1-02.03

- * M011 Magnetic Suspension and Balance System for Wind Tunnels

84-1-02.06

- * R007 Shear-Stress Sensor Development Using Surface Acoustic Waves
- S058 Pulsed Laser Holocamera for Wind Tunnel Testing

84-1-08.13

- * K001 Modular, Digital, Holographic Fringe Data Processing System
- * E021 Miniature Infrared Data Acquisition and Telemetry System

85-1-02.02

- * C057 Cost-Effective Use of Liquid Nitrogen in Cryogenic Wind Tunnels
- S058 An Optical Detector for High-Sensitivity Density Measurements

85-1-08.13

- * G007 Microchannel Plates in Advanced Wind Tunnel Instrumentation
- S005 An In Situ Particle Sizing System

86-1-08.08

- * H003 High-Temperature Capacitive Strain Gauge
- I009 Boundary Layer Transition Detection System
- * M010 Frequency Domain Laser-Velocimeter Signal Processor

86-1-08.20

- * R011 Aeroheating Flight Instrumentation

87-1-02.02

- * P025 Propulsion Simulation for Magnetically Suspended Wind Tunnel Models

87-1-08.20

- P025 Wind Tunnel Remote Turbulence Characterization
- * C039 An Optical Angle-of-Attack Sensor
- E036 High-Temperature and High-Response Skin Friction Sensor
- * O002 Fiber-Optic Pressure Sensor for Wind Tunnel Applications

88-1-02.02

- * V004 Control of Large Cryogenic Wind Tunnel: Study of NTF Controls

88-1-02.11

- * S043 Nonintrusive, Oxygen Monitoring System for Supersonic Combustion
- L006 Very-High-Temperature Fiber Sensors

89-1-02.02

- A081 Wind Tunnel Noise Reduction

89-1-02.08

- I006 A High-Temperature, Directional, Spectral Emissivity Measurement System
- A049 Cross-Correlation, Optical Strain Sensor for Wind Tunnel Test Instrumentation

Aeronautics: Human Factors

83-1-03.09

- S082 Improved Outside Visual Cues for Aeronautical Simulators
- * A009 Brain Wave Measures of Workload in the Advanced Cockpit

84-1-03.09

- * S082 Decision-Making Modeling Theory of Human Error
- A009 Polar Graphics for Rapid Assessment of Multivariate Information

85-1-03.06

- B008 An Optimal Interface for Expert Monitoring Systems

87-1-03.03

- * E010 A Gravity-Induced Loss-of-Consciousness Detection and Recovery System - AF Phase I
- * C023 Electroencephalographic Monitoring of Complex Mental Tasks
- * D009 Aeronautical Human Factors Research - Pilot Decision-Making Support System

88-1-03.11

- C027 EEG-Based Metric for Flight Deck Workload Assessment
- E020 Voice Input-Output for Flight Management Systems

89-1-03.09

- S026 Methods and Tools for Assessing Limits of System Intelligence

Aeronautics: Rotorcraft Aerodynamics and Dynamics

83-1-03.07

- * A052 Improved Algorithms for Analysis of Circulation-Control Rotors
- * C050 Rotary Wing Hover Performance Prediction

85-1-03.07

- * S021 Calculation of Helicopter Rotor Blade and Vortex Interactions by Navier-Stokes Procedures
- S058 Improved Signal Processor Enhancement of Laser Doppler Velocimeters

86-1-02.10

- * C050 Advanced Free-Wake Analysis for Unsteady Airloads on Rotors

87-1-02.10

- * C050 Optimization of Rotor Performance Using a Free Wake Analysis

88-1-02.09

- * A052 A Novel, Potential-Viscous Flow Coupling Technique for Computing Helicopter Flow Fields
- A001 Joined-Wing Tiltrotor Aircraft Study

89-1-02.07

- J005 General Time-Domain Unsteady Aerodynamics of Rotors
- A032 Soft Hub for Bearingless Rotors

Aeropropulsion: Computational & Experimental Fluid Dynamics

83-1-01.01

- * G002 Unsteady Compressible Flows in Intakes and Nozzles

83-1-01.02

- A037 Holographic Detection of Combustion Stream Droplets

84-1-01.01

- * S021 Computation of the Tip-Vortex Flow Field in Advanced Propellers
- * F012 Optimization Procedure for Aerodynamic Design for Advanced Turboprop

84-1-01.02

- A035 Turbulent Mixing of Gases in a Simulated Combustor

85-1-01.01

- S021 Solution of the Inlet Buzz Problem by the Navier-Stokes Equations

- * A038 Fuel Atomization and Air-Fuel Interactions in a Turbulent Environment

- S021 Optimum Ducts Using an Efficient, Three-Dimensional, Viscous Computation

- * C040 Adaptive Computational Methods for Fluid-Structure Interaction in Internal Flow

86-1-01.01

- S021 Solution Adaptive Mesh

- V004 Application of the Weis-Fogh Principle of High Lift to Turbomachinery Flows

87-1-01.01

- * R021 Boundary Layer Control Methods in High-Speed Inlet Systems

- * C054 Multigrid Solution of Internal Flows Using Unstructured, Solution-Adaptive Meshes

- 88-1-01.01**
- * C014 Numerical Modelling of Turbulence and Combustion Processes
 - P036 Efficient Computation of Viscous Internal Flows
- 89-1-01.01**
- S021 Flow in Turbine Blade Passages
 - P025 Reaction Mechanics and Kinetic Rates for Soot Formation
 - P035 Grid-Generation Code with Automatic Zoning
- Aeropropulsion: Drive Trains, Transmissions, and Lubrication**
- 83-1-01.05**
- * U003 Improved Perfluoroalkylether Fluid Development
 - * T033 High-Speed, Helical-Gear Power Transmissions
- 84-1-01.05**
- J003 A Design Concept for Reducing Dynamic Loads on Spur Gear Teeth
 - * E035 New Perfluoroether Fluids with Excellent Oxidative and Thermal Stabilities
 - R002 High Energy Trib-Elements
- Aeropropulsion: Gas Turbine and Rotary Engine Components**
- 84-1-01.03**
- * A017 Adiabatic, Wankel-Type Rotary Engines
 - * R015 Rapidly Solidified Titanium Alloys by Melt Overflow
- 85-1-01.02**
- * P003 Cast SiC-Al Technology with Direct Application to Rotary Engines
- 86-1-01.02**
- * P032 Catalytic-Ignition, Rotary, Combustion Engine
 - S062 Advanced Seal Materials by Ion Beam Enhanced Deposition
- 87-1-01.02**
- U002 Advanced Thermal Protection Materials
 - D025 Propeller-Wake-Induced, Structure-Borne Interior Noise
 - A044 Pulse-Combustor-Driven, Recuperated or Regenerated Gas Turbine
- 88-1-01.02**
- * S038 Gas Turbine Combustor for Low Pattern Factor and Low NO_x Emission
- 89-1-01.02**
- M052 Evaluation of PS200 Coating as a Thermal Barrier in an Air-Cooled Rotary Engine
 - C003 Rapid-Mix Concepts for Low-Emission Combustors in Gas Turbine Engines
 - M014 Influence of Tooth-Profile Modification on the Lubrication of Involute Gearing
- Aeropropulsion: Hypersonic Flight**
- 86-1-01.05**
- * V001 Prediction of Hypersonic External and Internal Flows for NASP Applications
- 87-1-01.04**
- * N012 Supersonic, Turbulent, Reacting Flow Modeling and Calculation
- 88-1-01.04**
- * P025 Three-Body Reaction Rates for H₂-O₂ at High Temperatures
- Aeropropulsion: Instrumentation and Control**
- 84-1-02.08**
- F012 Optical Slip-Ring for High-Density-Data Communication Links
- 84-1-08.09**
- * A037 Optimization of Silicon-Carbide Production
- 85-1-01.03**
- S022 Nonlinear Control Design for Turbofan Jet Engines
 - O012 Non-Contact, High-Temperature Strain Gage
- 86-1-01.03**
- C016 Laser for a Time-Averaged Holographic Interferometer
 - * C047 Durable, Fast-Response, Optical-Fiber Temperature Sensor Usable from 600 to 1900C
- * S071 Fiber Optic, Photoelastic, Pressure Sensor for High-Temperature Gases
- 87-1-01.03**
- P025 High-Temperature, Seed-Particle Development for Laser Doppler Velocimeters
 - D008 Simultaneous Temperature, Density, and Flow Diagnostics for Aeropropulsion Systems
- 88-1-01.03**
- * G014 Fast Optical Switch for Multimode Fiber-Optic-Based Control Systems
 - A086 Fiber-Optic Fluid Flow Sensor
 - * C056 High-Temperature, Silicon Carbide, Power MOSFET
- 89-1-01.03**
- T016 Non-Intrusive, Single-Point Pressure and Temperature Sensor for Aeronautical Propulsion Applications
 - D013 High-Temperature, Hostile-Environment Instruments Manufactured by CVD
 - P025 Laser-Induced Fluorescence Measurements of Velocity in Supersonic Reacting Flowfields
- Aeropropulsion: Novel Concepts**
- 83-1-01.04**
- I027 Detonation-Wave Augmentation of Gas Turbines
 - * A037 Rayleigh Scattering as a High-Temperature Combustion Diagnostic Method
 - B009 Heat Pipe Applications in Aircraft Propulsion Systems
- 85-1-01.06**
- C002 Intercooling and Reheat with Heat Pipes
 - I027 Detonation-Wave Compression in Gas Turbines
- 86-1-01.06**
- * I027 Detonation-Duct Gas Generator
 - * F008 An Investigation of the Properties of Cooled Supersonic Flows
- 87-1-01.05**
- F013 Shock Waves for Enhanced Mixing in Scramjet Combustors
- 88-1-01.05**
- C002 Conceptual Design of Ramfan Hypersonic Engine
- 89-1-01.04**
- F015 High-Efficiency Flow Induction
- Aerothermodynamics: Hypersonic Flight**
- 86-1-02.07**
- V004 Flow Fields around Hypervelocity Vehicles in a Low-To-High Density Flight Regime
 - * C039 Laser Velocimeter Potential in Hypersonic Flows
- 86-1-03.09**
- A035 Supersonic Combustion Enhancement by a Nonequilibrium Plasma Jet
- 87-1-02.06**
- * M006 Photochemical Ignition and Enhancement of Supersonic Combustion
 - D008 Stimulated Brillouin Diagnostics of Hypersonic Flow
 - * P025 Aerothermodynamic Radiation Studies
 - C039 A Laser-Based Transition Detector
- 87-1-03.08**
- U002 High-Performance, High-Temperature Heat Pipes
- 88-1-02.05**
- * A028 An Oblique-Detonation-Wave, Ram-Accelerator-Driven Hypersonic Test Facility
 - C030 Temperature-Dependent, Energy Transfer Recombination on Surfaces
 - C030 Mechanisms of Energy Accommodation on Catalytic Surfaces
 - P025 Hypersonic Thermophysics Code
 - * P024 Laser Velocimetry Processor for Hypersonic Flows
- 88-1-03.07**
- I013 Numerical Optimization of Single-Stage-To-Orbit Configuration with Inequality Constraints

- 89-1-02.04**
- D008 Remote Measurement System for Arc-Jet Temperature and Density
 - H005 Transport Properties in Non-Equilibrium Air Mixtures
 - N012 A Model for Shock Turbulence Interaction
 - P025 High-Velocity Gas-Surface Accommodation
 - M035 A Holographic Interferometer Spectrometer for Hypersonic Flow
- 89-1-03.07**
- R009 Ceramic-Matrix-Composite for Hypersonic Engine Structures
- Airborne Observations Technology**
- 87-1-08.03**
- T004 High-Resolution Remote Sensing for Earth Observation
- 88-1-08.03**
- * S006 Multi-Spectral, High-Resolution Remote Sensor
- 88-1-08.19**
- R021 Innovative Shear-Layer Control Methods for Large Scale Airborne Telescopes.
- 89-1-08.03**
- P019 Multispectral, Remote Sensing Using Sprite Technology
- 89-1-08.05**
- R014 An Airborne, Laser-Depolarization, Imaging Sensor for Terrestrial Measurements
- Aircraft Control: Fixed Wing**
- 83-1-03.05**
- * S082 Advanced Aircraft Flight Control System
- 84-1-03.05**
- D012 Application of Parameter Extraction at Extreme Angles of Attack
- 85-1-03.05**
- I006 Optimal-Output, Feedback-Regulator Design for Systems with Variable Dynamics
- 86-1-03.05**
- * S082 Task-Tailored Flight Control and Flying Qualities
- 87-1-03.05**
- S082 Practical Application of Multivariable Robustness Methods to Advanced Aircraft Flight Control
- 88-1-03.03**
- * I006 A Stochastic, Optimal Feedforward and Feedback Control Methodology for Superagility
 - E010 Management System for High-Performance Aircraft
- 89-1-03.03**
- E010 An Improved Methodology to Assess Departure Susceptibility Versus Agility
- Aircraft Control: Rotorcraft**
- 84-1-03.08**
- * T006 Optimal Guidance with Obstacle Avoidance for NOE Flight
- 85-1-03.08**
- * S082 Fully Automatic Guidance for Rotorcraft Nap-of-the-Earth Flight
- 86-1-03.06**
- O004 Threat Expert Systems Technology Advisor
- 87-1-03.06**
- * S044 Passive, Electro-Optical Sensor for Processing Helicopter Obstacle Avoidance
- 88-1-03.04**
- A020 Multilevel Motion Processing for Autonomous Helicopters
- Aircraft Distress Beacons**
- 83-1-10.08**
- * T029 Small, High-Rate Battery for Distress Transmitters
- 87-1-14.03**
- * M046 High-Efficiency, Low-Cost, GaAs Monolithic RF Module SARSAT Distress Beacons
- 88-1-14.07**
- * W005 Battery using Low-Temperature Electrolytes for the Emergency Locator Transmitter
- Aircraft Electric Power Systems**
- 84-1-01.06**
- H009 Low Weight-to-Horsepower Ratio Electric Drive
- Aircraft Flight Environment Sensing and Analysis**
- 84-1-03.02**
- * S058 Optical Method to Determine the Impact of Heavy Rain on Aircraft Performance
- 86-1-03.02**
- S032 Airborne Weather Radar for Windshear Warning
- 87-1-03.02**
- * T035 Airborne Advance Warning of Air Turbulence
- 88-1-03.02**
- * C050 An Aircraft-Mounted, Rainfall-Rate Instrument
- 89-1-03.02**
- S070 Lightning Protection Technology for Smaller General Aviation Aircraft
- Aircraft Flight Management**
- 83-1-03.04**
- * A051 Advanced Flight Planning System
 - F009 Flight Recorder with Hazard Detection Capability
 - F018 Computer-Interactive Flight Simulator
- 85-1-03.04**
- * A054 Prototype Cockpit Ocular Recording System
- 86-1-03.03**
- * E037 An Expert Flight System Monitor
 - A043 Display Technology
 - S082 A Quantitative and Qualitative Data Base Display of Content, Format, and Arrangement Factors
- Aircraft Flight Test Techniques and Instruments**
- 85-1-03.09**
- * S071 Spectral Contents Readout of Birefringent Sensors
- 86-1-03.08**
- * E010 Cockpit Displays and Cueing Systems Concepts for Operation in an Extended Flight Envelope
 - * M015 Airflow Monitor and Stall Warning Device
- 87-1-03.07**
- N014 Aircraft Flight Testing Techniques and Instrumentation
 - * C027 Expert Systems for Real-Time Monitoring and Fault Diagnosis
 - S082 Real-Time Identification of Structural Modes
 - E027 Smart Angle-of-Attack and Angle-of-Sideslip Sensor
 - N010 Miniature Airborne Dew Point Sensor
- 88-1-03.05**
- * S051 Applications of Transputers to Aircraft Flight Research
 - * I009 Boundary-Layer-Flow Analysis System for High-Performance Aircraft
- 88-1-03.06**
- S021 Fluorescence Spectroscopy and Thermometry for Hypersonic Flight Research
 - * D004 Interferometric Imaging and Frequency Estimation of Surface Vibration Patterns
 - R012 Sensors for Flight Research
- 89-1-03.05**
- A053 Flight Instrumentation for Simultaneous Detection of Flow Separation and Transition
 - S022 Real-Time Adaptive Identification and Prediction of Flutter
- 89-1-03.06**
- I009 Low-Cost, Angle-of-Attack Sensor for Subsonic Aircraft
 - A049 Laser-Speckle Interferometer for Surface-Acoustic-Displacement Measurements
 - B001 Evaluation of PVDF Film as a Pressure Sensor

Aircraft Icing Phenomena and Instruments

85-1-03.01

F017 Ordered-Polymer-Film Composites Applied to Fluid Deicing Systems for Aircraft

* I009 Icing Sensor and Ice-Protection System

86-1-03.01

M053 A Real-Time Ice Detection System

87-1-03.01

* A038 Advanced Instrumentation for Aircraft Icing Research

88-1-03.01

* N012 Unsteady Triangular-Mesh, Navier-Stokes Method for Aerodynamics of Aircraft with Ice Accretion

* I009 Smart-Skin Measurement of Aircraft Performance for Ice-Accretion, Stall, and High Angle-of-Attack

89-1-03.01

E017 Eddy Current Repulsion De-Icing Strip

Aircraft Propulsion Noise and Acoustics

83-1-02.08

* C013 Analytical Model of the Structureborne Interior Noise Induced by a Propeller Wake

85-1-02.08

* T013 Active Control of Interior and Exterior Propeller Noise with Exterior Acoustic Sources

86-1-02.13

A079 Diagnostic Technique to Identify Airborne and Structureborne Noise Components

87-1-02.12

C050 Main-Rotor-Wake and Tail-Rotor Interaction Noise

* A035 Direct Computation of Turbulence Noise

88-1-02.12

D010 Acousto-Fluidic Noise Generator for Aircraft Component Structure Testing

89-1-02.09

C050 General Flow-Field Analysis Methods for Helicopter Rotor Aeroacoustics

E025 The Applications of Fractional Calculus to Noise Simulation

89-1-02.10

A035 Computer Simulation and Design of Jet-Noise Suppressors

Aircraft: High-Altitude, Remotely Piloted Vehicles

83-1-02.09

P010 High-Altitude, RPV Flight Test Vehicle

89-1-03.08

A001 Very-High-Altitude Aircraft with Joined Wings

D016 An Advanced Heat Rejection System for an AVCD Engine in a High-Altitude Research Platform

A085 Fuel-Cell Propulsion System for a High-Altitude Research Platform

Aircraft: Powered-Lift

85-1-02.10

F012 Numerical Simulation of Impinging Jets

87-1-02.11

A050 Zonal Method for Modeling Powered-Lift Aircraft Flow Fields

Antennas

85-1-14.04

C044 Electronically Controllable Reflective Lens

85-1-14.07

C007 Multiple-Band, Near-Field, Antenna Feed System

86-1-14.04

I020 Determination of Orbiting-Spacecraft-Antenna Distortion by Ground-Based Measurements

87-1-14.05

S023 Microstrip, Multiple-Function Antenna Feed

Artificial Intelligence for Space Station Applications

85-1-05.07

* M042 The Laser Docking Sensor Intelligent Controller

* O004 Co-Ordinated Control of a Payload Utilizing Multiple Manipulator Arms

86-1-05.04

A059 A Generic, Artificial-Intelligence, Expert System for Space Station Applications

E037 An Expert System to Troubleshoot Data Management Systems

87-1-05.02

* U001 Integration of Task-Level Planning and Diagnosis for an Intelligent Robot

A019 New Solution Method for Robot Kinematic Equations

A020 Adjustable Autonomy for Hazardous Robotic Operations

* A020 Architectures for Semi-Autonomous Planning

88-1-05.05

I010 An Automatic Scheduling Assistant for the NASA Space Station

* S028 An Artificial Intelligence System Process for Monitoring, Situation Assessment, and Response Planning

A020 The Space Station as Robot: A Reactive Planning Approach to OMS Problems

* I014 Compiling Knowledge-Based Systems Specified in KEE to Ada

* G010 An Automated Wire-Guide for Robotic Welding Applications

89-1-05.05

C020 An Expert Advisor for Failure Mode and Effects Analysis

Astronomy, Infrared, Ultraviolet, Xray

83-1-08.10

* I008 Advanced Components for Spaceborne Infrared Astronomy

85-1-08.09

* L009 Multichannel Infrared Filters

85-1-09.08

A055 Thermal Design of a Precollimator

86-1-08.06

* C054 High-Efficiency Pump for Space Helium Transfer

87-1-08.07

* C015 Automated Characterization and Calibration of Ultraviolet Spectrophotometers Using Intensity-Stabilized Lasers

88-1-08.05

* O012 Auto-Aligned, Fourier Transform, Ultraviolet Spectrometer

88-1-08.12

* T028 GaAs Readout and Preprocessing Electronics for Two-Dimensional, Focal-Plane-Array, IR Astronomy

G012 Joule-Thomson Cryorefrigerator for Spaceborne Sensors and Stored Cryogens

* C054 A 4K Stirling Cryocooler Demonstration

89-1-08.12

E004 Efficient, Far-Infrared, Inductive Mesh Filters by Photoelectrochemical Etching

Automation and Robotics: End Effectors and Actuators

83-1-05.03

* B017 Six-Component, Robotic, Force-Torque Sensor

83-1-05.06

E011 Robotic Interface for Vernier Positioning

84-1-05.02

A075 Self-Aligning Electrical Connector

84-1-05.06

T005 Advanced Torque Converters for Robotics and Space Applications

85-1-05.02

* C001 Positioning Beam Rider Module for Articulated Robot Manipulator

85-1-05.03

* O006 Inflatable End Effectors

85-1-05.06

R017 Control Theory and End-Effector Laws Using an Advanced, Multiple Prehension Grip

- 86-1-13.13**
- * A089 Universal End-Effector with Torque Feedback for Hand Valves
- 87-1-05.03**
- * T032 Roller-Gear Drive Robotic Manipulators
- 87-1-13.04**
- S003 Human Envelope Manipulator
- 88-1-05.03**
- T032 Torque Balanced Drives for Space Station Applications
 - O006 Centerline Imaging System for End-Effector Tools
 - P013 Parallel Implementation of Algorithms for Robotic Sensory Fusion
 - * E018 A Parallel Processor for Simulating Manipulators and Mechanical Systems
 - G014 Composite, Six-Axis Force Sensor with Embedded Optical Sensors
 - A089 Cableless Power and Signal Transfer for Robot End Effector with Integrated Sensor System
 - A026 Lightweight, Permanent-Magnet Actuators and Manipulators
- 88-1-05.04**
- * I015 Robotic Testbed for Adaptive Grasping of Objects in Space
 - * E039 Robotic Adaptive Grasping with a Capacitance-Array Tactile Sensor System
- 89-1-05.03**
- I016 Telerobot Control Interface Based on Constraints
 - S010 High-Performance, Multiaxis Strain Sensing
 - P018 Integrated Ergonomic System for Software Development
- 89-1-05.04**
- B007 Glove Controller with Force and Tactile Feedback for Dexterous Robotic Hands
 - B005 A Robot Wrist Using New Mechanism Technology Invented for Whole-Arm Manipulation
- 89-1-05.07**
- U005 Robotic Actuator Optimization
- Automation and Robotics: Telepresence**
- 83-1-05.01**
- E001 Robot Vision Using Multiaperture Optics
 - A009 Three-Dimensional Viewing in Teleoperated Systems
- 84-1-05.01**
- M051 Remote, Teleoperator, Manual-Feedback Device with Gyrostatic Force Translation
- 85-1-05.01**
- B007 Fingertip-Shaped Touch Sensor for Teleoperator and Robotic Applications
- 86-1-05.03**
- M057 Computing Range and Three-Dimensional Structure of Rigid Objects Using Stereo and Motion
- Automation and Robotics: Telerobotic System Concepts**
- 86-1-05.01**
- T018 Dual-Arm Robotic Manipulator Control Based on Teleoperated Manipulation Methods
 - U001 Telerobotics and Artificial Intelligence: System Design Architecture
 - * A054 Prototype Holographic-Enhanced Remote Sensing System
 - A019 Three-Dimensional Vision Algorithm for Direct Transformation from Image Space to Robot Joint Space
 - A016 Large-Scale, Space-Based Compliant Manipulator
 - * R005 Proportional Proximity Sensor for Autonomous Space Based Robots
 - * R022 Computer-Controlled Telerobot Wrist Module
- 87-1-05.01**
- N007 Neural Network Controller for Adaptive Movements in Robots
 - * S021 Intelligent Manipulation Technique for Mobile, Multi-Branched Robotic Systems
 - B007 Tactile Telepresence System for Dexterous Telerobotics
- D004 Three-Dimensional Laser Imager**
- R018 Telerobot Collision and Obstacle Avoidance Based on Real-Time Proximity Sensors
- O004 Telepresence Sensor and Control Helmet
- * R022 Telerobot Hand
- * D018 Improvement of Range of Coherent Laser Radar
- D018 Integrated, Fiber-Optic-Coupled, Proximity Sensor for Robotic End Effectors and Tools
- * M031 Force Reflecting Hand Controller for Manipulator Teleoperation
- * T023 Telerobotic, Digital Controller System
- * O004 Control Algorithm for Redundant Degree-Of-Freedom Manipulators
- * T034 Telerobotic Rendezvous and Docking Vision System Architecture
- * K001 High-Performance, View-Generated Database for World Model Definition and Update
- 88-1-05.01**
- * N006 Neural-Network Path-Planning and Digital Adaptive Control of Redundant Robots
 - I017 A Perception System for Object Recognition, Acquisition, and Tracking in Cluttered Environments
 - S050 Reaction Compensation System for Microgravity Tele-Robots
 - * O004 End-Point-Collision-Avoidance Path Planner for Redundant DOF Manipulators
 - O004 Dual-Arm, Collision-Avoidance Algorithm
 - K001 A Single-View, Three-Dimensional-Object Recognition System
 - * T018 A Visual-Language, Telerobotic Operator Interface for Rapid Implementation of Autonomous Tasks
- 89-1-05.01**
- D018 Wavelength Diplexed, Fiber-Coupled, Coherent Laser Radar Measurement System
 - A048 Identifying, Locating, and Tracking Objects by Detecting Pre-Affixed Colored Targets
- 89-1-05.06**
- D026 A VLSI Three-Dimensional Processor for Advanced Robotic Manipulation
 - D026 A Precise, Force-Controlled Robotic System
 - K001 Global-Local Environment Telerobotic Simulator
- 89-1-05.08**
- T031 Tortuous-Path Robot Transport
 - F017 Self-Contained, Deployable, Serpentine Truss for Prelaunch Access of Orbiter Payloads
- 89-1-05.09**
- C042 Active Detection and Tracking Sensor for Passive Targets
 - A013 Advanced Telerobotic Concepts Using Neural Networks
- Biological Science Experiment Operations**
- 85-1-12.09**
- * M039 Variable-Speed, Mid-Deck Centrifuge
- 85-1-12.10**
- A037 On-Line Nutrient Analysis
- 87-1-12.07**
- * P027 Space-Rated Nutrient Delivery and Root Support System
 - O012 Cell Culture in Microgravity
- 88-1-08.25**
- S078 Detailed Visualization of Protein Crystal Growth
- 88-1-12.10**
- * A040 Remote Monitoring Indicators of Plant Stress
 - * G014 Optrode Development for Environmental Ph Monitoring
- 89-1-12.12**
- B015 Fiber Fluorometry for On-Line Chemical Analysis of Nutrient Solutions
 - G014 Trace Contaminant Vapor Monitors
 - A093 Remote Moisture Sensor to Control Irrigation of Plants in Space

Biota Life Support System Development

- 84-1-12.05**
 - * S066 An Animal Development Habitat for Space Biology
 - C001 Cellulose Conversion for CELSS
- 85-1-12.08**
 - * G015 A Direct, Metabolic Calorimetry System for Orbital Laboratories
 - * S066 Breeding Facilities for Rodents and Amphibians in Space
- 87-1-12.06**
 - G019 Accelerating Seed Germination and Plant Growth Through Manipulating of Atmospheric Pressure
 - D022 Modular ECLSS for a Mid-Deck Animal Habitat Testbed
- 88-1-12.08**
 - M039 Variable-G Facility for LIFESAT
 - N017 A New Method for Respiratory Monitoring During Space Flight
- 89-1-12.11**
 - S066 Automated Food Delivery to Rodents in Space

Chemical Vapor Deposition Process Modelling

- 86-1-15.06**
 - * C054 Numerical Modeling Tools for Chemical Vapor Deposition
- 88-1-15.03**
 - * N004 Chemical-Vapor-Deposition, Fluid-Flow-Simulation Modelling Tool
- 89-1-15.03**
 - C054 Numerical Modeling of Particle Formation and Growth During Chemical Vapor Deposition

Cometary Particle Sensing and Analysis

- 84-1-08.03**
 - * R023 Particulate Monitor for Comet and Planetary Atmospheres
- 86-1-08.15**
 - E004 Integrated MOS Chemical Sensors Utilizing Inorganic Insertion Compounds
- 89-1-04.12**
 - I001 Miniature, Thin-Film Deposition System

Commercial Space: Supporting Technology

- 84-1-15.05**
 - * A091 The Large Format Camera: Novel Analyses of Sensor Applications
- 85-1-15.02**
 - * R016 Three-Dimensional Electrophoresis Code
 - * B013 Liquid Carriers in Tissue Culture for Aeration
- 88-1-15.04**
 - C035 Low-Cost Space Power Generation

Communications: Advanced Satellite Technology

- 87-1-14.01**
 - A007 High-Speed Optoelectronic Switch
 - * L003 EHF (30 GHz), Reflection-Mode-FET, Solid-State Power Amplifier
 - M056 Programmable-Rate, Digital Modem Utilizing Digital Signal Processing Techniques Support Burst Modes
- 88-1-14.05**
 - * A045 Multi-User, Receiver-Demodulator Satellite Communication System
 - * H008 Quartz and Fused Silica Chip Carriers
- 88-1-14.08**
 - L003 Pulsed Solid-State Power Amplifiers for 30/20 GHz Satcom Terminal Uplink Transmitters
- 89-1-14.05**
 - S062 High-Indium-Content High Electron Mobility Transistors for RF Communications Devices
 - Q001 High-Instantaneous-Data-Rate, Burst-Signal Receiver

Communications: Deep Space

- 85-1-14.06**
 - * M046 Advanced On-Chip Divider for Monolithic, Microwave, Voltage-Controlled Oscillators
- 86-1-14.07**
 - * E001 High-Performance, Millimeter-Wave Microstrip Circulators and Isolators
- 88-1-14.04**
 - * P008 Linear and Bi-Phase Modulator for Integrated Circuits
- 89-1-14.04**
 - M046 Advanced Monolithic, Gallium Arsenide Receiver Front-End for Spacecraft Transponders

Communications: Ground Mobile Service

- 84-1-14.06**
 - T026 Low-Overhead, Error Protection for LPC+ Digitized Speech
- 85-1-14.05**
 - S064 Power- and Bandwidth-Efficient, Coded Modulation for Satellite-Based Communications
 - * T012 Trellis Coding with Continuous-Phase Modulation for Satellite-Based, Land-Mobile Communications
- 86-1-14.06**
 - P006 Mobile Radios for the Mobile Satellite Service
- 86-1-14.08**
 - P006 Collision-Resolution Algorithm for Request Channel Demand Assigned Network Protocols
- 87-1-14.02**
 - T010 CDMA System Capacity

Communications: Laser

- 84-1-14.04**
 - G011 Intersatellite, Optical-Communications, High-Power-Laser Transmitter
- 84-1-14.07**
 - * T023 Low-Power, Digital Controller for Laser Communications
- 85-1-14.10**
 - P029 Extremely Sensitive Receiver for Laser Communications
- 85-1-14.11**
 - * L009 Prototype Laser-Diode-Pumped, Solid-State Laser Transmitters
 - L006 High-Brightness Laser for Deep-Space Optical Communication
- 88-1-14.02**
 - * L004 Multi-Access, Free-Space Laser Communication
 - L009 Coherent Communication Link Using Diode-Pumped Lasers
- 89-1-14.02**
 - G006 High-Speed, Digital Data Transmission
 - P015 Surface-Acoustic-Wave, Spectral Limiter for Narrow-Band Interference Suppression
- 89-1-14.06**
 - L009 Efficient and Low-Timing-Jitter Pulsed Lasers for Space Communications

Communications: Manned Space Flight

- 83-1-14.03**
 - * S046 Enhanced Bidirectional Communication with Low-Cost Payloads
 - D024 Multiple Access Communication with Noise Cancellation
 - E001 Fiber-Optic Links for 30/20 GHz Satellite Communication Terminal
 - S053 Solid-State, Laser-Scanning Device
- 84-1-14.03**
 - * S065 Integrated System Testing for the Space Station Communication and Tracking System
- 86-1-14.03**
 - P034 Generalized Communications Models by Composition from Modules
 - * W006 Multi-User, Multi-Access, Wireless, IR Communication System

- 87-1-14.04**
T009 Switched Hemispherical Antenna
- 88-1-14.01**
S002 Hybrid Projection Coding for the CCSDS Standard
* S031 Integrated, Active-Antenna Module for Space Station Multiple-Access Communication
Q001 Multiple-Access Communication Hybrid Simulation
- 89-1-14.01**
S002 Power- and Bandwidth-Efficient Digital Communications
O013 An Electro-Optic Modulator for Laser Wavefront Correction and Positioning in Space
M046 Monolithic, Gallium-Arsenide, UHF-IF, Switch Matrix for Space Station Applications
- Communications: RF Components, Processing, and Switching**
- 83-1-14.01**
* L003 High-Frequency (30 GHz) Gallium-Arsenide Materials and Devices
- 83-1-14.02**
* M046 Advanced Monolithic Gallium-Arsenide Switch Matrix
- 84-1-14.01**
* M046 Advanced, Low-Cost, Universal, 20 GHz Monolithic Receiver Front-End
- 84-1-14.02**
* M046 Advanced, GaAs, Monolithic, 20 GHz, RF Switch Matrix
T017 Multi-User Programmable Modem
- 85-1-14.02**
S065 A Novel High-Speed Viterbi Decoder Design with Robust Attributes
- 86-1-14.01**
C021 High-Accuracy Characterization of Monolithic Millimeter-Wave Devices
* S067 Textured-Oxide Cathode Substrates
- Computer Science Advances in Computational Physics**
- 85-1-06.11**
* Z001 Systolic Ray Tracing Processor
- 86-1-06.12**
* M046 Advanced Low-Cost, High-Performance Optical Components for CD-ROM Applications
- 87-1-06.07**
M023 System to Create Models of Fluid Flow Phenomena
* T025 Digital Storage Medium Using Thin-Film Shape-Memory Alloy
- 88-1-06.07**
S083 Optical Drum for Space and Ground Applications
E037 A System Library Facility for Parallel Computers
- 89-1-06.06**
D014 Application of High-Performance Digital Video to Computer Storage
D019 A High-Resolution Autostereoscopic Display
D005 Program Mapping Strategies for Multiprocessor Computers
M046 Advanced Optical Head Technology
- 89-1-06.07**
M004 A Distributed, Object-Oriented, Data Facility for Local-Memory, Parallel Computers
- Computer Science: Automation of Technical Documentation**
- 86-1-07.11**
B021 Automation of Requirements Development Utilizing a Desk Top Computer
- Computer Science: CAD, Knowledge Systems, & CAD Integration**
- 86-1-06.05**
Q009 Knowledge-Based Process Control
- 86-1-06.07**
- C045 Knowledge Base Dictionary for Integration of Engineering and Operations Systems**
- 86-1-08.22**
W001 Integrated Computer-Aided Optical Instrument Design
T019 Sensor Computer Aided Design
- 87-1-06.03**
* I002 Fault-Tolerant, Distributed Intelligent Systems
* S076 A Development Framework for Distributed Artificial Intelligence
- 87-1-06.06**
* P037 CAD/CAE Knowledge-Base Development Tool
* C037 A Knowledge-Based Expert System to Coordinate CAD/CAE with Integration and Test
- 88-1-06.04**
E003 Knowledge-Based-Systems Technologies for Advanced Decision Support System
- 88-1-06.05**
S036 Design Knowledge Capture
- 89-1-06.04**
K003 Semi-Automatic Data Structure Selection
I002 Knowledge-Based, Aerospace Program-Management Decision-Support System
S061 Site-Specific, Air-Traffic-Control, Training Simulator with Speech Input and Output
- Computer Science: Data Base Storage and Networks**
- 83-1-06.07**
J002 Concurrency and Processing Distribution in Horizontally Microprogrammed Processors
- 83-1-07.02**
* C045 Ada Packages for Computer Access to Coordinate-Referenced Data
A033 A 10 to the 15th Bit Random Access Optical Memory for Spacecraft
- 85-1-07.10**
* D017 Communications for Distributed and Concurrent Processing on Microcomputers
- 86-1-07.01**
S077 Highly Survivable Orthogonal Mesh Network
- 86-1-07.06**
* G009 Control of Manual Entry Accuracy in Management and Engineering Information Systems
A054 Application of Expert Systems in Project Management Decision Aiding
F001 High-Level, Protocol-Oriented Network Monitoring
- 87-1-07.04**
* P039 High-Speed Packet Switching
- 87-1-07.06**
* A018 Viewcache: an Incremental Pointer-Based Access Method for Distributed Databases
- 88-1-07.06**
A031 An Interactive, Algorithm Design Tool for Embedded Multiprocessor Systems
S011 Magnetic Spindle Bearing for an Optical-Disk Buffer
- 88-1-07.10**
* H004 An Extensible Shell for Information Access in Heterogeneous Environments
- 89-1-07.04**
A091 Improved Accessing of Digital Data Bases by Geographic Information Systems
S054 Raster and Vector Data Integration, Interactive Edit and Analysis
- 89-1-07.08**
R003 A Distributed, Object-Type Management System for Heterogeneous Environments
- Computer Science: Engineering**
- 83-1-06.03**
I013 Engineering Workstations for Distributed Parameter Systems
- 84-1-06.03**
* F010 Floating-Point Computer Module for Array Processing on a Flex/32 Multicomputer
- 85-1-06.03**

- U006 A Fully Automated Structural Design Software System
 I011 Demonstration of the Relog Computer Concept Using Potential Flow
86-1-06.01
 * E037 Architectures for Dense Multi-Microprocessor Computers
86-1-06.03
 * A012 Accelerate an Existing IBM 3084 Object Code from Fortran 77
87-1-06.01
 C038 Asynchronous, Multilevel, Adaptive Methods for Partial Differential Equations on the Navier-Stokes Computer
89-1-06.01
 G008 The LAFS Kernel File System
 C038 Parallel, Multilevel, Adaptive Methods for Flows in Transition
- Computer Science: Expert Information Systems**
- 84-1-07.09**
 N003 Robust Natural Language Processor Transactional Dialogues
86-1-07.09
 * K002 A Generalized Strategy for Building Resident Database Interfaces
- Computer Science: Expert Project Management**
- 85-1-07.01**
 N011 Deductively Augmented, Management Decision Support System
85-1-07.11
 * I018 Expert Project Management System Generator
- Computer Science: Fault Tolerant Systems**
- 83-1-06.09**
 * S048 High-Speed, Self-Testing Microprocessor for Spacecraft Applications
85-1-06.08
 S065 Fault Processing Using Axiomatic, and Hypothetical Methods
86-1-06.11
 * S046 Error Detection and Correction Unit with Built-in, Self-Test Capability
86-1-13.02
 E037 Expert-System-Assisted, Logic-Flowgraph Method for Hardware-Software Interaction Analysis
- Computer Science: Graphics and Displays**
- 84-1-06.02**
 A037 Automated Object-Scan System for a Three-Dimensional CRT
 A067 Improved Visual Display of Three-Dimensional Information
84-1-06.04
 * L010 Advanced Simulation Graphics System
85-1-06.02
 A021 Real-Time Autostereoscopic Display
86-1-09.15
 P028 Metallo-Organic, CVD of Electroluminescent Films for Multicolor, Flat-Panel Displays
- Computer Science: Multiprocessors**
- 85-1-06.15**
 S047 Optimizing Compiler for Massively Parallel Processors
88-1-06.08
 * I012 VME Rollback Hardware Modules for Time Warp Multiprocessor Systems
- Computer Science: Software Engineering**
- 83-1-06.06**
 O005 Formal Verification of Mathematical Software
84-1-06.06
 O010 Software Engineering Support System
85-1-06.06
- * A030 Integrated Modeling Tool for Performance Engineering of Complex Computer Systems
86-1-06.04
 R008 Artificial Intelligence System Applying Reusable Software Components
 * S036 Knowledge-Based, Reusable, Software Synthesis System
86-1-07.08
 C046 Reverse Engineering for Information Systems
86-1-07.10
 * M002 An Expert-System-Based Software Sizing Tool
87-1-06.02
 D006 Automated Database Design Methodology
 A061 Structured Analysis and Generation of Requirements
88-1-06.02
 A003 Reusable Software Base Development - Source Code Tailoring
 * A030 Expert Assistant for Integrated Timing and Reliability Design Analysis
88-1-06.03
 * S036 Reliable Specification and Execution Tool for Ada Software
 S037 Enhanced Condition Tables for Verification of Fault-Tolerant Software
89-1-06.02
 I026 Three-Dimensional, Solid-State, Multi-Port Memory System
 S036 CASE Visualization System
89-1-06.03
 O005 Formal Verification of C with Unix
- Contamination Effects and Venting**
- 83-1-08.16**
 * A014 Automatic Contamination Evaluator for Optical Surfaces
 C034 Orbital Debris Monitor
85-1-08.16
 * S016 Contamination Return Flux
85-1-13.07
 R011 Induced Contamination Environment of the Space Station
 * S016 Space Station Contamination Modeling
86-1-08.09
 * M050 Single-Particle Contaminant-Sizing Spectrometer for Space Application
87-1-08.11
 * S004 Free-Space Particulate Contamination Sizing and Counting System
88-1-08.23
 S006 Diagnostic Contamination Measurements in Space
89-1-08.20
 S012 Time-of-Flight Mass Spectrometry Instruments for Monitoring Contaminants in Space
89-1-09.14
 R011 Integrated CAD Venting Analysis Package
89-1-11.06
 E032 Computer Simulation of Transient Operation of Small Bipropellant Engines
- Control Center Human Factors**
- 83-1-06.05**
 * A054 Oculometer and Automated Speech Interface System
84-1-06.05
 T007 Improvements in Man-Machine Allocation and Effectiveness for Control Centers
- Cryocoolers for Spaceborne and Ground-Based Sensors**
- 83-1-09.19**
 * A042 Long-Lifetime, Spaceborne Closed-Cycle Cryocooler
84-1-09.12
 * C054 A Reliable, Long-Lifetime, Closed-Cycle Cryocooler for Space

- 84-1-09.19**
 - * A042 A Helium-3/Helium-4 Dilution Cryocooler Operation in Zero Gravity
- 85-1-09.07**
 - * C054 An All-Metal, Compact, Heat Exchanger for Spaceborne Cryocoolers
- 86-1-08.03**
 - * A042 A Small, Single-Stage Orifice, Pulse-Tube Cryocooler Demonstration
- 86-1-09.19**
 - N019 Low Density, Activated Carbon-Carbon Composite Cryogen Containment System
- 87-1-08.12**
 - * A008 Three-Stage, Linear, Split-Stirling Cryocooler with a 1K to 2K Magnetic Cold Stage
- 88-1-08.14**
 - H011 Reversible, Oxide Chemical Compressor for Sensor Cryocooling
- 89-1-09.12**
 - T024 Sintered Powder, Artery-Free Wicks for Low-Temperature Heat Pipes
 - F017 Heat Pump for Space Thermal Bus
 - S069 A High-Efficiency, Low-Vibration, Long-Life, Stirling Cryogenic Pre-Cooler
 - C054 Magnetic Bearings for Miniature, High-Speed Turbomachines

Cryogenic Fluid Systems Technology for Spacecraft

- 84-1-11.03**
 - * G012 Temperature Sensitive, Variable-Area Joule-Thomson Expansion Nozzles
- 88-1-08.15**
 - P009 Ultrasonic Transducers: Deployment and Signal Processing Means for Cryofluids
- 88-1-08.24**
 - * S012 Autonomous Leak Detector for Orbiting Spacecraft
- 89-1-08.22**
 - P009 Cryogenic, Ultrasonic, Mass Flowmeter and Quality Meter
- 89-1-11.03**
 - A042 Ortho-Para Conversion in Space-Based Hydrogen Dewar Systems

Earth Atmosphere Sensors: Aerosols and Clouds

- 84-1-08.12**
 - * S007 Analysis of Atmospheric Aerosols with -0.3 Micrometer Spacial Resolution
- 85-1-08.12**
 - A025 In-Situ Characterization of the Size and Composition of Atmospheric Aerosols
- 86-1-08.07**
 - * F005 High-Sensitivity Particle and Gas Instrument Using the Acoustic-Wave Piezoelectric Crystal
 - E007 Using CCCSEM Cluster and Fractal Analysis Techniques to Characterize Atmospheric Aerosols
- 87-1-08.09**
 - * S019 Automatic Scanning Lidar System to Map Upper Tropospheric Aerosols and Cloud
- 88-1-08.04**
 - * Q003 Improved Pulsed-Discharge TE Laser
- 89-1-08.04**
 - S014 Novel Cobalt-Doped, Magnesium-Fluoride Lidar Aerosol Profiler

Earth Sensing: Climate

- 85-1-08.04**
 - * C015 A Cryogenic, Absolute Radiometer for Earth Radiation Sensing
 - * A064 Logistic Regression Model for Satellite Rainfall Retrieval
 - * S045 Nonscanning Climate Sensor
- 86-1-08.02**
 - * L009 Short-Pulse, High-Power Infrared Laser
 - T008 Cavity Radiometer for Earth Albedo Measurements
 - * A064 Radar and Microwave Link Techniques for Satellite Rainfall Algorithm Development

87-1-08.02

- * A045 Monolithic GaAs Digitizer for Space-Based, Laser-Altimeter, Pulse-Spreading Effect
- O009 Low-Cost Doppler Micro-Radar Rain Gauge
- R006 High-Sensitivity, Active, Cavity Radiometer
- 88-1-08.02**
 - S023 A Compact, Optical, Rain Droplet Distrometer for Unattended Field Operation
 - * S015 Diode-Pumped Laser Altimeter
 - * F002 Rain-Rate Instrument for Deployment at Sea
 - * T021 Improved Cavity Radiometer for Radiance Measurement
- 89-1-08.02**
 - S045 Cloud Top Radiometer
 - S012 Very-Large-Scale-Integration Time Interval Units
 - I019 A Stochastic Rain Model and Its Application in Rain-Rate Estimation
 - Q005 Diode-Pumped, Short-Pulse Laser for Ranging and Altimetry

Earth Sensing: Environmental Sciences

- 83-1-08.04**
 - * N011 Satellite Microwave-Sounder-Based Atlantic Cyclone Forecasts
- 84-1-08.06**
 - * P040 Space-Qualifiable, Carbon-Dioxide Laser System
- 84-1-08.11**
 - * L007 Widely Tunable Gas Laser for Remote Sensing of Stratosphere
- 86-1-08.28**
 - A010 An Expert System for Particle Analysis
- 89-1-08.09**
 - M049 A Broadband, Multichannel, Precipitation Sensor
 - I026 Space-Sensor, Common-Module Electronics

Earth Sensing: Geology

- 86-1-08.26**
 - * D004 Portable Infrared Emission Spectrometer
- 87-1-08.06**
 - * D004 Portable, Multispectral, Thermal Infrared Camera
 - N018 Imaging Altimeter Using Imaging Doppler Interferometry
- 88-1-08.08**
 - D004 Feasibility of Modifying a Thermal Scanner to Measure Lava Flow Characteristics
 - C036 Tunable, BBO-AgGaSe₂, Optical Parametric Oscillator System
- 89-1-08.17**
 - I020 Dual K and C Band Transponder for Satellite Altimetric Calibration

Earth Sensing: Global Biology

- 84-1-12.06**
 - G020 Radon Property Detection System for Global Biologic Studies
- * A037 An Open-Path-Diode-Laser Flux Meter for Trace Gases of Biogenic Origin
- 86-1-08.29**
 - * D004 Airborne Multispectral Scanner to Measure Characteristics of Fires
- 87-1-08.04**
 - A037 Ruby Crystal, Chlorophyll Fluorometer for Measurements of Photosynthesis Rates

Earth Sensing: Oceanographic Instruments

- 83-1-08.15**
 - S025 Towed Sensor for Sea Water Nutrient Analysis
- * D004 Airborne Multispectral Scanner to Measure Ocean Biomass
- * B014 Moored Oceanographic Spectroradiometer
- 84-1-08.15**
 - * B014 Measurement of Chlorophyll Related Pigments and Productivity in the Sea
 - * O009 Measurement of the Liquid Water and Ice Water Contents of Snow
- 87-1-08.05**

- E008 Software Package to Compute the Incoming and Net Solar Irradiance at the Surface from GOES VISSR Data
88-1-08.09
 B014 Towable, Advanced, Bio-Optical Sensor System
- Exobiology Flight Experiment Instrumentation**
- 87-1-08.13**
 * C026 Microanalytical Characterization of Biogenic Components in Interplanetary Dust
88-1-08.10
 * P002 Ion-Mobility Sensing of Extraterrestrial Volatiles from a Gas Chromatograph
89-1-08.10
 A029 Miniature, Biogenic-Element Analyzer
- Extraterrestrial Intelligence: Search for**
- 86-1-07.14**
 * S034 SETI Signal Detector
87-1-07.09
 S034 SETI CW Signal Detector
- High-Altitude Balloon Technology**
- 86-1-04.13**
 W007 Stress Analysis of an Ascending Balloon
 F017 Ordered Polymer Films for Scientific Research Balloons
87-1-04.11
 F017 Reduced-Weight Gondolas for Stratospheric Balloons
 P003 Lightweight, Advanced Composite Gondola for Stratospheric Balloons
88-1-09.13
 G014 Fiber-Optic Sensor Technology for High-Altitude Balloons
89-1-09.06
 W007 Automated Seal-Flaw Detection
- Imaging Systems: Data Compression and Analysis**
- 84-1-07.04**
 * Q001 Focal-Plane Processing of Visual Information
85-1-07.04
 * O004 Adaptive, Focal Plane Processor for Image Enhancement
86-1-07.02
 * O004 An Integrated Laser Ranger and Camera System
86-1-07.04
 * R004 Parallel Image Compression
86-1-07.07
 M040 Portable, Low-Cost, Image Processing Prototype for Use by Individual Scientists
 * O004 Advanced Object Color Identifier System
87-1-07.01
 * T018 Electro-Optical Pan, Tilt, and Zoom: A Miniature Viewing System
 * M045 Hardware for Parallel, Asynchronous, Focal-Plane Image Processing
87-1-07.08
 C049 Symbolic Imagery Management System
87-1-08.17
 P017 High-Resolution, Multi- CCD TDI Camera System
88-1-07.01
 * O004 A Knowledge-Based Imaging System
88-1-07.02
 V003 Polarimetry-Based SAR-Shape from Shading Terrain Reconstruction
 N006 Adaptive Image Encoding and Classification Using Neural Networks
 M057 A Neural Network Approach for Unsupervised Image Classification
89-1-07.01
 O011 A Programmable, Image-Data Compression Subsystem for Workstations
- 89-1-07.02**
 O011 A Hybrid Simulation System for Image Data Compression
 V003 HIRIS-Oriented Visualization Software System
- Instrumentation: Ground Test Facilities**
- 83-1-13.12**
 * S055 Automatic Fire Detection Systems for Large Facilities
84-1-13.12
 A080 High-Speed Pneumatic Valve
86-1-13.01
 * I007 High-Speed, Infrared Fiber-Optic Thermometer and Spectrometer
88-1-13.08
 * S056 Conducting Organic Polymer Environmental Sensor
89-1-13.06
 A037 Temperature and Shock-Position Sensor for High-Pressure, Oxygen Systems
- Launch Vehicle Ground Operations and Flight Environment**
- 83-1-13.01**
 S056 Hydrogen-Oxygen Concentration Monitor
84-1-13.03
 C017 Hydrogen-Oxygen Monitoring Device
84-1-13.05
 * R001 Forecasting Sea Breeze Thunderstorms Using a Mesoscale Numerical Model
84-1-13.08
 * R011 Space Flight Gas Temperature Probe
 R011 Nonadiabatic Compartment Venting Heating
85-1-13.01
 A057 Two-Phase Flowmeter
 * G003 Colorimetric Personnel Monitoring Badge for Hydrazines
85-1-13.05
 * W003 Solid-State Instrumentation for Electric Field Detection of Lightning Potential
85-1-13.06
 * M028 A Membrane Process for Scrubbing Propellant Vapors
 * H011 Capture and Reliquefaction of Hydrogen Boiloff At Shuttle Launch Site
85-1-13.08
 * R011 Aerodynamic Heating Upgrade of the Parabolized Navier-Stokes Code
86-1-13.04
 * E001 Microminiature Electro-Optic Switching Matrix Module
86-1-13.06
 T030 An Improved Toxic-Vapor Detector for Hydrazine, Monomethylhydrazine, and Hydrochloride
 * S056 Hydrogen Laser Monitoring System
86-1-13.07
 M003 A Mesoscale, Numerical, Weather Forecast System for Use in Shuttle Operations
87-1-13.01
 L006 Fiber Sensors for High Temperatures and Pressures
 F005 Continuous Detection of Toxic Vapors Using a Field-Domain Ion-Mobility Spectrometer
 S056 Surface Organic Contamination Sensor
87-1-13.02
 E001 Microwave Fiber-Optic Link for Satellite Communications and Antenna Remoting
 * A058 Wireless Headset Network
87-1-13.08
 * E006 Kennedy Space Center Atmospheric Boundary Layer Experiment
88-1-02.06
 * S027 Model Development for Exhaust-Plume Effects on Launch-Stand Design
88-1-13.01
 T030 Energy-Modulated Toxic Vapor Detector

- * E004 Real-Time Hydrazine Monitoring with Surface-Enhanced Raman Spectroscopy
 - 88-1-13.02**
 - * M013 Improved System for SCAPE Suit Heating
 - M038 An Improved Quick-Disconnect for Aerospace Fluid Systems
 - 88-1-13.03**
 - * M003 A Mesoscale, Statistical Thunderstorm Prediction System
 - E013 Triggering of Lightning by Launch Vehicles During Ascent
 - 88-1-13.06**
 - S005 Air-Mass Measurement Indicator for Portable, Liquid-Air Dewar
 - 89-1-13.01**
 - F005 A Real-Time, Particle Fall-Out Monitor
 - 89-1-13.02**
 - T002 A Repair Coating for Cryogenic Transfer Lines
 - 89-1-13.03**
 - E006 Meteorological Monitoring System
 - O009 A Novel Laser System for Forecasting and Mitigating Lightning Strikes
 - F002 Instrumented-Rocket Wind Profiler
 - 89-1-13.04**
 - A039 Supercritical, Cryogenic, Self-Contained Breathing Apparatus
- Lunar Materials Utilization**
- 84-1-15.04**
 - C018 Aspen Simulations--Lunar Production Facility
 - * C018 Lunar Oxygen Production from Ilmenite
 - 85-1-04.13**
 - * E005 Dry Extraction of Silicon and Aluminum from Lunar Ores
 - 86-1-04.12**
 - * E019 Electrochemical Generation of Useful Chemical Species from Lunar Materials
 - 87-1-04.12**
 - A023 Electrostatic Fractionation of Natural and Processed Lunar Solids in Space
 - 88-1-04.11**
 - E038 Magnetic Beneficiation of Lunar Soil
 - * P007 Production of Oxygen and Other Products by Pyrolysis of Lunar Materials
 - 89-1-04.18**
 - C048 Feasibility Study for Lunar Cement Production
 - E005 Production of Oxygen by Electrolysis of Lunar Soil in Molten Salt
- Manned Space Flight: EVA Systems**
- 88-1-12.07**
 - T034 Spacesuit Glove-Liner with Enhanced Thermal Properties for Improved Comfort
 - 89-1-12.07**
 - S010 Using Robots in the Testing of NASA EVA Space Suits
 - B010 Membrane-Based, High-Pressure Gas-Dehydration Module
- Manned Space Flight: Environmental Control and Life Support**
- 83-1-12.01**
 - * B010 Novel Reverse-Osmosis Module for Spacecraft Washwater Recycle
 - 84-1-12.01**
 - S063 Anti-Bacterial Agent for Water Post-Treatment Sorbent Beds
 - * B010 A Novel Membrane-Based Water Reclamation Post-Treatment Unit
 - * A078 Reagentless Water Quality Monitor (Organic Content)
 - 85-1-12.01**
 - B010 Energy-Efficient Subsystems for Treating Urine and Concentrated Wastewater
 - M028 Removal of Carbon Dioxide from Spacecraft Atmosphere by Selective Membranes
- 85-1-12.07**
 - * P027 Optimizing Atmospheres for Space Life Support Systems
 - 86-1-12.01**
 - * U004 Space Station, Hygiene Water, Prefilter Device
 - * P016 Photocatalytic Purification and Sterilization of Water Derived from Recycled Distillates
 - C032 Super-Sensitive Atmospheric Sensors
 - 87-1-08.10**
 - * I026 On-Focal-Plane Signal Processing for Atmospheric Measurements
 - * V005 An Advanced, Tandem Mass Spectrometer for Spacecraft
 - M055 Automated Atmospheric Analysis for Manned Space Missions
 - 87-1-12.01**
 - A074 Oxygen Extraction from Mars for Advanced Mission Life-Support and Power
 - * A007 Extravehicular-Mobility-Unit, Helmet-Mounted Display
 - * E004 A Variable-Transmittance, Electrochromic Space Suit Visor
 - * S001 Zero-Gravity Phase Separation
 - O001 Water Quality Monitor
 - T034 Space Suit Thermal Control Using Non-Toxic, Microencapsulated-PCM, Two-Phase Fluids
 - 87-1-12.02**
 - * U004 Bio-Catalytic Reactors for Removal of Volatile Contaminants
 - 88-1-08.22**
 - * S056 Trace, Atmospheric, Carbon-Monoxide Sensor
 - 88-1-12.02**
 - * U004 Catalytic Methods Using Molecular Oxygen Treatment of PMMS and ECLSS Waste Streams
 - S033 Organic Removal Module for Ultra-Pure Water Recycle Systems
 - 88-1-12.03**
 - * B010 Liquid-Sorbent/Membrane-Contactor Subsystem for CO₂ Removal
 - 88-1-12.04**
 - * A066 A Diet Expert Subsystem Program for the Controlled Ecological Life Support System
 - 89-1-12.02**
 - U004 A Reagentless Separator for Removal of Inorganic Carbon from Solution
 - R013 Thin Membrane Sensors
 - A015 Incipient Combustion Monitor for Zero-Gravity Environments
 - 89-1-12.03**
 - U004 Electrochemical Water Recovery Process for Direct Removal of Impurities
 - L011 Solid-Polymer, Electrolyte-Based Electrolyzers for Water Reclamation Post-Treatment
 - 89-1-12.09**
 - C031 Chemical Sensor System for the Identification of Organic Compounds in Water
- Manned Space Flight: Food Systems**
- 84-1-12.04**
 - * P027 In-Flight Acquisition of Engineering Data for Plant Growth
 - 89-1-12.04**
 - F016 Methodologies for Processing Plant Materials into Acceptable Food on a Small Scale
- Manned Space Flight: Human Factors**
- 85-1-12.03**
 - S024 Application of a Handheld Force Analyzer to Human Factor Measurements in Space
 - * G004 K-Base: a Hybrid Analogical-Semantic Modeler for Computer-Aided Design
 - 86-1-12.03**
 - * S029 Sensor Frame Graphic Manipulator
 - C019 Function Allocation Decision Aid
 - 87-1-12.04**
 - P014 Kinematic Data Gathering System for Determining Human Motion in Zero Gravity

- 88-1-12.05**
- T034 Vibration Isolation of Exercise Treadmill in Microgravity
 - D020 Applications of an Automatic Inventory and Personnel Tracking System
- 89-1-12.05**
- F011 Performance of Groups in Extreme Environments: a Meta-Analytic Integration
 - C033 Capturing Space Crew Representations of Control Systems with Multidimensional Scaling
 - M007 Optimal Workspace Design
- Manned Space Flight: Intra-Vehicular Equipment**
- 85-1-12.05**
- J006 Trash Compactor Development: Space Station
- 86-1-12.04**
- A036 A Microgravity Film Processor
- 87-1-12.05**
- C001 High-Resolution Electronic Photography
 - U004 Space Laundry Cleansing Agent and Filter Development
- 88-1-12.06**
- * U004 Single-Phase Space Laundry
 - D018 A Multiple-Read, SAW-Tag Inventory System
- 89-1-12.06**
- A073 Automation of Stowage
 - P017 Charge-Coupled Device Sensors for Electronic Still Photography
- Manned Space Flight: Medical Sciences**
- 83-1-12.02**
- * R005 Portable Nuclear Cardiology Ejection Fraction Monitor
 - * O003 New Fiber Fluorescence Immunoassay
 - B012 Rapid Paper Test for Microbial Pathogen Determination
- 84-1-12.02**
- E033 Space Adaptation
 - * P027 Tissue Fixation Apparatus for Flight Experimentation
- 85-1-12.02**
- A002 Piezoelectric Sensor and Microprocessor Array to Measure B/P in Astronauts
 - T034 System Constitution and Intravenous Administration of Fluids in Microgravity
 - * B016 Continuous Noninvasive Determination of Ventricular Parameters
- 86-1-12.02**
- E033 Relevance of Visual Accommodation for Performance in Spacecraft
 - M037 Rapid Diagnosis of Bacterial Infectious Diseases Under Microgravity Conditions
- 87-1-12.03**
- A087 Medical Microbiology Test Station for Microgravity
 - * A083 Red Blood Cell Measurements Using Resonance Ionization Spectroscopy
- 88-1-12.01**
- G015 A Whole-Body Calorimeter for Space Station Astronauts
 - * U004 Regenerable Biocide Delivery Unit
 - * B013 Liquid Membrane Emulsions in Cell Culture
- 89-1-12.01**
- R005 Solid-State Neutron Dosimeter for Space Applications
 - E009 Selective Enrichment of Stable Calcium Isotopes Using Laser Techniques
 - I023 Transdermal Drug Delivery System for Application in Space Flight
- 89-1-12.08**
- U004 Thermally Desorbable Toxin and Odor Control Cartridge
 - N008 Device for Sample Collection and Rapid Immunological Identification of Biological Specimens
- 89-1-12.14**
- N020 Anatomical Image Analysis Techniques

Manned Space Flight: Refrigeration Systems

- 84-1-09.11**
- E022 Active Refrigeration and Heat-Pump Thermal Control of Spacecraft
- 85-1-09.06**
- G012 Spacecraft Stirling Refrigerator

Manned Space Systems: Mission Planning and Control Software

- 85-1-06.04**
- * A054 An Eye-Brain-Task Testbed
 - A076 C-Based Expert System Shell for Real-Time Applications
- 86-1-06.06**
- * N006 Space Transportation Analysis and Intelligent Space Systems
 - * S061 Phoneme-Based, Speech-Recognition System for High-Stress, Moderate-Noise Environments
- 87-1-06.05**
- O008 Clips--Vbase Feasibility Study
 - * G018 Intelligent Evaluation System for Simulator Training
- 88-1-06.06**
- * L010 An Integrated Graphics and On-Orbit Vehicle Dynamics Simulation
 - * M018 The Parametric-Avalanche, Control-Module Prototype Cognitive Neurocomputer
- 89-1-06.05**
- T027 Fuzzy-Clips Expert System
 - S036 Passive Knowledge Acquisition System
 - A077 Knowledge Networks for Mission Planning and Flight Control

Materials Processing in Microgravity

- 84-1-15.01**
- * S078 Color Schlieren System for Large-Scale, Low-Gravity MPS Fluids Experiments
- 84-1-15.03**
- * E023 Ultrafine Particle and Fiber Production in Micro-Gravity
- 85-1-15.01**
- E014 Molecular Beam Epitaxy of HgCdTe in Space
 - R019 Spontaneous Resolution of Organic Compounds in Space
- 85-1-15.03**
- * P025 Multicolor, Imaging Pyrometer for Materials Processing in Space
- 86-1-15.01**
- P033 An Extreme-Temperature, Ultraclean, Radiant Furnace
 - P027 A Bioreactor for Screening and Production of High-Value, Secondary Plant Metabolites
 - P038 Supercritical Fluid Solvent System for Solid-Phase Peptide Synthesis
- 86-1-15.02**
- * M017 Fine-Grained, Nickel-Aluminide Alloy with Improved Formability Made via Rapid Solidification
- 87-1-15.01**
- H001 Effect of Gravity on Foam Decay
 - * H001 A New Method for the Measurement of Surface Tension
 - C058 Miniaturized Fiber-Pulling Apparatus for Producing Single-Crystal-Core Glass Fibers in Microgravity
 - E012 Temperature Measurement by Noncontact Method for Czochralski-Type Crystal Growth
 - * S011 Active Magnetic Micro-Gravity Isolator for Space Station
 - * A070 Digital Active Materials Processing Platform Effort
- 88-1-15.01**
- B020 Physical Vapor Transport and Crystal Growth of Tellurium: a Novel Acousto-Optic Material
 - * M043 Growth of InGaAs, Bulk Ternary Crystals by Liquid-Phase Electroepitaxy
 - * S021 Autonomous, Magnetic Float-Zone, Microgravity Crystal Growth for TiC and GaAs
 - * O014 Microgravity Sonic Pump Levitator Furnace

- 89-1-15.01**
- M044 Permanent Magnet Flight Furnace
 - I022 Stabilized Electromagnetic Levitator
- Materials: Composites for Aerospace Propulsion and Power**
- 83-1-04.01**
- T009 New Titanium Alloy
 - F006 Oxidation-Resistant Coatings for High-Strength Carbon/Carbon Composites
 - * M020 Magnesium Composite Material for Advanced Rotary Aircraft Engines
 - P022 Electrohydrodynamic Synthesis of Silicon-Nitride, Ultrafine Powders and Coatings
- 84-1-04.01**
- D003 High-Temperature, Aluminum-Bronze Matrix Composites
- 84-1-04.05**
- * F006 Ceramic-Fiber and Ceramic-Matrix Composites
- 85-1-04.01**
- M017 Refractory-Metal Fibers Directly Cast from Melt
 - * M033 High-Strength, Refractory-Metal Fibers
 - * M022 A ZrO₂-Toughened, SiC-Whisker-Reinforced, Alumina Composite
- 86-1-04.01**
- C010 High-Temperature SiC Continuous Fibers
 - S075 Fracture-Toughened Ceramics for Rolling Element Bearings
 - A089 Robotic Winding in a Plasma-Spray, High-Temperature, Vacuum Environment
- 87-1-04.01**
- * G014 Embedded Fiber-Optic Sensors for Polymer-Matrix-Composite Process Monitoring
 - I004 Micromechanic Model for Prediction of Failure Modes in Ceramic Matrix Composites
 - S062 Oxidation Resistant Ti-6Al-4V-SiC Composite Materials
- 88-1-04.01**
- A034 Improved CVD for SiC Fibers
 - A027 Software System for Predicting Engineering Properties of Polymer Matrix Resins
- 88-1-04.02**
- T013 Continuous On-Board Non-Destructive Monitoring of Degradation of Fiber Composites
- 89-1-04.01**
- G021 Soluble, Conducting Polymer-Based Conductive Coatings
 - M022 A Coated, Titanium Boride, Whisker-Toughened, Silicon-Carbide Matrix Composite
 - F017 High-Temperature-Film-Based Polybenzoxazole/Polymide Microcomposite for Turbine Engines
- Materials: High-Temperature Alloys & Metal Matrix Composites**
- 88-1-04.12**
- * P012 Laser Float-Zone Process Improvements
 - W002 Sintering of Advanced Ceramic Materials with a Tuneable Microwave Cavity
- 89-1-04.04**
- U002 CVD Chromium-Diboride Fibers for Metal Matrix Composites
 - C052 Microstructurally Toughened, Intermetallic Matrix Composites
 - R015 Rapidly Solidified, Narrow, Titanium-Aluminide Strip
- Materials: Launch Site Facilities**
- 84-1-04.12**
- D023 Protecting Steel Structures with Polymers that Expand when Cured
- 87-1-04.07**
- * S063 Specialized Floor Coverings for Launch Site Facilities
- Materials: Special Purpose for Spacecraft**
- 86-1-04.07**
- T009 ODS Solder
- 87-1-04.06**
- C035 Polymer with Biaxial Strength for Pyroelectric Applications
- 88-1-04.06**
- U002 Hydrogen Collectors for Space Flight Applications
- 88-1-04.07**
- * B018 Fabrication and Thermal Cycle Testing of Long-Life Radiator Coatings
 - T029 Titanium-Carbide Used to Protect Carbon Composites
 - E035 Evaluation of Several New Perfluoropolyether Copolymers Containing Tetrafluoroethylene Oxide
 - M048 Erosion- and Oxidation-Resistant Protective Coating for Polyimide Sheeting
- 89-1-04.11**
- F004 A Composite Material Flywheel for Energy Storage
 - C017 Improved Electro-Rheological Fluids for Lubricant Viscosity Control
 - E035 New Perfluoropolyether Elastomers for Low- and High-Temperatures
- Materials: Structural Composites**
- 83-1-04.03**
- * M021 Predicting Thermo-Mechanical Responses of Metal Matrix Composites
 - * Q008 Low-Cost Tooling Material and Process for Graphite and Kevlar Composites
- 83-1-04.07**
- A056 Prediction of Ultimate Strength of Composite, Curved, Frame Members
- 84-1-04.03**
- F006 Four-Dimensional, Impact Resistant, and Damage Tolerant Composites
 - M021 Woven-Reinforcement Constructions for Composites
- 84-1-04.07**
- M020 Hot-Pressed, Gr-Al Composites for Low-CTE Fittings
 - C052 Fabrication of Precision Wires from Ion-Plated, Aluminum-Graphite Composite Tape
- 85-1-04.03**
- * M008 Improved Fracture Toughness in Metal-Matrix Composites
 - * F017 High Performance LaRC-TPI Film
 - * P004 Surface Chemical Modification of Graphite Filaments to Improve Graphite-Thermoplastic Composites
- 86-1-04.02**
- P003 A Controlled-Interfacial-Bond-Strength Process for Carbon-Phenolic and Carbon-Carbon Composites
 - * F017 In-Situ Fiber-Optic Sensor for FTIR Monitoring of Composite-Cure Cycles
- 87-1-04.02**
- * F017 Semicrystalline Thermoplastic Films for Aerospace Structures
 - A041 Controlled-Density, Composite Carbide Structural Ceramics
 - T020 Composite Structures with Enhanced Damage Tolerance
- 88-1-04.03**
- D002 Thermal Control Coatings for Composite Structures
 - M024 Thermally Stable, Low-Dielectric Films for Aerospace Applications
 - * F017 High-Shear, Rotary Die for Thermoplastics Prepregging
- 89-1-04.03**
- F017 LaRC-TPI and Liquid Crystal Polymer Blends
 - T020 Multi-Angular Weaving Composite Preforms
 - H006 Methods for Producing Fine-Particle, Thermoplastic Polyimide Sulfone Powder

Materials: Structural Metals for Aerospace

Applications

- 86-1-04.03**
 - * F003 Nonequilibrium Phase Chemistry in High-Temperature Structural Alloys
 - T009 RS ODS Titanium-Molybdenum Alloy
- 87-1-04.03**
 - * U002 High-Temperature Turbine Blades
 - M008 Chemical Vapor Deposition of TiAl Foils
 - U007 Response of Rapidly Solidified Titanium Alloys to Thermochemical Treatment
- 88-1-04.04**
 - M008 Synthesis of High-Purity, Refractory Beryllides
- 89-1-04.09**
 - R015 Process Control for Melt-Overflow, Rapid Solidification Technology
- 89-1-04.15**
 - M022 A Whisker-Reinforced High-Temperature Structural Insulation
 - S011 Direct Measurement of Bolt Tension Utilizing Magnetostriction
 - A022 Protective Coatings for Components Used in Space

Materials: Thermal Protection Insulation

- 83-1-04.05**
 - * A046 Composite Thermal Protection Material
- 85-1-04.05**
 - * M032 Light-Weight Alumina-Aluminosilicate Thermal Protection Materials

Microgravity Science and Engineering

- 83-1-15.02**
 - M016 Mixed-Convection Heat Transfer from a Sphere
 - F019 Spectral Methods in the Solution of Multi-Dimensional Diffusion Problems
- 86-1-15.04**
 - F013 The Synthetic Production of Large Single Crystals
- 86-1-15.07**
 - X001 Conversion of Carbon Monoxide and Carbon Dioxide to Methane in a Gravity-Free Environment
- 86-1-15.08**
 - P011 Microgravity Accelerometer Package for Spaceflight Applications
- 87-1-15.03**
 - C025 Computational Methodologies for Convection-Diffusion Phase-Change Problems
- 88-1-15.02**
 - * F014 Numerical Simulation of Crystal Growth Processes
- 89-1-15.02**
 - S043 Combustion Diagnostics for Microgravity Research Using Near-Infrared Diode Lasers
 - S015 Space-Qualified Laser for Microgravity Experiments
 - B020 Novel in Situ Technique to Visualize Convection on Solid-Liquid Interfaces

NDE: Launch Readiness Verification

- 83-1-13.02**
 - * S058 Non-Destructive Inspection Techniques for Multi-Layer and Foam Insulations
 - * E033 Refinements for Eddy Current Techniques
- 84-1-13.02**
 - A072 Computer Software for Signal Processing for Multiple Mixed Transducers
- 86-1-13.08**
 - E021 Non-Flight Equipment Removal Verification Employing IR
 - * A005 Instrumented Torque Wrench Systems
- 86-1-13.11**
 - B011 Portable, Digital, Imaging-Detector System

NDE: Techniques for Characterization of Aerospace Materials

- 83-1-04.10**
 - S059 Quantitative Holographic Imaging

84-1-04.10

- * I005 Ultrasonic Correlator for Nondestructive Characterization of Materials

85-1-04.10

- * A029 Quantitative Experimental Stress Tomography Laboratory System

86-1-04.11

- B020 Failure Prediction by a Novel Non-Destructive X-Ray Technique

87-1-13.07

- * M026 Double-Pulsed CCD, Phase-Sampled, Laser-Speckle Interferometric Metrology for NDT/E
- * Q002 Thermoelectric Instrumentation for Characterization of Precipitation-Hardening Alloys

88-1-04.09

- * B011 Differential-Phase, Acoustic Microscopy for Micro-NDE
- * A029 Dual-Energy Detector Package for Advanced Structures

88-1-13.04

- S062 Thermal-Tile-Bond Inspection by Gamma Ray Scattering

89-1-04.06

- S080 Digital, Optical Phase-Lock-Loop for Non-Destructive Evaluation
- I009 Aircraft Health Monitoring System

89-1-15.05

- T013 Automatic Fault-Detection and Failure-Prediction for Spacecraft Systems

NDE: VLSI Testing and Evaluation

85-1-06.16

- C012 VLSI-State Test Machine

86-1-06.13

- B017 A VLSI Digital Tester Using a Single Custom Chip per Individual Pin

89-1-13.07

- A029 Automated Assessment of VLSI Circuits for Radiation Hardness and Reliability

Rarefied Gas Dynamics and Vacuum Plumes

84-1-02.04

- V001 Nonequilibrium Flows and Catalytic Surfaces on Spacecraft Reentry

85-1-02.03

- * P025 Spacecraft Thermal-Energy-Accommodation from Atomic Recombination

86-1-02.08

- * R011 Navier-Stokes Computations of the Near-Wake, Hypersonic, Rarefied Flow on a Blunt AOTV Body

87-1-02.07

- * R011 Rarefied-Gas, Aerodynamic Bridging Procedures

87-1-02.08

- G005 Numerical Modeling of Fully Viscous, Rocket Plume Flows

- * R011 Vacuum Plume Impingement Evaluator

- E032 Direct Simulation Monte Carlo of Vacuum Plumes

88-1-02.07

- R011 Effects of Charge Separation in Hypersonic, Ionized Flows

89-1-02.05

- R011 Coupling of Unsteady Fluid Dynamics and Structures in Low-Density, High-Speed Flows

STS Tracking Systems: Station-Keeping, Rendezvous, & Docking

84-1-09.13

- * O004 Handheld Optical Radar

86-1-09.16

- * E001 Tunable Laser Diode and Optical Phase-Locked Loop

*** T031**

- Tracking System Applications of an Exponential Sensor Array System

- 87-1-09.07**
- * A092 Hierarchical, Three-Dimensional and Doppler Imaging CO₂ Lidar with Programmable Fovea and Peripheral Vision
 - * A065 Laser Orientation Transceiver System
- 88-1-09.08**
- * T006 Worldwide, Differential GPS, Space Shuttle Landing Operations
 - A007 Surface-Acoustic-Wave Device for Wide-Angle Laser Scanning
 - H007 A High-Precision, Sun-Tolerant Lidar
- 89-1-09.04**
- S002 Novel Direction-Finding for Robotic Tracking in the Space Station
 - P023 Dynamic, Coherently Coupled, Holographic Optical Elements Using Liquid Crystals
- STS: GAS and Spartan Spacecraft Systems and Operations**
- 86-1-09.03**
- Q007 Long-Life, Three-Axis Satellite Attitude Sensing
- 86-1-09.20**
- * I028 Low-Cost, Attitude Control System
- 87-1-09.09**
- * D011 Standard Gas Satellite
- 88-1-09.12**
- * A064 A Low-Cost CCD Solid-State Star Tracker
- STS: Guidance, Navigation, and Control**
- 84-1-05.04**
- A065 Manuever Automation Sensor
 - * E021 Dead-Reckoning, Optoelectronic, Intelligent Docking System
- 88-1-09.10**
- * M025 Autonomous, Integrated GPS/INS Navigation Experiment for OMV and STV
- 89-1-09.02**
- C027 A Neural-Net Approach to Space Vehicle Guidance
 - S048A High-Speed, Fault-Tolerant Microprocessor for Space Applications
- Sensing: LIDAR Systems and Laser Technology**
- 83-1-08.08**
- C004 Improved Heterodyne Receiver for Coherent Lidar Applications
 - S019 Multibeam Lidar System for Tropospheric Measurements
- 84-1-08.08**
- * L006 An All-Solid-State Tunable Laser for Remote Sensing Applications
 - * P025 Laser Spectrometer and Wavemeter
- 85-1-08.08**
- * C010 Light-Weight Si-SiC Lidar Mirrors
 - S058 High-Efficiency Laser for Spaceborne Lidar Applications
 - * S014 Cobalt-Doped, Magnesium Fluoride Laser for Remote Sensing
- 86-1-08.05**
- * S062 Low-Cost AlGaAs Laser Arrays for Solid-State Laser Pumps
 - S015 A Microsecond-Pulse Neodymium Laser
- 87-1-08.08**
- * S020 A Method to Provide Lower Cost Crystal Properties Study Samples
 - S040 Four-Level All-Solid-State Laser Source within the 1.5 - 4 Micron Range
- 88-1-08.06**
- * N016 Diode Arrays for Pumping Rare-Earth-Doped, Solid-State Lasers
- 88-1-08.07**
- * L009 Tunable, Single-Frequency, Solid-State Laser Transmitter
 - S062 A 2.1 Micron Lidar Detector
 - E034 SIS Detector for 100-Microns Using Thin Films of Bi-Ca-Sr-Cu-O Superconductors
- 89-1-08.06**
- S017 Systems for Continuous Tuning and Single-Mode Operation of Solid-State Lasers
 - L008 Single, Longitudinal-Mode, Alexandrite Lidar Transmitter
- 89-1-08.07**
- S062 Development of 780 and 792 Nanometer Diode Laser Pumps for Solid-State Lasers
 - S015 Lasers Optimized for Pumping Titanium-Alumina Lasers
- 89-1-08.08**
- S018 Compact, Lightweight, Expanding-Beam CO₂ Laser Amplifiers for Spaceborne Applications
 - E015 Multiple-Diode-Pumped Ho:Tm:YAG Planar Ring Laser
- Sensors: Detectors and Detector Arrays**
- 83-1-08.07**
- * R005 Soft X-Ray Window Encapsulant for Mercuric Iodide Detectors
 - * F007 Scintillating Optical Fiber Arrays
- 84-1-08.07**
- * A042 Adiabatic Demagnetization Refrigerator for Use in Zero Gravity
 - B020 An Analog-Digital, Electro-Optical System for Real-Time X-Ray Imaging
- 85-1-08.07**
- * D015 Large-Area Microchannel Plate Manufacture
- 86-1-08.04**
- * B003 High Spatial Resolution, Large Field-of-View Detector and Data Handling System
 - * Q006 Large-Area Nuclear Particle Detectors Using Electron-Trapping Materials
 - M027 Reinforced, Inorganic Cement Material for Spark-Wire and Drift-Chamber Wire Frames
 - G007 Curved Channel MCP Improvement
 - * E031 A Laboratory-Standard, Indium-Gallium-Arsenide Detector for the 0.5 - 1.7 Micron Spectral Range
- 87-1-08.16**
- S008 Position-Sensitive CdTe Detector Using Improved Crystal Growth Method
 - F007 Scintillating Optical Fiber Trajectory Detectors
 - M045 Infrared Detector Systems for High-Dynamic-Range Radiometry and Imaging
 - * E031 High Performance Indium-Gallium-Arsenide Detector Arrays for 1.0 - 2.5 Micron Imaging Devices At 300 K
 - C059 Diamond Thin-Films for Detectors
- 88-1-08.13**
- * O012 Fiber-Optic Loop for the Measurement of Electric Currents in Space
 - * E014 Cryogenically-Cooled InSb JFET
 - D015 Manufacturing Large Area, High-Gain Microchannel Plates
 - * A034 Composite High-Tc Superconductive Bolometer
- 89-1-08.13**
- I007 Infrared Fiber Arrays for Low Background Infrared Astronomy
 - O013 Low-Cost, Imaging, Electron Multiplier Device
 - P017 Backside-Illuminated, Large-Format, Charge-Coupled Devices and Mosaics
- Sensors: Electromagnetic Radiation**
- 87-1-08.01**
- * I026 HYMOSS Signal Processing for Pushbroom Spectral Imaging
 - * B004 Image-Quality, Space-Qualified Ultraviolet Interference Filters
- 88-1-08.01**
- E031 High-Gain, Avalanche Photodiode Arrays for Long-Wavelength Applications
 - * I008 Silicon Bolometer Arrays for Helium-3 Detector Systems
 - * M045 Heterostructure Infrared Detectors for Use at Wavelengths Longer than 14 Microns

- 89-1-08.01**
 A034 Novel Mercury-Cadmium-Telluride Growth Process
 E031 A 128 X 128 Element Indium-Gallium-Arsenide, IR Detector Array at 300K
- Sensors: Magnetometers**
- 85-1-08.10**
 * D027 Fiber-Optic Magnetometer for Spacecraft Applications
 * P030 Advanced Helium Magnetometers for Space Applications
- 86-1-08.10**
 E034 Tunable Solid-State Cr:ZnWO₄ Laser at 1.083 Microns
 * G011 Continuous Wave, Tunable, Semiconductor 1.08 Micron Laser
- Sensors: Millimeter and Submillimeter Radiometry**
- 83-1-08.02**
 * M049 Space-Qualified Submillimeter Radiometer
- 85-1-08.02**
 * M049 Submillimeter Sources for Radiometry Using High-Power Indium-Phosphide Gunn Oscillators
- 87-1-08.18**
 M046 High-Temperature Superconductors in Monolithic Microwave and Millimeter-Wave Integrated Circuits
 * M034 Microwave Network Analyzer for Superconductor-Insulator-Superconductor Mixer Research
- 88-1-08.16**
 P020 Wideband Acousto-Optic Spectrometer
- 89-1-08.16**
 A084 Wideband Acousto-Optic Spectra Analyzer
- Sensors: Optical Materials, Components, and Systems**
- 83-1-06.14**
 A047 Concave Grating Optical Demultiplexers-Wavelength Division Multiplexer
- 83-1-08.01**
 I026 Two-Band IR Detector Array
 T022 Spatial Light Modulator: Optical Tunnel Array
 * H012 Echelle Grating-Ruling
 O002 Holographic-Processor, Optical Wavelength Demodulation in Fiber-Optic Systems
 * A064 Holographic Diffraction Gratings
- 84-1-08.01**
 * H012 Radial Concentric-Grating Ruling Engine
- 85-1-08.01**
 * E004 Photoelectrochemical Fabrication of Spectroscopic Diffraction Gratings
 * P017 Advanced Electronic Imaging System
- 86-1-08.01**
 * S011 Magnetic Bearings a High-Performance Optical Disk Buffer
 * B006 Measurement of Upper-Mid-Frequency Errors on Arbitrary Grazing Incidence Optics
- 86-1-08.24**
 * P030 Metal Thin-Film Optical Polarizers for Space Application
- 87-1-08.19**
 * B006 Non-Contact, Self-Referencing, Full-Aperture Metrology for Large Aspheric Mirrors
 E004 Photoelectrochemical Fabrication of Spectroscopic Diffraction Gratings in Silicon Carbide
- 88-1-04.08**
 * M024 Nonlinear Optical Properties of Rigid-Rod Polymers
- 88-1-08.17**
 * D008 Technique to Evaluate UV-Induced Degradation of Space Optics
 B019 Three-Axis, All-Rotary-Motion, Numerically-Controlled Optical Generator
- 88-1-08.18**
 * L005 Digital Image Profilers for Detecting Faint Sources which Have Bright Companions
- 89-1-08.18**
 B004 Ion Beam Deposition of Large-Area, Low-Scattering Metal Coatings
- A084 Acousto-Optic Tunable Filter
 E004 Photoetched Echelle Gratings in Silicon
 S013 Gas-Jet Deposition of Optical Thin-Films for Extreme Ultra-Violet and Soft X-Ray Applications
- 89-1-08.19**
 T001 Broadband Source for a Three-Dimensional Reflectometer
- Signal and Information Processing**
- 84-1-07.06**
 A004 A Low-Power Fourier Transform Processor
 A082 Determination of Cloud Properties from Satellites
 * R010 West Coast Storm Forecasting with Satellite Data
 * D011 Low-Power Spectrum Analysis and Real-Time Data Compression
- 85-1-07.06**
 C029 Pattern Recognition of Satellite Cloud Imagery for Improved Weather Prediction
- 87-1-07.03**
 A064 Rapid Readout System for Solar Pointing Sensors
 * S080 GaAs RISC Array Processor
- 88-1-07.04**
 * N006 A Natural Language Interface to a Geographical Information System
- 88-1-07.05**
 * N009 A Multichannel, Acousto-Optic, Bragg Cell, Spectrum Analyzer System
 * O011 Fiber-Optic Interconnection Networks for Spacecraft
- 89-1-07.05**
 P020 Wideband, Multi-Channel, Acousto-Optic Spectrometer for Radio Astronomy Applications
- 89-1-07.06**
 E031 Visible Semiconductor Diode Lasers Grown by Hydride Vapor-Phase Epitaxy
- Solar System Exploration**
- 85-1-08.06**
 * C038 Narrow-Bandgap, Semiconducting Silicides: Intrinsic Infrared Detectors on a Silicon Chip
- 86-1-08.27**
 * S030 Imaging IR Spectrometer
- 87-1-05.05**
 R005 High-Resolution, Avalanche-Diode, X-Ray Spectrometer for Planetary Exploration
- 88-1-08.11**
 * A006 AOTF Enhancements for a Space-Based Spectropolarimeter
- 89-1-08.11**
 A006 Adaptive, Rapid-Scanning Imaging Spectropolarimeter
- 89-1-08.14**
 C024 Improved Antenna for Synthetic Aperture Radar Calibrator
- 89-1-08.15**
 S030 Multichannel Occultation Photometer
 S030 Atmospheric Opacity Monitor
- Space Environmental Effects**
- 84-1-04.14**
 * P025 Novel Oxygen-Atom Source for Material Degradation Studies
- 85-1-04.06**
 T015 Surface Fluorination of Polymers for Use in Space
 M030 Synthesis and Characterization of Protective Coatings for Aerospace Materials
- 85-1-08.05**
 S021 Transient Radiation Effects in Silicon CCDs
- 89-1-04.08**
 J004 Portable Spectroreflectometer
- 89-1-08.21**
 A064 Highly Transparent and Rugged Sensor for Meteoroids and Space Debris
- 89-1-09.05**
 F017 Novel Composites for Protection Against Orbital Debris

Space Power Management and Distribution

83-1-10.06

N015 Space Power and Distribution Systems: Remote Power Controller

86-1-10.04

P001 Simulation and Control of Future Spacecraft Power Systems

87-1-08.15

C008 Magnetically-Controlled Power Distribution and Control System

87-1-09.06

N002 A DC-to-400Hz Inverter

Space Power Transmission: Laser Photovoltaic Converter

88-1-10.04

* E014 Fabrication of Photovoltaic, Laser-Energy Converter by MBE

89-1-10.04

S062 Vertical, Multijunction, Photovoltaic Cells with Buried Silicide Interconnections

Space Power: Advanced Systems Technology

87-1-10.01

P031 Ultra-High-Temperature 20 kHz Induction Generator for VSCF Operating Mode

* S069 Advanced Stirling Engine Heater Head

* S062 Indium-Phosphide Solar Cells on Silicon Substrates

* P025 Arcing on Space Structures in Low Earth Orbit

* S039 Improved Mirror Facet for Space Applications

88-1-10.01

S073 A Test Rig for Measuring Thermal Performance of Stirling Cycle Regenerators

G017 Cathode-Catalyst Support Materials for High-Temperature, Alkaline Fuel Cells

F017 Improved Thermal Energy Storage System for Advanced Solar-Dynamic, Space Power Generation

* K004 Low-Cost, Epitaxial, Indium-Phosphide Solar Cells

89-1-10.01

I025 Flexible, Lightweight, Amorphous-Silicon Solar Cells Tuned for AM0 Spectrum

H011 Constant-Temperature Heat Storage in Metal Hydrides

A024 New Thermionic Converter for Out-of-Core Space Power System

E023 Composite Regenerator for Stirling Engine

S011 Integrated Power and Attitude Control System for the Space Station and Other Applications

Space Power: Automation and Artificial Intelligence

84-1-10.07

C055 An Expert System for Space Power Design

88-1-10.05

S079 Implementation of Fault-Tolerant Control Algorithms Using Neural Networks

* P001 Advanced Power Sources and Actuator Systems for Future Aerospace Vehicles

89-1-10.06

M036 Intelligent Protection System for Space Power Applications

Space Power: Batteries for Spacecraft

84-1-10.08

* C053 Thermally Stable Electrolytes for Chargeable Lithium Batteries

85-1-10.06

E002 A New Class of High-Performance Lithium Batteries

87-1-10.02

C053 High-Cycle-Life, Rechargeable, Aluminum Batteries Employing Novel Organic Cathodes

88-1-10.02

* E004 Long-Cycle-Life, Rechargeable Lithium Batteries

89-1-10.02

W005 Rechargeable Lithium/Titanium-Disulfide Cells with Long Cycle-Life

89-1-10.03

G017 Nickel-Cadmium Battery Separator Design and Development

Space Power: Dynamic Conversion Systems

83-1-10.04

E022 Light-Weight Linear Alternators for Free-Piston Stirling Power Systems

84-1-10.04

* E023 A Large, Deployable, Solar Concentrator with Receiver and Heat Storage

* S073 Measurement of Reversing-Flow Pressure Drop in Stirling Engine Heat Exchangers

85-1-10.03

M019 Free-Piston, Three-Phase Stirling Electric Generator

86-1-10.03

* U002 Lightweight Mirror Structures

Space Power: Electro-Chemical Power

83-1-10.01

G017 Positive Electrode for Bipolar Ni-H₂ Batteries

84-1-10.01

* G017 Novel Electrodes for a Hydrogen-Bromine Battery

85-1-10.01

* P025 Dual-Function, Perovskite Catalysts and Supports for Alkaline, Regenerative, and Pressurized Fuel Cells

86-1-10.01

P025 Chemically Grown, Gold-Carbon Electrocatalyst Materials for Alkaline Fuel Cell Cathodes

Space Power: Inertial Energy storage

84-1-13.10

S049 Innovative Rotary Power System Recharger Subsystem

85-1-10.08

* T003 Magnetically Suspended, Composite Flywheels for Inertial Energy Storage

Space Power: Novel Concepts

83-1-10.05

* K001 Singlet-Oxygen Generator for a Solar-Powered, Chemically Pumped Iodine Laser

P025 Solar-Pumped, Alkali-Vapor Laser

84-1-09.10

C035 Polarization Stability of a Pyroelectric Conversion Material

85-1-09.09

* C035 Pyroelectric Belt Radiator

Space Power: Photovoltaic Materials and Devices

84-1-10.02

G021 Silicone and Silicone-Imide Copolymers for Solar Cell Encapsulation

84-1-10.03

* S062 High-Efficiency, Radiation-Resistant, Indium-Phosphide Solar Cells

85-1-10.02

* E030 A Fresnel Lens, Gallium-Arsenide, Photovoltaic Concentrator for Space Applications

86-1-10.02

* K004 GaAs/AlGaAs Heterostructure Point-Contact Concentrator Cells

Space Propulsion

83-1-11.02

S042 High-Energy-Product Permanent Magnets

89-1-11.01

A011 A Catalytic, Thermal Management System for Hydrogen-Fueled Injection Vehicles

E016 High-Temperature, Oxidation-Barrier Coatings for Refractory Metals

A038 Simultaneous Measurement of Temperature, Size, and Velocity of Drops in Sprays

Space Propulsion: LRE Bearing Lubrication	89-1-11.04
83-1-11.07	B011 Slit Digital Radiography for Analysis of Bond Defects in Rocket Motors
* S062 Dry-Film Lubricant for Bearings Using Ion Implantation	P003 Physically Based Failure Criteria for Carbon-Phenolic Materials
84-1-11.07	I003 Assessment of Materials in Solid Rocket Motors by Real-Time CT
S062 Dry-Film Lubrication of Cryogenic Turbopump Bearings Using Cubic Boron-Nitride	
Space Propulsion: LRE Combustion	Space Tether Applications and Technology
85-1-11.05	83-1-09.06
* S021 Efficient Navier-Stokes Flow Prediction Algorithms	* E023 Disposable-Tether Payload Deployment System
86-1-11.03	84-1-09.06
C025 Improvements in Three-Dimensional, Navier-Stokes, Two-Phase, Combustion Computer Models	* M020 Metallized-Kevlar, Space Tether System
86-1-11.08	85-1-09.02
* A038 Diagnostics Development for the Characterization of Liquid Fuel Rocket Engine Injector Atomization	* A005 Tether Deployment Monitoring System
87-1-11.03	87-1-09.08
C003 Turbulent Spray Combustion in Liquid Rocket Engine Components	A005 Damage Inspection and Verification of Tethers
A038 Diagnostics for Rocket Engine Spray Characterizations	88-1-09.11
88-1-11.03	A065 Tethered Satellite Video Monitoring System
* S035 The Chemical Kinetics of LOX-Hydrocarbon Combustion	
H010 Finite-Element Code for Combustion Analysis of Advanced Propulsion Systems	Spacecraft Flight Dynamics
M035 Liquid Rocket Atomization: an Innovative Numerical and Experimental Simulation	89-1-09.08
Space Propulsion: LRE Internal Fluid Dynamics	M041 Spacecraft Attitude Determination Using AI and Attitude Measurement Information Theory
83-1-11.06	
* C051 Transient and Three-Dimensional Rocket Engine Analysis	Spacecraft Operations and Data Management Systems
84-1-11.06	83-1-07.05
* S021 Internal Fluid Mechanics of Liquid-Propellant Rocket Thrust Chambers	* S065 Application of Pseudo-Noise Correlation and Bandwidth Synthesis for Orbit Determination
86-1-11.04	84-1-07.08
* S021 Velocimetry with Refractive Index Matching for Complex Flow Configurations	C045 Expert Systems for Extraction of Data System Requirements
86-1-11.06	85-1-07.02
C025 A Coupled Jet-Embedding and Eulerian-Lagrangian Approach to Simulate Reactive Fluid Mechanics	* O007 Adaptable Data Acquisition System
87-1-11.04	85-1-07.05
R011 Viscous Flow Field Calculations in Regeneratively Cooled Nozzles	C045 Applicability of Expert System Techniques to Space Research
* C003 A Computer Model for Liquid Jet Atomization in Rocket Thrust Chambers	86-1-07.03
88-1-11.04	* I020 Interferometric Tracking System for the Tracking and Data Relay Satellite
P035 Computer Aided Grid Design	87-1-07.02
* C003 Advanced CFD Methodology for Fast Flow-Transients Encountered in Non-Linear Combustion Instability	* O007 Concept-Oriented, Distributed, Expert System for Spacecraft Control
89-1-11.02	89-1-07.07
S021 An Eulerian-Lagrangian Analysis for Liquid Flows with Vapor Bubbles	G013 A Neural-Network, Dynamic Sequencer for Distributed Mission Planning and Control
S027 Heat Transfer in Rocket Engine Combustion Chambers and Regeneratively Cooled Nozzles	89-1-07.09
	N013 Ultra-Dense Magneto- Resistive Mass Memory
Space Propulsion: Materials Fabrication	Spacecraft Tracking and Attitude Sensing
83-1-11.04	83-1-08.05
* T024 Heat-Pipe Cooling of Thrust Chambers	* I028 Autonomous Attitude Sensing System
85-1-11.04	84-1-08.05
* U002 High-Temperature, Oxidation-Resistant Thruster Materials	* S065 Integrated Receiver Using Programmable Charge Coupled Devices
Space Propulsion: Solid Rocket Motor Technology	* A068 Simultaneous Orbit Determination with Physical Connectedness
86-1-11.07	85-1-06.14
* A069 Thrust Vector Control Using Moveable Struts	* A007 Integrated Optic Device for Laser Beam Scanning
87-1-11.01	85-1-07.07
* S052 Thrust Vector Control	B022 Spacecraft Sensor Alignment Estimation
88-1-11.01	85-1-09.20
* P003 Generalized Failure Criteria for Two-Dimensional Carbon-Carbon	* I028 A Full-Sky Scanner
	Statistics of Spatial Patterns
	88-1-07.03
	S068 Statistical Tools for Spatial Processes
	89-1-07.03
	T014 Application of Fractals to Smoothing over the Parameter Space

Structural Design: Computational Methods and Optimization

- 85-1-04.02**
 - * A088 An Expert System for Finite-Element Modeling
- 86-1-04.04**
 - * S050 Distributed, Finite-Element Analysis Using a Transputer Network
- 87-1-04.04**
 - * S072 An Expert System for Integrated Analysis and Optimization of Aerospace Structures
- 88-1-01.06**
 - * C050 New Computational Method for Aeroelastic Problems in Turbomachines
- 89-1-04.02**
 - A062 Probabilistic Structural Mechanics Research for Parallel Processing Computers
- 89-1-04.05**
 - C006 Advanced Finite-Elements for Structural Analysis

Structures: Concepts for Space Applications

- 83-1-04.13**
 - * M017 Advanced, Powder-Metallurgy, Aluminum Alloys via Rapid Solidification Technology
 - M020 Hot-Die-Formed Graphite-Aluminum Wire
 - * M020 Low-Thermal-Expansion Metal Composite Joints for Space Structures
- 84-1-04.09**
 - * A005 Providing Structural Modules with Self-Integrity Monitoring
- 84-1-04.13**
 - * D003 Space Structures Concepts and Materials
- 85-1-04.04**
 - * D003 Composite Structural Elements with Integral End Fittings
 - * M029 Shape-Memory-Alloy Joints and Couplings for Advanced Composite Materials
- 85-1-04.11**
 - * D003 End Fittings for Hinged and Rigid Joints between Graphite-Aluminum Tubular Elements
- 86-1-04.06**
 - * F017 Continuous Fiber Graphite-Aluminum MMCs for Complex-Shaped Space Structures Joints
- 87-1-04.05**
 - F017 Ultra-High-Stiffness, Net-Shape, Tubular Space Structures
 - * D003 Ultra-Low-CTE, Discontinuous, Metal Matrix Composite Space Truss
 - P003 Filament Winding Process for Thermoplastic Matrix Composites
- 89-1-04.13**
 - C052 New Fabrication Methods for Dimensionally Stable, Graphite-Magnesium Space Structures

Structures: Control of Large Space Systems

- 84-1-09.01**
 - S022 Control of Large Space Structures Using Stable Factorization
- 85-1-09.01**
 - S081 Frequency Domain Design of Robust Controllers for Large Space Structures
- 86-1-09.01**
 - S011 Advanced Actuators for the Control of Large Space Structures
- 87-1-04.10**
 - * E028 Methods for Evaluating the Predictive Accuracy of Structural Dynamic Models
- 87-1-09.01**
 - * S011 A Superconducting Large-Angle Magnetic Suspension
- 88-1-09.01**
 - * I013 Optimization Algorithms for Controls-Structures Interactions Design Problems
- 89-1-04.14**
 - S011 Magnetostrictive, Active-Member Control of Space Structures

89-1-09.01

- I013 Control Structure Interaction: Optimization-Based Design Tools

Structures: Space Construction Tools

- 85-1-05.04**
 - * M009 Integrated Computer Vision for Space Construction
 - C027 Three-Dimensional, Dynamic Robot Vision System
- 88-1-09.14**
 - F017 Structural Velcro for Space Applications

Structures: Welding In Space

- 85-1-04.08**
 - * G010 A Variable-Polarity, Plasma-Arc Welding Control System
- 86-1-04.08**
 - * M047 Intelligent, Gas-Tungsten-Arc Welding Control
- 87-1-04.08**
 - * I021 Adaptive Vision for Welding Guidance System
 - M047 Robotic Weld Path Programming
- 89-1-04.10**
 - C003 A Mathematical Model to Investigate Undercutting and to Optimize Weld Quality
 - A090 Macro- and Task-Level Programming of Arc Welding Robots for Aerospace Applications

Superconductivity: Materials Processing and Applications

- 88-1-04.10**
 - I024 Atomic Oxygen Source for Superconductor Thin-Film Fabrication
 - P026 The Stability of High-Temperature Superconducting Materials in Low Earth Orbits
 - P025 Laser Technique in Superconducting Film Deposition
 - L006 Superconducting Fibers of Bi(Pb)-Ca-Sr-Cu-O
- 88-1-09.14**
 - M054 Novel Fabrication of Superconducting Antenna Structures for Space Applications
- 88-1-10.06**
 - A042 Current Leads for Superconducting Magnets
 - E004 High-Temperature Superconducting Composites
 - S062 Preparation of Superconducting Wire
 - M012 Electromagnetic Insulators
 - * A034 Fabrication of Multifilament Conductors: CVD Processing of High-Tc Superconducting Composite Fibers
- 88-1-14.09**
 - * C009 High-Temperature, Superconducting Thin-Films for Passive Microwave Devices
- 89-1-04.16**
 - A007 Atomic-Layer CVD of Yttrium-Barium-Cuprate over a Low-Dielectric Substrate
 - S074 In Situ Thallium Films by Laser Ablation
- 89-1-04.17**
 - C022 Increasing Critical Current Densities in High-Tc Superconductors
 - R005 High-Field, High-Tc Superconducting Magnets
 - A034 Novel Process for Thin-Film Growth of Yttrium-Barium-Cuprate
 - C005 Ultra-Rapid Textured Growth of Yttrium-Barium-Cuprate Filaments for Composite HTSC Wire
 - N005 Microwave-Compatible, High-Tc Superconducting Films on Sapphire Substrates
- 89-1-09.07**
 - H002 High-Temperature Superconductor for Passive Magnetic Bearings
 - T029 A Low-Thermal-Conductivity Connector
- 89-1-10.07**
 - E004 Robust High-Tc Ribbon for Power Transmission

Thermal Control: Advanced System Concepts

84-1-09.09

- * H011 Metal Hydrides for Integration of Spacecraft Hydrogen Resources

- 85-1-09.11**
 C002 Capillary-Pumped Thermal Conditioning System
 C025 Computer Model of Thermal Conditioning System for Long-Life Space Craft
- 85-1-09.13**
 N001 Acoustic Failure Prevention System for Thermal Control Systems
- 85-1-09.19**
 * R011 Space-Based Solar Water Heater
 D003 Body-Mounted Radiators on Space Structures
- 86-1-09.07**
 C017 Solid-State Modulation of Conductive Heat Transfer
 T024 Advanced Heat-Pipe, Body-Mounted Radiators
 * S005 Portable, Low-Temperature Cooler for Space Station
 E023 Controllable Emittance Coating
 T024 Titanium-Water, Capillary-Pumped Loop for Manned Environments
- 87-1-09.05**
 * C054 Three-Phase Inverter for Ultra-High-Speed Motor Drive
 M028 Novel Heat Pipe Systems
- 87-1-13.06**
 O009 Laser-Doppler-Velocimeter Flow-Rate Measurement in Control Fluid Systems
- 88-1-09.06**
 * F017 Binary Mixtures for Spacecraft Heat Transport
 C003 Vented Nozzle Concept for Optimum Performance of Launch Vehicles
- 88-1-09.07**
 F020 Novel Cryocooler Regenerator Designs
 * F020 Computing Radiant Interchange Among Real Surfaces
 * M013 Modular Chemical-Mechanical Heat Pump for Spacecraft Thermal-Bus Applications
 * S069 Stirling Cryocooler with Extremely Low Vibration
- 89-1-09.13**
 C054 Condenser Design for Alkali-Metal Thermoelectric Conversion Systems
 R020 High-Lift, Heat-Actuated, Solid-Vapor Heat Pump for Simultaneous Refrigeration and Water Heating
 T024 Composite Material Heat Pipes
 H010 Finite-Element and Adaptive-Grid Thermal Analyzer with Enhanced Graphics Capability

Thermal Control: Advanced Heat Pipes

- 83-1-09.08**
 * T024 High-Performance, Flexible, Heat Pipes
- 84-1-09.08**
 * T024 High-Performance, Ambient-Temperature Heat Pipes
- 85-1-09.10**
 * D003 Composite Heat-Pipe Concepts Using Pitch-Graphite/Metal Composites

Thermal Control: Energy Storage

- 85-1-09.17**
 H011 Thermal Storage in Plastic Crystal Slurries

Thermal Control: Heat Transport Across Structural Boundaries

- 83-1-09.02**
 * T024 Heat Transport Across Structural Boundaries
- 84-1-09.02**
 A069 Thermal Transport System Using Conformal Heat Exchanger
- 85-1-09.12**
 * F017 Enhancement of Contact Heat Transfer Coefficients at Spacecraft Thermal and Structural Joints

Thermal Control: Long Duration Space Missions

- 86-1-09.13**
 * C054 Low-Film-Resistance Condenser for Operation in a Gravity-Free Environment
 H011 Metal-Hydride Thermal Management Techniques for Future Spacecraft and Planetary Bases

- 87-1-09.04**
 * C054 Compact, High-Performance Heat Exchangers for Space Station Thermal Control
 * F017 Non-Azeotropic Heat Pump for Heating Crew Hygiene Water
 F017 Hybrid Measurement of Two-Phase Flows
- 88-1-09.05**
 F017 A Lightweight, Non-Metallic, Heat-Pipe Radiator
- 89-1-09.11**
 R020 High-Density, Chemical-Thermal Storage System for Low Gravity Environments

Thermal Control: Passive

- 84-1-09.04**
 * E004 Electronchromic Panels for Control of Radiant Energy Transfer
- 84-1-09.15**
 T024 Self-Maintaining Thermal Surfaces

Thermal Control: Spacecraft Electronics

- 83-1-09.05**
 M005 High-Thermal-Capacity Cold Plates and Hot Plates
- 84-1-09.05**
 * D003 Electronic Component Temperature Control Using Metal-Matrix Composites

Thermal Control: Two Phase Systems

- 83-1-09.14**
 * T034 Energy Storage System Using Microencapsulated Phase-Change Material
- 84-1-09.14**
 * F020 Pumped, Two-Phase, Non-Azeotropic Spacecraft Cooling Systems
- 84-1-09.16**
 * T024 Modular Cold Plates for High Heat Fluxes
- 85-1-09.14**
 * C054 High-Heat-Flux, Evaporating Heat Exchanger for Zero Gravity
- 85-1-09.15**
 F017 Centrifugal Separating Pump for the Control of Two-Phase Heat Transport Circuit

Work Stations for Data management

- 87-1-07.05**
 L002 Intelligent Data Abstraction and Analysis
- 87-1-07.07**
 * V003 EOS Workstation
- 88-1-07.09**
 S060 Intelligent Information Management with Xy Imaging

Work Stations for Space Crews

- 86-1-09.17**
 K001 Touch Panels and Flat Panel Displays for Space Station System Monitoring
- 87-1-09.03**
 * P021 Full-Color, AC-Plasma, Flat-Panel Display for Space Station Applications
- 88-1-09.03**
 * C028 Compact, Six Degree-of-Freedom, Force-Reflecting Hand Controller with Cueing of Modes
 D021 Multicolor Flat-Panel Display Using Tunable Birefringence Filters
- 89-1-09.09**
 A007 Flat-Panel, Multicolor Display Based on Integrated Optic Scanner
 Q004 Universal, Bilateral, Robotic Controller
 O013 Low-Voltage, Thin-Film Electroluminescent Phosphor

INDEX OF STATES AND CITIES

Alabama

Auburn

Optimization Technology, Inc. O010

Brownsvboro

Microgravity Systems, Inc. M044

Decatur

Electro Design Manufacturing E012

Huntsville

Alabama Cryogenic Engineering, Inc. A042

Applied Research, Inc. A065

BGB, Inc. B003

CFD Research Corporation C003

Cham of North America, Inc. C025

Continuum, Inc. C051

Engineering Analysis, Inc. E025

Gamma Research, Inc. G009

General Digital Industries G010

Huntsville Sciences Corporation H010

John M. Cockerham & Associates, Inc. J004

Nichols Research Corporation N011

Northam Marketing Electronics N015

Rentech, Inc. R011

SRS Technologies S005

Seca, Inc. S027

Sparta, Inc. S050

Spectra Research Systems S055

Arizona

Phoenix

DSET Laboratories, Inc. D002

Scottsdale

Applied Research Consortium A063

General Pneumatics Corporation G012

Tucson

Breault Research Organization, Inc. B019

Fleck Aerospace F008

Infrared Laboratories, Inc. I008

Materials & Electrochemical Research M022

Photometrics Limited P017

Protein Technologies, Inc. P038

System Specialists S078

Arkansas

Jonesboro

Modus, Inc. M051

California

Alameda

Aquanautics Corporation A074

Altadena

Radiometrics Corporation R006

Anaheim

CTK Enterprises C008

Management Project Marketing Consultants

M014

Odetics, Inc. O004

Azusa

Talandic Research Corporation T005

Belmont

Expert-Ease Systems, Inc. E037

MIMD Systems, Inc. M004

Berkeley

CCE - Robotics C001

Down To Earth D022

Mercor, Inc M030

Beverly Hills

Associated Dynamics International A077

Sohar, Inc. S037

Calabasas

Microexpert Systems, Inc. M042

Campbell

Integrated Parallel Technology I012

Canoga Park

Intelligent Recognition System I017

Waddan Systems W001

Carlsbad

Dynamic Analysis & Testing D025

Chatsworth

Amercom, Inc. A046

DWA Composite Specialties, Inc. D003

PlessCor Optronics, Inc. P029

Corona

Electroformed Nickel, Inc. E016

Costa Mesa

BC Associates B002

Femtometrics F005

Irvine Sensors Corporation I026

PDA Engineering P003

Spectron Development Laboratories S058

Culver City

ANCO Engineers, Inc. A005

Demografx D014

X2Y2 Corporation X001

Cypress

ReSoft, Inc. R008

Dana Point

G & C Systems, Inc. G001

Davis

Moller International, Inc. M052

Duarte

Phrasor Scientific, Inc. P022

Encinitas

Space Instruments, Inc. S045

Fremont

Electro-Optics Technology, Inc. E015

Exotech, Inc. E036

Garden Grove

OPCOA, Inc. O002

Goleta

Dynamic Microsystems D026

MCR Technology, Inc. M002

Hawthorne

Systems Technology, Inc. S082

Hayward

Anamet Laboratories, Inc. A056

Star Microwave S067

Irvine

Bomed Medical Manufacturing B016

General Purpose Machines Laboratory G013

Metrolaser M035

Togai Infraclogic, Inc. T027

Ultrasystems, Inc. U003

La Canada

DCW Industries, Inc. D001

Spaceborne, Inc. S048

Technical Measurements, Inc. T008

Laguna Hills

Sparta, Inc. S051

Lawndale

Direct Current Light D020

Livermore
ST&E, Inc. S007

Los Alamitos
Multisignal Technology Corporation M057

Los Angeles
Agave Analytics A040

Los Gatos
Tau Corporation T006

Menlo Park
Membrane Technology & Research M028

Moorpark
Advanced Projects Research, Inc. A028

Mountain View
ATAC A010
Accelerated Processors, Inc. A012
Advanced Decision Systems A020
Analytical Mechanics Associates A051
Applied Technology Associates, Inc. A068
Astron Research & Engineering A079
Intellicorp, Inc. I014
JAI Associates, Inc. J001
Lightwave Electronics Corporation L009
Mosaic Industries, Inc. M055
Nielsen Engineering & Research, Inc. N012
Quintus Computer Systems, Inc. Q009
Systolic Technology, Inc. S083
Visual Computing, Inc. V006

Newport Beach
TPI, Inc. T002

Oakland
Aker Industries A041
Applied and Theoretical Mechanics, Inc. A071
Energy Research & Generation E022
TiNi Alloy Company T025

Orange
JRS Research Laboratories, Inc. J002

Oxnard
Gerardi-Dahl Engineering G016

Pacolima
Ultramet U002

Palo Alto
Aptech Imaging, Inc. A072
CSA Engineering, Inc. C006
Complexe, Inc. C039
Crystallume C059
Deacon Research D008
Johnson Aeronautics J005
Kestrel Development Corporation K003
Optivision, Inc. O011
PEDA Corporation P005
Raman Aeronautics, Inc. R007
Silicon Engines S034

Pasadena
Maxdem, Inc. M024

Playa Del Rey
Universal Analytics, Inc. U006

Portola Valley
Natural Language Products N003

Poway
Advanced Energy Technology, Inc. A024

Rancho Palos Verdes
ACA Industries, Inc. A001

Redondo Beach
PI, Inc., P006

Redwood City
Charles Evans & Associates C026

San Carlos
Quantic Industries, Inc. Q007

San Diego
Advanced Diversified Technology, Inc. A022
American Innovision, Inc. A048
Biospherical Instruments, Inc. B014
Chase Consulting, Inc. C029
Chronos Research Labs, Inc. C035
Creative Enterprises C055

Earth Space Research, Inc. E008
Emerson & Stern Associates, Inc. E020
Energy Science Laboratories, Inc. E023
Holz Industries, Inc. H008
ISM Technologies, Inc. I001
Laser Power Corporation L005
Netrologic N006
Photon Research Associates, Inc. P018
San Diego Semiconductors, Inc. S008
Telecomm Science Associates, Inc. T017
Verac V002

San Francisco
Computer Resource Consultants C043
Ken Wanderman & Associates, Inc. K002

San Jose
Applied Sciences Consultants A066
Center for Neurodiagnostic Study C023
E-Tek Dynamics, Inc. E001
ECON, Inc. E003
Galloway Research G008
Lasergenics Corporation L006

San Luis Obispo
Cryolab, Inc. C057

San Marcos
MSNW, Inc. M008

San Mateo
AKM Associates, Inc. A003

San Pedro
Crystal Research C058

Santa Barbara
Fibre Optics Development Systems, Inc. F007
Superconductor Technologies, Inc. S074

Santa Clara
Altex Technologies Corporation A044
Aurora Associates A084
Integrated Systems, Inc. I013
International Technical Associates I021
Quantel International Q005
Stanford Telecommunications, Inc. S064
Structural Analysis Technology, Inc. S072
Technology Development of California T011
ZeroOne Systems, Inc. Z001

Santa Monica
Istar, Inc. I027
Space Computer Corporation S044
Technology Group T012

Santa Rosa
Remote Sensing Systems R010

Simi Valley
Microwave Monolithics, Inc. M046

Solana Beach
Geoscience Limited G015

South San Francisco
Imatron, Inc. I003

Sun Valley
Delta G Corporation D013

Sunnyvale
AOTF Technology, Inc. A006
Advanced Research & Applications Corp.
A029
Aerometrics, Inc. A038
David Hall Consulting D007
Food and Agrosystems, Inc. F016
Multipoint Communications Corporation M056
Pacific Monolithics, Inc. P008
Time & Space Processing, Inc. T026

Tarzana
Speech Systems, Inc. S061

Thousand Oaks
ISX Corporation I002

Torrance
Dynamics Technology, Inc. D027
Eidetics International, Inc. E010
Electro-Optek Corporation E014
Engineering Mechanics Associates E028
Metriwave, Inc. M034

Microcosm, Inc. M041
NDE Technology, Inc. N001
Physical Optics Corporation P023
Physical Research, Inc. P024
Sparta, Inc. S052

Tujunga
Ergo-Tech Systems, Inc. E032
Van Nuys
Advanced Dimensional Displays A021
Vero Beach
M. W. Aerospace, Inc. M001
Westlake Village
Amerasia Technology, Inc. A045
Whittier
Refractory Composites, Inc. R009

Colorado

Boulder
Displaytech, Inc. D021
Hyperfine, Inc. H012
Johnson Engineering Corporation J006
Photo-Catalytics, Inc. P016
Sievers Research, Inc. S033
Turbulence Prediction Systems T035
Vexcel Corporation V003
Colorado Springs
Aptek, Inc. A073
Q-Dot, Inc. Q001
Denver
Colorado Research Development Corp. C038
Electro Magnetic Applications E013
Innovative Research, Inc. I010
Englewood
Ada Technologies, Inc. A015
Advanced System Technologies A030
Computer Technology Associates C045
Unique Mobility, Inc. U005
Ft. Collins
Space Tech Corporation S047
Golden
Nuclear Filter Technology, Inc. N019
Lakewood
Ophir Corporation O009
Littleton
Begej Corporation B007
Hydrogen Consultants, Inc. H011
Niwot
Aerospace Design & Development, Inc. A039
Sedalia
Ois Engineering O006

Connecticut

Avon
QSource Q003
Danbury
Transitions Research Corporation T031
Wilton Industries, Inc. W006
East Hartford
Advanced Fuel Research, Inc. A025
Enfield
Springborn Laboratories, Inc. S063
Glastonbury
Scientific Research Associates, Inc. S021
New Haven
Precision Combustion, Inc. P032
Schmitt Technology Associates S013
New Milford
Advanced Technology Materials, Inc. A034
Simsbury
Phonon Corporation P015

South Windsor
CLS Laser Systems, Inc. C004
NDT Technologies, Inc. N002
Stamford
Memory Metals, Inc. M029

District of Columbia

Washington
Fred C. Hart Associates, Inc. F019
Technical & Adminstrative Service T007

Florida

Altamonte Springs
Sparta Technology, Inc. S049
Maitland
Electrasol Laboratories, Inc. E011
Melbourne
ENSCO, Inc. E006
Newport Electro-Optics Systems, Inc. N009
Photonic Systems, Inc. P020
Software Productivity Solutions, Inc. S036
Orlando
Applied Technology Associates, Inc. A069
Athena Labs, Inc. A080
Autonomous Technologies Corporation A092
Datawise, Inc. D006
Essex Corporation E033
Schwartz Electro-Optics, Inc. S014
Palm Bay
CSI, Inc. C007
Computer Science Innovations C044
Rockledge
Mainstream Engineering Corporation M013
Tampa
Micro Concepts, Inc. M037
Vero Beach
Maris Worden Aerospace, Inc. M015
West Palm Beach
PCP, Inc. P002
Winter Park
Florida Maxima Corporation F011
McMahan Electro-Optics, Inc. M026

Georgia

Atlanta
Autodesk, Inc. A088
Cadetron, Inc. C011
Consultants Choice, Inc. C049
Cartersville
Penn Laboratories, Inc. P012
Norcross
Search Technology, Inc. S026
Smyrna
Quanta, Inc. Q004

Hawaii

Mililani
Sets, Inc. S030

Illinois

Aurora

Eltron Research, Inc. E019

Buffalo Grove

Boundary Technologies, Inc. B018

Champaign

Kuck & Associates K005

Evanston

Fluid Dynamics International F014

Glenview

Growth Systems, Inc. G019

Lincolnshire

Bio-Imaging Research, Inc. B011

Naperville

Transducer Research, Inc. T030

Northbrook

Intersonics, Inc. I022

Savoy

Global Information Systems Technology
G018

Skokie

Construction Technology Laboratories C048

Urbana

Frasca-International F018

Propulsion Research Associates P036

Indiana

Bloomington

Star Enterprises, Inc. S066

Columbus

Adiabatics, Inc. A017

West Lafayette

Advanced Materials Design, Inc. A027

Behavioral Research Associates B008

P. C. Krause & Associates, Inc. P001

Pritsker & Associates, Inc. P034

Iowa

Ames

Engineering Analysis, Inc. E026

Iowa Thin Film Technologies, Inc. I025

Iowa City

Accel Catalysis, Inc. A011

Kansas

Valley Center

B&D Instruments and Avionics B001

Louisiana

Laplace

Technology International, Inc. T014

Maine

Biddeford

Fiber Materials, Inc. F006

Maryland

Baltimore

Brimrose Corporation Of America B020

Bowie

Techno-Sciences, Inc. T010

Chevy Chase

Foa Engineering F015

College Park

Atom Sciences, Inc. A083

Eastern Analytical, Inc. E009

Columbia

ARD Corporation A009

New Horizons Diagnostics N008

Fort Washington

TS Infosystems, Inc. T004

Gaithersburg

Industrial Quality, Inc. I005

Greenbelt

Omitron, Inc. O007

Systems Engineering, Inc. S081

Hyattsville

Fare, Inc. F004

Landover

Applied Research Corporation A064

Laurel

Ressler Associates, Inc. R014

Potomac

Intellitek, Inc. I018

Riverdale

LNK Corporation L002

Rockville

Defense Research Technologies D010

Intelligent Automation, Inc. I016

Interdisciplinary Science Applications I019

Quantex Corporation Q006

Scientific Technology, Inc. S023

Seabrook

Business and Technological Systems B022

Silver Spring

Advanced Communications Technology A018

Chronometrics, Inc. C034

Infrared Fiber Systems, Inc. I007

Magnetic Concepts M012

Mega Engineering M027

Science & Engineering Services, Inc. S017

Timonium

Analytix Corporation A055

Upper Marlboro

Chemical Dynamics Corporation C030

Massachusetts

Acton

Acton Research Corporation A014

American Holographic, Inc. A047

Amesbury

James G. Boyko J003

Andover

PSI Technology Company P007

Physical Sciences, Inc. P025

Ashland

Tekmat Corporation T015

Ayer

HITEC Products, Inc. H003

Bedford

Miranda Laboratories M050

Optron Systems, Inc. O013

Spire Corporation S062

Beverly

Optra, Inc. O012

Billerica

Aerodyne Research, Inc. A037

Automatix, Inc. A090

Technology Integration & Dev. Group T013

Boston

Barrett Design, Inc. B005

Chemical Testing And Consulting Co. C031

Dataflow Computer Corp. D005

Brookfield

Detector Technology, Inc. D015

Brookline Neurogen N007
Burlington Atlantic Applied Research Corp. A081
Chemtech Systems C032
Ontologic, Inc. O008
Spectral Sciences, Inc. S056
Buzzards Bay Cape Cod Research, Inc. C017
Cambridge Atmospheric & Environment Research A082
Axiomatics Corp. A093
Cambridge Acoustical Associates C013
Cambridge Research Company C015
Charles River Analytics, Inc. C027
FTP Software, Inc. F001
Holometrix, Inc. H007
Intelligent Automation Systems I015
Nektonics, Inc. N004
Payload Systems, Inc. P011
Photon Research Associates, Inc. P019
Satcon Technology Corporation S011
Symbiotics, Inc. S076
Concord Schwartz Electro-Optics, Inc. S015
Danvers Surface Alloys Corporation S075
Lexington Sparta, Inc. S053
Milford CPS Superconductor Corp. C005
Natick Advanced Energy Dynamics A023
Candela Laser Corporation C016
Needham Heights Merix Corporation M032
Newton Sea Data Corporation S025
UFA, Inc. U001
Newton Centre Geo Centers, Inc. G014
North Billerica Aerodyne Products Corporation A036
Marko Materials, Inc. M017
Norwood EIC Laboratories, Inc. E004
Reading Mayflower Communications Company M025
Sol-3 Resources, Inc. S038
Scituate MOCO, Inc. M007
Somerville ECO E002
Science Research Laboratory, Inc. S018
Tracer Technologies, Inc. T029
South Deerfield Millitech Corporation M049
Sturbridge Galileo Electro-Optics Corporation G007
Taunton Kopin Corporation K004
Wakefield Synetics Corporation S077
Waltham Applied Sciences Laboratories A067
Foster-Miller, Inc. F017
Giner, Inc. G017
Panometrics, Inc. P009
SSG, Inc. S006
Watertown Fleet Tech, Inc. F009
Radiation Monitoring Devices, Inc. R005
Wellesley Bauer Associates, Inc. B006

Westborough Proteon, Inc. P039
Westford Barr Associates, Inc. B004
Weston Weather Corporation W003
Woburn CVD, Inc. C010
Castle Technology Corp. C022
Covalent Associates, Inc. C053
Scientific Systems, Inc. S022

Michigan

Ann Arbor Charles Systems Corp. C028
Daedalus Enterprises, Inc. D004
KMS Fusion, Inc. K001
Machine Vision International Sternberg M009
Midland Quantum Composites, Inc. Q008
Plymouth Wavemat, Inc. W002

Minnesota

Blaine APA Optics, Inc. A007
Eden Prairie Bio-Metric Systems, Inc. B012
Edina Nonvolatile Electronics, Inc. N013
Minneapolis R Scan Corporation R001
Ross-Hime Designs, Inc. R022
New Brighton Top Vu Technology T028
St. Paul Rochelle Crystal Corporation R019

Mississippi

Stennis Space Center Spatial Information Sciences, Inc. S054

Missouri

Rolla Incubator Technologies, Inc. I004
St Louis Laser Data Technology L004

Montana

Bozeman Scientific Materials Corporation S020
TNA Technologies, Inc. T001

Nebraska

Lincoln Microlimages, Inc. M040

Nevada

Boulder City
Rocky Research R020
Carson City
Software & Engineering Associates S035
Incline Village
Rose Engineering & Research R021
Las Vegas
Arbus, Inc. A075
Reno
Sierra Nevada Corporation S032

New Hampshire

Dover
AETA Corporation A002
Hanover
Creare, Inc. C054
North Salem
ORD, Inc. O003

New Jersey

East Brunswick
Gumbs Associates, Inc. G021
Edison
General Optronics Corporation G011
Fairfield
Transmission Technology Company Inc T033
Lawrenceville
Partnerships Limited P010
Middletown
William Pfefferle Associates W004
Morristown
Dr. Murray S. Cohen and Associates D023
Piscataway
Neocera Associates, Inc. N005
Princeton
Aerochem Research Laboratories, Inc. A035
Cambridge Hydrodynamics, Inc. C014
Continuum Dynamics, Inc. C050
Epitaxx, Inc. E031
ML Energia, Inc. M006
Princeton Scientific Enterprises, Inc. P033
Princeton Junction
Teknowlogica, Inc. T016
Warren
Light Age, Inc. L008
West Long Branch
Electronic Associates, Inc. E018

New Mexico

Albuquerque
Applications Research Corporation A059
Applied Technology Associates, Inc. A070
Lasertechnics L007
PDA Engineering, Albuquerque Div. P004
Santech, Inc. S009
Science & Engineering Associates S016
Las Cruces
Energy Optics, Inc. E021
Los Alamos
Pulse Systems, Inc. P040
Santa Fe
Southwest Sciences, Inc. S043

New York

Bohemia
Excel Technology, Inc. E034
Brooklyn
Beltran Associates, Inc. B009
Buffalo
Conax Buffalo Corporation C047
Centerport
Monat Associates M053
Clarence
Wilson Greatbatch Ltd. W005
Elmira
Metadyne, Inc. M033
Freeport
GMAF, Inc. G002
Hauppauge
LNR Communications, Inc. L003
Ithaca
Innovative Dynamics I009
Ithaco, Inc. I028
Northeast Semiconductor, Inc. N016
Odyssey Research Associates, Inc. O005
New York
Anatole J. Sipin Company, Inc. A057
Port Washington
SCS Telecom, Inc. S002
Rochester
CVC Products, Inc. C009
Dimension Technologies, Inc. D019
Roslyn
Prospective Computer Analysts P037
Schenectady
Macrodyne, Inc. M010
Syracuse
Applied Logic Systems, Inc. A061
Coherent Research, Inc. C037
Niagara Scientific, Inc. N010
Troy
Automated Dynamics Corporation A089
High Technology Services, Inc. H006
Voorheesville
Rupprecht & Patashnick Company, Inc. R023
White Plains
Program Development Corp. of Scarsdale
P035

North Carolina

Durham
Cree Research, Inc. C056
RISC Associates R004
Raleigh
Allotech, Inc. A043
Applied Research Associates, Inc. A062
Research Triangle Park
Triangle R&D Corporation T034

Ohio

Athens
Sunpower, Inc. S073
Cleveland
Cleveland Crystals, Inc. C036
Transmission Research, Div. of NASTEC T032
Columbus
Adaptive Machine Technologies A016
Material Concepts, Inc. M020
Dayton
Universal Energy Systems, Inc. U007
Findlay
The Holotronics Corporation T022

Gahanna Ribbon Technology Corporation R015
Milford Robotics Research Corporation R018
Morrow Diestdyne Corporation D016
Newark H & N Instruments, Inc. H001
Northwood Photonics Technology, Inc. P021
Worthington Robo-Tech Systems R017

Oklahoma

Bartlesville S. R. Taylor & Associates S001

Oregon

Beaverton Cadic, Inc. C012
Cascade Microtech, Inc. C021
Planar Systems, Inc. P028
Bend Bend Research, Inc. B010
Eugene Hansen Research Associates H005
Lake Oswego Monolithic Superconductors, Inc. M054
McMinnville Solidstate Lasers, Inc. S041
Myrtle Creek Umpqua Research Company U004

Pennsylvania

Allentown APD Cryogenics, Inc. A008
Bethel Park CCS Associates C002
Blue Bell Aurora Optics, Inc. A086
Bordentown HITC Superconco, Inc. H002
Bryn Mawr Numedloc N020
East Pittsburgh Power Silicon & Monolithic Technologies P031
Export EMEC Consultants E005
Hatboro Textile Technologies, Inc. T020
Hendersonville GMD Systems, Inc. G003
Irwin Extrude Hone Corporation E039
Lancaster Thermacore, Inc. T024
Malvern Biochem Technology, Inc. B013
Monroeville ETC E007
New Kensington Exportech Company, Inc. E038
Norristown Strainoptic Technologies, Inc. S071
Philadelphia Micro-G Research, Inc. M039
Pittsburgh Advanced Material Corporation A026
Carnegie Group, Inc. C020
Microtronics Associates, Inc. M045

Seer Systems, Inc. S028
Sensor Frame, Inc. S029
Spring House Chi Systems, Inc. C033
Materials Sciences Corporation M021
Willow Grove Analytics, Inc. A054

Puerto Rico

Santurce Computer Technology, Inc. C046

Rhode Island

East Providence Source Technical Appl. Metallurgical S042
Newport The Eppley Laboratory, Inc. T021

Tennessee

Chattanooga Accurate Automation Corporation A013
Gallatin Advanced Control Technologies A019
Knoxville AMS Corporation A004
Computational Mechanics Corporation C041
Perceptics Corporation P013
SEES, Inc. S003
Telerobotics International, Inc. T018
Nashville Mid-South Engineering, Inc. M047
Systematix, Inc. S079
Oak Ridge Gull Engineering, Inc. G020
QCI, Inc. Q002
Tullahoma Engineering Research & Consulting E029
FWG Associates, Inc. F002
Micro Craft, Inc. M038
Tennessee Space Laboratories, Inc. T019

Texas

Allen Martingale Research Corporation M018
Arlington RAI Associates R002
Austin Austin Biological Laboratories A087
Computational Mechanics Company C040
Computer Algorithm Development C042
Exflour Research Corporation E035
Galaxy Microsystems, Inc. G006
North American Aerospace Corporation N014
Research Innovation Implementation R012
Systems & Processes Engineering S080
Bryan Lynntech, Inc. L011
College Station Micron Engineering M036
OI Corporation O001
Phytoresource Research, Inc. P027
Dallas Artelligence, Inc. A076
Flexible Computer Corporation F010
Solar Kinetics, Inc. S039
The Navtrol Company, Inc. T023
Dallas-Ft. Worth Airport Entech, Inc. E030

Houston

Bruce G. Jackson and Associates B021
Carbotek, Inc. C018
GMS Technology G004
Ionworks I024
Lincom Corporation L010
Mark J. Hommel M016
Mathematical Research, Inc. M023
Schmidt Instruments, Inc. S012
Scott Science and Technology S024
Shason Microwave Corporation S031

League City

Astro International Corp. A078

McKinney

Apeiron A058

Midland

Microgravity Research Associates M043

Plano

Dynacom Company D024

Richardson

Polatomic, Inc. P030

San Antonio

Spectrum Management Group, Inc. S060
Winzen International, Inc. W007

Sugar Land

HSA, Inc. H004

Utah**Logan**

Novatech, Inc. N018

Salt Lake City

Bonneville Scientific, Inc. B017

Iomed, Inc. I023

Sarcos Research Corporation S010

Technical Research Associates, Inc. T009

Virginia**Alexandria**

Aurora Flight Sciences Corporation A085
Autometric, Inc. A091
GT-Devices G005
Meridian Corporation M031
Physical Sciences, Inc. P026

Arlington

SKW Corporation S004

Blacksburg

VRA, Inc. V001

Fairfax

Carlow Associates, Inc. C019
MJR, Inc. M005

Falls Church

Advanced System Technologies A031
TPI, Inc. T003

Gloucester

Spectrex Corporation S057

Grafton

Energy and Science Consultants E024

Hampton

Analytical Services & Materials, Inc. A053
Applied Cryogenics And Materials A060
Information & Control Systems, Inc. I006
MESO, Inc. M003
Science and Technology Corporation S019
Vigyan Research Associates, Inc. V004

Herndon

Frederick A. Costello, Inc. F020

Lorton

Cordec Corporation C052

Manassas

Space Projects Limited S046

McLean

Center for Remote Sensing C024
Defense Systems, Inc. D011
REI Systems R003
Stanford Telecommunications, Inc. S065

Newport News

Advanced Technologies, Inc. A032
Dei-Tech, Inc. D012
Engineering Development Laboratory E027

Radford

American Research Corp. of Virginia A049
Howlett & Associates, Inc. H009

Reston

Decision Science Consortium D009
Digital Analysis Corporation D017

Springfield

Digital Signal Corporation D018

Sterling

Viking Instruments Corporation V005

Vienna

Advanced Technology Laboratories A033
Interferometrics, Inc. I020
Roberts Associates, Inc. R016

Yorktown

Instrumech I011

Washington**Arlington**

Stoddard-Hamilton Aircraft, Inc. S070

Bellevue

Amtec Engineering, Inc. A050
Northwest Research Associates N017

Kent

Flow Industries, Inc. F012
Flow Research Company F013

Redmond

Analytical Methods, Inc. A052
Failure Analysis Associates F003
Solidite Corporation S040

Richland

Martini Associates M019
Stirling Technology Company S069

Seattle

Electroimpact, Inc. E017
Spectron Development Laboratories, Inc. S059
Statistical Sciences, Inc. S068

West Virginia**Morgantown**

Resource Technologies Group, Inc. R013

Wisconsin**Brookfield**

L. W. Fleckenstein, Inc. L001

Madison

Madison Magnetics, Inc. M011
Orbital Technologies Corporation O014
Phoenix Engineering & Computing, Inc. P014

Milwaukee

Midwest Research Microscopy M048

Wauwatosa

Biotronics Technologies, Inc. B015

INDEX OF PRINCIPAL INVESTIGATORS

A

Abraham, K. M.; E004
Abrishamkar, Farrokh; T012
Acharekar, M.; S014
Ackley, Donald E.; E031
Acuff, Mark; C012
Adams, T. J.; A078
Adamson, H. Patrick; T035
Adar, Rachel; N006
Adler-Golden, Steven M.; S056
Aeby, Ian; G014
Agapakis, John E.; A090
Alkens, Richard; P017
Alsenberg, Sol; A067
Al-Jumaily, Ghani; B004
Alberts, Jeffrey R.; S066
Aldrich, Billy R.; M044
Alexander, Guy B.; T009
Ali, Fazal; P008
Allen, Mark G.; P025
Allen, R. Wade; S082
Allred, Ronald; P003; P004; S009
Alwitt, Robert S.; B018
Anand, D. K.; T003
Andersen, Kristinn; M047
Anderson, William J.; T032
Andrew, R. L.; S003
Andrews, Michael; S047
Annen, Kurt D.; A037
Apelewicz, Tuvia; S002
Argana, James; C009
Arman, Shad; F002
Armini, Anthony J.; S075
Armstrong, James A.; A015
Arnett, Gary M.; B003
Arnold, Rocky Richard; A056
Arnold, Steven M.; A007
Atkins, Ernest E.; G012
Auer, Siegfried; A064; C034

B

Babcock, Walter C.; B010
Bach, Bernhard W.; H012
Bachalo, William D.; A038
Badina, Jorge; P005
Baker, A. J.; C041
Baker, Paul L.; C045
Baker, Richard W.; M028
Bakshi, M. H.; D008
Balakrishna, Sundareswara; V004
Balasubramanian, R.; S057
Ball, Duane R.; A031
Ballentine, Paul H.; C009
Bamford, Douglas; D008
Ban, Vladimir S.; E031
Bancroft, S. A.; R011
Bangham, M. L.; T003
Barnett, Robert Joel; M047
Barnette, Randall D.; L010
Barstow, Leon E.; P038
Bartel, Scott J.; S004
Bartholet, Stephen J.; 0004
Bartlett, H. E.; C007
Bass, Donald A.; S046
Bass, Jon M.; C040
Bates, Peter D.; A063
Baum, Bernard; S063
Beer, Sylvan Z.; N010
Beetz, Charles P.; A034

Begej, Stefan; B007
Bender, Robert L.; R011
Bendiksen, Oddvar O.; C050
Bennett, William; S081
Benson, Glendon M.; A041; E022
Berger, Harold; I005
Berman, Charles H.; A035
Bernard, Bernie B.; O001
Bernstein, David; N008
Bernstein, Lawrence S.; S056
Bhartiya, Veer V.; R003
Bhattacharya, Rabi S.; U007
Blerschenk, Thomas R.; E035
Blinin, Alan J.; C050
Bird, Larry; N014
Blaine, Lee; A076; K003
Blair, David W.; P033
Blatchley, Charles C.; S062
Bliss, Donald B.; C050
Block, Myron J.; O003
Boltich, E. B.; A026
Boom, Roger W.; M011
Boord, W. T.; A007
Booth, Charles R.; B014
Bowen, Kenneth A.; A061
Bowers, W. D.; F005
Boyce, Joseph; F017
Boyko, James G.; J003
Bradford, Rodney; S055
Brassell, Gilbert W.; N019
Bredt, James F.; A093
Briggs, M. Michael; I013
Briley, W. Roger; S021
Brown, Richard J.; T023
Bryant, Yvonne G.; T034
Bryfogle, Mark D.; M031
Bryskiewicz, Tadeusz; M043
Bruskiewicz, John E.; D002
Bubeck, Kenneth B.; A089
Buelow, Philip E.; E026
Buggeln, Richard C.; S021
Buinevičius, Rimantas; P014
Bullister, Edward T.; N004
Burke, Patrick D.; M020
Burkland, Curtis V.; A048
Burman, Jerry A.; I017
Burton, Rodney L.; G005
Busch, George E.; K001
Buzzell, Calvin; I012

C

Caffrey, Morgan P.; C043
Caglayan, Alper K.; C027
Calcote, Hartwell F.; A035
Caledonia, George E.; P025
Campbell, Richard E.; E027
Carluccio, James R.; P003
Carrabba, Michael M.; E004
Carroll, Joseph A.; E023
Caruso, Steven C.; N012
Case, George D.; R013
Casuccio, Gary S.; E007
Catella, Gary C.; C036
Cater, John; D018
Caulfield, H. John; A037
Cavalleri, Robert; A069
Ceccon, Harry; C016
Ch'en, Daniel R.; M046
Chai, Li; I004
Champney, Joelle M.; A071
Chan, William S.; E014

Chan, Y. T.; S021
Chang, I. C.; A084
Chapman, David K.; M039
Chen, Alexander Y. K.; S021
Chen, Thomas T.; G018
Chen, Yen-Sen; S027
Chenausky, Peter P.; Q003
Cheung, Raymond; P006
Childs, Robert E.; N012
Chirivella, Jose E.; E032
Chisholm, John P.; S032
Chiu, Long S.; A064
Cho, Yung L.; L003
Chody, Joseph R.; E010
Christensen, Kurt K.; A058
Chuan, Raymond L.; B002; F005
Ciciora, John A.; J006
Cigledy, Richard S.; N006
Clark, S. A.; I026
Clark, William E.; A069
Clement, Warren F.; S082
Clemm, Peter; M017
Clifford, Paul K.; M055
Clinton, James R.; E023
Cody, Joseph C.; S005
Cogan, Stuart F.; E004
Cohan, Steven M.; O004
Cohen, Marvin S.; D009
Cohen, Murray S.; D023
Colombo, Gerald V.; U004
Colvin, David P.; T034
Condon, Michael D.; C049
Coon, Darryl D.; M045
Cooper, Gerald; P016
Cooper, Ralph S.; C055
Cooper, Richard; R008
Cordova, Jeffrey Q.; V006
Costello, Frederick A.; F020
Costich, Verne R.; L009
Cottman, Bruce H.; S076
Cox, M. K.; F006
Crary, Bruce; O012
Crimmins, James W.; W006
Crosby, Lon; N020
Crouse, Dennis N.; S025
Crowley, Christopher J.; C054

D

Daga, Raman L.; M033
Dahl, Philip R.; I009
Dame, Richard E.; M027
Daughton, James M.; N013
Davidson, Arnold W.; I008
Davis, Scott; A065
Davis, T. J.; S059
Davisson, Lee D.; T010
Dawes, Robert L.; M018
De Feo, P.; S051
DeLuca, Robert D.; H002
Debaryshe, P. G.; H007
Decker, Raymond F.; W002
Degruyl, Johannes; L003
Deimler, James E.; A054
Deming, Glen I.; F017
Demler, Roger L.; F017
Demos, Gary; D014
Dennis, Jack B.; D005
Denton, Richard V.; T006
Deo, Naresh C.; M049
Derby, Roger W.; Q002
Deshazer, Larry G.; S040

Dessau, Harold R.; E011
Dias, Antonio R.; O011
Dickson, James; R015
Dixon, Peter G.; A032
Doerra, Gary L.; S024
Donnelly, Cleveland W.; A077
Dow, Norris F.; M021
Downer, James R.; S011
Downward, James G.; K001
Draeger, Norman A.; M048
Drap, Robert; O004
Drew, Russell C.; V005
Driskell, James E.; F011
Drury, Mark; F017
Dube, C. Michael; D027
Duluk, Jerome F.; S034
Dussinger, Peter M.; T024
Dvorak, Frank A.; A052

E

Eastman, G. Yale; T024
Edwards, Oliver J.; Q007
Edwards, Roger; N005
Egan, Gregory J.; H011
Eichenlaub, Jesse B.; D019
Eiseman, Peter R.; P035
Eisenberg, B. R.; T017
El-Bayoumy, Lotfi E.; M014
Endal, Andrew S.; A064
Engel, Carl D.; R011
Engelberger, J. F.; T031
Entine, Gerald; R005
Ernst, Donald M.; T024
Evans, Milton L.; H006

F

Fancy, Robert D.; A014
Farber, Ira; O013
Farmer, Richard C.; C051; S027
Farrell, Mark; R015
Farrelle, Paul; O011
Farshchi, Mohammad; N012
Fastring, Richard A.; S077
Favenesi, James A.; S050
Felkins, S. Leon; F002
Feller, W. Bruce; G007
Ferrara, Angelo A.; B009
Fetzer, Gregory J.; O009
Filman, Robert E.; I014
Fisher, Stephen M.; M029
Fitzpatrick, Gary O.; A024
Fleeter, Richard; D011
Flint, Graham; L005
Foa, Joseph V.; F015
Fok, Simon K.; T011; Z001
Folenta, D. J.; T033
Foltyn, Robert W.; E010
Forro, John R.; B013
Fosdick, Robert E.; G006
Foukal, Peter V.; C015
Fouse, Scott; A072; I002
Frankel, Donald; A037
Frasca, John; F018
Fraser, James C.; P019
Fraser, Robert B.; N017
Frey, Randy W.; A092
Friedlander, David; M002
Friedlander, Marc A.; A033
Friedman, Peter S.; P021
Frish, Michael; P025
Frogner, Bjorn; E037
Fuleihan, Camille F.; O013

G

Gad-El-Hak, Mohamed; F012
Gale, Ronald P.; K004
Galica, James P.; S063
Gallaway, Robert A.; G004
Galloway, Jr., John R.; G008
Ganguly, Suman; C024
Garels, George E.; P001
Garrett, B. C.; C030
Gassner, J. J.; F017
Gautier, Catherine; C029
Gaynor, Edwin S.; A037
Gerardi, Joseph J.; G016; I009
Gernert, Nelson J.; T024
Gersh, Michael; S056
Gerstenberger, David S.; L009
Gerstenfeld, Arthur; U001
Ghosh, Ashoke; S005
Gibeling, Howard J.; S021
Gibson, Michael A.; C018
Gibson, Warren C.; C006
Gier, H. L.; A039
Giner, Jose; G017
Ginsparg, Jerrold; N003
Glenn, Floyd A.; A054
Glenn, Paul; B006
Gloer, Katherine B.; A011
Gnacek, Anne-Marie; N011
Gniady, John; A070
Goddard, David M.; M020
Godec, Richard; S033
Goehner, Peter; C046
Goela, Jitendra Singh; C010
Goeschl, John D.; P027
Goettge, Robert T.; A030
Goldie, James H.; S011
Gonzales, R. C.; P013
Goodwin, Francis E.; D018
Gopikanth, M. L.; C032
Gordon, Daniel K.; A091
Gordon, Steven J.; I015
Gradie, Jonathan; S030
Graham, Harold A.; S006
Grahn, Allen R.; B017
Grau, J. Kaye; S036
Gravely, Benjamin T.; T034
Graves, Peter W.; D015
Greenwald, Anton C.; S062
Greenwood, Daniel; N006; V002
Griffith, Mike; M052
Grossman, William M.; L009
Gulchard, Donald C.; P003
Guire, Patrick E.; B012
Guisado, Raul; C023
Gumbs, Ronald; G021
Gupta, Naren K.; I013
Gupta, Roop N.; V004
Gurman, Joseph B.; A064
Guzowski, Stephen J.; Q004

H

Hall, David W.; D007
Halloran, John W.; C005
Halpern, Bret L.; S013
Halyo, Nesim; I006
Ham, David; P025
Handschy, Mark A.; D021
Hannauer, George; E018
Hansen, C. Frederick; H005
Hardin, Glenn; M038
Harding, John T.; U002
Harkness, Robert G.; S065
Harrah, Larry A.; T002

Harrington, Nora; A054
Harston, Craig T.; A013
Hartman, Neil W.; F008; L001
Harvey, Andrew C.; F017
Hasselman, Timothy K.; E028
Hauber, David; A089
Hawk, John Forrest; O004
Hawkins, Frederick J.; O007
Haynes, Leonard S.; I016
Heathcote, David G.; M039
Hecht, Herbert; S037
Heller, Donald F.; L008
Heller, R. Page; M036
Hendricks, John B.; A042
Hendricks, Neil H.; M024
Henshaw, Philip D.; S053
Hercher, Michael; O012
Herendeen, David L.; U006
Herlitzier, Jean-Marc; Q005
Herrick, John W.; F006
Hess, Cecil F.; M035; S058
Hewett, Marie D.; S051
Heyburn, Donald E.; A023
Hickey, John R.; T021
Hickman, Gail A.; I009
Higble, Nathan B.; T013
Hill, Wayne S.; F017
Hirvonen, James K.; S062
Hobbs, Robert W.; C045
Hockney, Richard L.; S011
Hodgkinson, John; E010
Hoffman, James W.; S045
Hoh, Roger H.; S082
Holmes, Allen B.; D010
Holt, Robert H.; C011
Holz, Gary L.; H008
Holzer, Joseph M.; E037
Holzl, Robert A.; D013
Hommel, Mark J.; M016
Hoover, Douglas N.; O005
Hornig, David A.; C020
Horst, Richard L.; A009
Hottman, David L.; B021
Hovis, Warren A.; T004
Howard, George E.; A005
Howlett, James F.; H009
Hudson, Olin; D003
Huguenin, G. Richard; M049
Humphrey, J. W.; A028
Humphreys, E. A.; M021
Hunter, Herbert E.; N011
Husseiny, Abdo A.; T014
Hutcheson, Lynn D.; A007
Hutcheson, Ralph L.; S020; S041
Hutchins, S. E.; E020
Hwangbo, Han; M005

I

Iavecchia, Helene P.; A054
Ibanez, Paul; A005
Imlay, Scott T.; A050
Isaacs, R. G.; A082
Isaacson, Bruce G.; B011
Iverson, Roger; R002

J

Jacob, Jonah; S018
Jacobus, Charles J.; C028
Jacobus, Heidi N.; C028
Jain, A. C.; R011
Jain, Vinod; G017
Jameson, Arthur R.; A064

Jasinski, James; C054
Jasinski, Thomas J.; C054
Jeffrey, Frank; I025
Jewell, Wayne F.; S082
Jha, Sunil C.; M017
Jochman, David; A054
Johnson, A. David; T025
Johnson, Bruce G.; S011
Johnson, Wayne; J005
Johnston, Donald E.; S082
Johnston, Richard P.; D016
Jolly, Clifford D.; U004
Jones, Keith A.; M051
Joshl, Prakash B.; P025
Jou, Wen-Huei; F012
Joyce, Kathleen; A059
Ju, Lu Kwang; B013
Juhlik, Timothy J.; E035
Junger, Miguel C.; C013

K

Kalnithia, Ramesh C.; L011
Kaluzy, Stephen; S068
Kamil, Hasan; S072
Kamo, Roy; A017
Kandt, Ronald Kirk; I002
Kane, Thomas J.; L009
Kao, M. L.; E001
Kao, Tai; P006
Kaplan, Michael L.; M003
Kaplan, Richard B.; U002
Karni, Z. H.; I019
Karpinski, A. A.; N018
Kashalikar, Uday; F017
Katzka, Patrick; A006
Kawa, Hajimu; E035
Keavney, Christopher J.; S062
Kebabian, Paul; A037
Keller, Rudolf; E005
Kelly, John T.; A044
Kelly, Stephen; A018
Kendall, James M.; T008
Kendall, William B.; S044
Kennedy, Robert S.; E033
Kent, Geoffrey S.; S019
Kenyon, Steve; D018
Keohan, Francis; C017
Kerlin, T. W.; A004
Khan, M. Asif; A007
Kilgore, W. Allen; V004
Kim, Young-Nam; S021
King, Nigel S.; O004
Kinsley, Kathryn C.; D006
Kirchner, Ted E.; F017
Kirk, Ronald L.; T022
Kirlin, Peter S.; A034
Klainer, Stanley M.; S007
Klein, James D.; E004
Kleiner, Charles T.; C008
Klopfer, Goetz H.; N012
Knocke, G. Stuart; F013
Knowles, Timothy R.; E023
Knox, E. C.; R011
Kober, Wolfgang; V003
Koch, Victor R.; C053
Koester, Gary; S073
Kosut, Robert L.; I013
Kovarik, Vincent; S036
Krause, Dennis R.; S058
Krause, Paul C.; P001
Kreeger, Richard; B001
Kress, Ruth B.; R019
Kulshreshtha, Alok K.; A027
Kuperstein, Michael; N007
Kurrasch, Eleanor; O004

Kuznetsov, Stephen; P031
Kydd, Paul H.; P010
Kyser, Albert C.; I011

L

Ladewski, Theodore B.; K001
Lambird, Barbara A.; L002
Langford, John S.; A085
Lao, Bindeg Y.; A045
Laprade, Bruce N.; G007
Larson, Robert E.; E037; M004
Larson, Timothy; O004
Lavid, Moshe; M006
Lawton, Daryl T.; A020
Lease, Thomas; R015
Leberl, Franz W.; V003
Lecocq, Andrew D.; A009
Lee, Hyo Sang; S017
Legner, Hartmut H.; P025
Lehotsky, James P.; D004
Leung, Jurn Sun; G013
Levin, Kenneth; I007
Levy, Ralph; S021
Lew, Thomas M.; W007
Lewis, Clark H.; V001
Lichtenberg, Byron K.; P011
Lin, Charles Y.; A022
Lin, T. D.; C048
Linden, Kurt J.; S062
Liu, Chaoqun; C038
Liver, Peter A.; R011
Loftin, Timothy A.; D003
Loh, Ih-Houng; T015
Lomp, Gary; S002
Longsworth, Ralph C.; A008
Loomis, Peter V. W.; T006
Lord, Carter M.; O006
Loretz, Thomas J.; D015
Lovel, Paul; I021
Lucas, Carroll; A091
Ludwig, David E.; I026
Lundeen, Thomas; S030
Lusignea, Richard W.; F017
Lynch, Franklin E.; H011
Lynnworth, Lawrence C.; P009
Lyons, Walter A.; R001

M

Magill, D. Thomas; S064
Mahan, John E.; C038
Mahmood, Shahjahan; S022
Mahoney, John F.; P022
Malden, Janice R.; T020
Mains, Richard C.; D022
Majumdar, Alok K.; C025
Malachowski, Mark J.; C001
Malcolm, Gerald N.; E010
Malone, Glenn A.; E016
Malone, Thomas B.; C019
Manasse, Fred K.; A002
Mangalam, Siva M.; A053
Manhardt, P. D.; C041
Manley, Troy D.; G010
Marinaccio, Paul J.; F017
Marinelli, William J.; P025
Markson, Ralph J.; W003
Martin, H. Lee; T018
Martini, W. R.; M019
Marx, Douglas A.; P003
Maskew, Brian; A052
Mastandrea, Andrew A.; S006
Mastandrea, John R.; N001

Mateian, Nicholas; F010
Maulucci, Ruth A.; M007
Maxwell, Charles; E021
McAnally, James V.; H010
McAvinney, Paul; S029
McCabe, Stephen P.; P008
McCammon, Ian D.; S010
McCord, Carol S.; S030
McCoy, John; F017
McCray, Scott B.; B010
McCullough, Robert W.; T016
McCurnin, T. W.; P017
McDonald, H.; S021
McEntire, Paul L.; O010
McIntosh, Glen E.; C057
McLellan, Edward J.; P040
McMahan Jr., Robert K.; M026
McMillan, Gary B.; S080
McMurray, Gary V.; Q004
Melconian, Jerry O.; S038
Mertz, Frederick C.; E008
Metcalfe, Ralph W.; F013
Mikes, Thomas; A047
Miksell, Steven G.; S065
Miller, Bennett; F019
Miller, Ryan P.; K001
Minor, Timothy R.; D024
Miranda Jr., Henry A.; M050
Mix, Thomas W.; M032
Modarress, Dariush; P024; S058
Moerder, Daniel D.; I006
Mongeon, Robert J.; C004
Mooney, Thomas A.; B004
Moore, Ellen L.; M049
Moore, Gerald; G003
Moore, Joseph A.; M020
Moore, Larry J.; A083; E009
More, Keith A.; D004
Moretti, Gino; G002
Morris, John; A065
Mortensen, Robert L.; L009
Mosleh, Behzad; P023
Moulton, Peter F.; S014; S015
Moyle, Ian N.; E038
Munson, Robert C.; A009
Muol, Tran Van; P029
Murphy, R. Jay; M010
Murr, Lawrence E.; M054
Murthy, Jayathi Y.; C054
Myers, Thomas T.; S082

N

Namavar, Fereydoon; S062
Narasimhan, Mandayam C.; S042
Narayana, N. V. L.; A088
Nebolsine, Peter E.; P025
Nelson, Bruce N.; G014
Nelson, Loren D.; O009
Neuswanger, Craig; A021
Ng, Eric; L003
Nguyen, Thinh V.; M057
Nickerson, Gary R.; S035
Nicoll, Anthony; O013
Nikoonahadd, M.; B011
Nilsson, J. L.; S074
Nishioka, Gary M.; H001
Nissley, Hal; A012
Nixon, David; N012
Noravian, Heros; A055
Norman, John P.; P003

O

O'Brien, Thomas P.; B011
O'Keefe, Anthony; D008
O'Neill, Mark J.; E030
O'Reilly, John; E037
Oder, Robin R.; E038
Olsen, Gregory H.; E031
Olsen, Randall B.; C035
Orban, Ralph F.; M020
Osborne, Ronald; M002
Osofsky, Irving B.; S052
Osten, Donald E.; G007
Osterwisch, Frederick G.; D004
Owen, F. K.; C039
Owens, Lester J.; S049

P

Paciorek, K. L.; U003
Palkuti, Leslie J.; A029
Palmour, John W.; C056
Pan, J. J.; E001
Pape, Dennis R.; P020
Paquette, Edward L.; R009
Parikh, Paresh C.; V004
Parish, David W.; U005
Parker, Robert W.; E010
Parks, Robert; B019
Parks, Thomas R.; F016
Parsons, James D.; A034
Pasch, Ken; F017
Petra, Amit L.; T034
Paziraneh, Mohsen; I010
Peinemann, Klaus; M028
Pemaler, J. Paul; C022
Pender, Charles W.; T019
Penn, Wayne; P012
Perala, Rodney A.; E013
Petelenz, Thomas J.; I023
Petersen, Wendell C.; M046
Peterson, Bruce R.; N018
Peterson, Stephen C.; T009
Pfefferle, William C.; P032; W004
Pfenninger, Werner; E024
Phillip, Borden; M042
Phillips, Robert M.; S067
Phillips, William; A007
Plinner, J. Michael; C059
Pinto, Gino A.; T013
Piper, Lawrence G.; P025
Platek, Richard; O005
Plumer, J. A.; S070
Pond, John E.; R011
Ponder, Carl; A003
Popie Jr., Harry E.; S028
Poppendiek, Heinz F.; G015
Potash, Robert I.; I020
Poteet, Wade M.; I008; S078
Praharaj, Sarat C.; R011
Prakash, C.; C025
Przekwas, Andrzej J.; C003; C025
Putnam, David F.; U004

Q

Quackenbush, Todd R.; C050
Quick, William H.; Q002
Quinlan, Daniel J.; C038

R

Radicali Di Brozolo, Filippo; C026
Radin, Lon; T026
Raiskin, E.; S008
Raman, K. R.; R007
Rand, James L.; W007
Rantanen, Raymond O.; S016
Rao, Dhanvada M.; V004
Rao, Ramo; E034
Rauh, R. David; E004
Rawlins, W. Terry; P025
Ray, Jim R.; I020
Ray, Ranjan; M017
Ray, Roderick J.; B010
Razavi, Hamid; S022
Readey, Harvey; A080
Redner, Alex S.; S071
Reed, David E.; Q001
Reeves, Richard E.; G010
Reich, Frederick R.; F012
Reif, John H.; R004
Reinecke, Gregory T.; S054
Reiner, Ronald J.; E033
Ressler, Gerald M.; R014
Reynolds, George H.; M008
Ribble, Eric; A016
Rice, Eric E.; O014
Richtsmeier, Steven; S058
Ries, Douglas M.; F004
Riffle, Judy S.; M030
Riggle, Peter; S069
Rines, Glen A.; S015
Risko, Donald G.; E039
Riter, John R.; H011
Rizk, Magdi H.; F012
Roberts, Donald W.; A050
Roberts, Glyn O.; R018
Roberts, Peter C. T.; Q001
Robinson, Peter; S061
Rockefeller, Uwe; R020
Rollins, Christopher J.; P025
Romkey, John L.; F001
Rose, William C.; R021
Rosemeier, Ronald G.; B020
Rosenbalt, Simon; F014
Rosenberg, David; I002
Rosenfeld, John H.; T024
Rosheim, Mark Elling; R022
Ross, Monte; L004
Rothe, Dietmar E.; L007
Rouse, William B.; S026
Rudnik, Andres; S036
Ruff, Lawrence E.; A089
Rupich, M. W.; E004
Rupprecht, George; R023

S

Sabins, Jayant S.; S021
Salona, Poonam; H004
Salwen, Nathan K.; P039
Sameh, Ahmed; K005
Sammells, Anthony F.; E019
Sarangapani, S.; G017
Sarrafzadeh, Adel; A049
Satterlee Jr., Paul E.; T018
Savell, C. Thomas; D025
Scarlinge, Robert P.; M013
Scerbak, David G.; E015
Schebor, Frederick S.; K001
Scheinman, Elan; I003
Scheld, H. W.; P027
Schetky, L. McDonald; M029
Schiffman, Robert; I022

Schlager, Kenneth J.; B015
Schlecht, Richard; L006
Schmidt, Howard K.; S012
Schneider, Dennis Ray; A087
Schoppers, Marcel; A020
Schriempf, J. T.; P028
Schroeder, Jon M.; R012
Schultz, J. Albert; I024
Segal, Brahm; N015
Sekhar, Prasanna C.; G021
Sekula-Moise, Patricia; S062
Selby, Vaughn H.; I028
Senior, Constance L.; P007
Shaffer, David B.; I020
Shanks, Samuel P.; J001
Shapiro, Daniel; A020
Shaubach, Robert M.; T024
Shaw, Roland; S031
Sheehan, James E.; F006
Sheek, J. Grady; U002
Shen, Bing Whey; S062
Shepard, Sharon; S029
Sherman, Andrew J.; U002
Shi, Z. George; E029
Shilchta, Paul J.; C058
Shinn, Philip C.; S061
Shultz, Richard E.; C042
Shuster, Malcolm D.; B022
Silver, Joel A.; S043
Silverman, Barry G.; I018
Silverstein, Calvin C.; C002
Simm, David E.; O007
Sims, Gary R.; P017
Singh, Mahendra; W001
Singhal, Ashok K.; C003
Sinosky, Edward; C031
Sioshansi, Piran; S062
Sipin, A. J.; A057
Siu, Daniel P.; M046
Sixsmith, Herbert; C054
Skinner, Frank R.; R017
Skrott, John P.; E003
Slocum, Robert E.; P030
Slotwinski, Anthony R.; D018
Smith, Clifford E.; C003
Smith, Fraser M.; S010
Smith, S. D.; S027
Smith, Stephen Dale; D020
Smith, Wayne; C054
Solomon, Peter R.; A025
Somers, Richard E.; R011
Soni, Bharat K.; P035
Sorensen, John A.; A051
Sorkin, Robert D.; B008
Spanish, Martin M.; I026
Spitzer, Mark B.; K004; S062
Spradley, Lawrence W.; H010
Squillante, Michael R.; R005
Srinivasan, Triveni; E034
Stabler Jr., Edward P.; Q009
Stachowski, Russell E.; A029
Stacy, W. Dodd; C054
Standridge, Charles R.; P034
Stanley, James H.; A029
Stanton, Alan C.; A037; S043
Staples, Edward J.; A045
Star, Jeffrey L.; B014
Stark, Philip; F017
Starkey, Donald L.; D011
Stecklein, Hilary P.; M037
Sternberg, Stanley R.; M009
Stetter, Joseph R.; T030
Stevens, Ward C.; A034
Stokes, Danny B.; A075
Stoller, H. M.; P003
Stoltzman, David E.; A007
Stormon, Charles D.; C037
Stover, John C.; T001

S
Strand, Norman S.; Q008
Strid, Eric W.; C021
Strodtman, Scott L.; D004
Studer, Philip A.; M012
Sues, Robert H.; A062
Summa, J. Michael; A052
Sundaram, P.; V004
Supan, Edward C.; D003
Swaminathan, P. K.; C030
Swette, Larry; G017

T

Tabacco, Mary Elizabeth; G014
Takeuchi, Esther S.; W005
Tannehill, John C.; E026
Tartt, David M.; G001
Tatom, Frank B.; E025
Taylor, E. Jennings; P025
Taylor, Gregory E.; E006
Taylor, John H.; E010
Taylor, Robert T.; D012
Taylor, Scott R.; S001
Teoh, William; S050
Thomas, Michael R.; S060
Thompson, Brian E.; S021
Thompson, Jack M.; R018
Thompson, Peter M.; S082
Timoc, Constantin C.; S048
Togai, Masaki; T027
Tole, John Roy; D017
Torre-Bueno, Jose R.; A048
Toth, Jerome E.; T024
Townsend, William T.; B005
Tracy, John; T005
Tran, Danh; I007
Tregay, George W.; C047
Treglio, James R.; I001
Trivedi, S. B.; B020
Trolinger, James D.; M035; S058
Tuenge, Richard; P028
Turner, James D.; P018
Turney, Jerry L.; K001

U

Udy, Jerry L.; A073
Unverferth, Michael J.; M040
Upadhyay, Triveni N.; M025

V

Valenzuela, Javier A.; C054
Valerio, Clement; P015
Van Dam, Cornelis P.; V004
Vanka, S. P.; P036
Vernon, Stanley M.; S062
Viken, Jeffrey K.; E024
Vilot, Michael J.; O008
Vogel, Uriel; M053
Von Ehrenfried, Manfred; T007
Vora, Dipak V.; G010
Voss, John Mark; L010
Vu, Ngoc-Chi N.; T028
Vysin, V. Pat; B016

W

Waggener, Mary S.; A019
Waleh, Ahmad; A066
Walford, Graham V.; G020
Walker, David H.; F017
Walker, Graham; G012
Walker, Robert A.; I013
Walker, Steve; T020
Wallace, Richard W.; L009
Wallace, Robert; M056
Walsh, Fraser; E002; T029
Walsh, Myles; C017
Wanderman, Ken; K002
Wang, Chen-Show; G011
Wang, Rong; F003; F013
Wang, Ting I.; S023
Wang, Yulan; D026
Ward, Steven M.; E021
Ware, R. Louis; G019
Warshawsky, Erwin H.; J002
Wartski, Heinz; F009
Wason, Thomas D.; A043
Watts, Harry L.; F007
Webb, George W.; E023
Weeks, Joseph K.; T009
Weiman, Carl; T031
Weimer, Raymond J.; C052
Weinberg, Aaron; S065
Weinberg, Bernard C.; S021
Weischadel, Herbert R.; N002
Welch, Steven W.; S079
Wentz, Frank J.; R010
Wernlund, R. F.; P002
Wertz, James R.; M041
Wesolowicz, Karl G.; D004
Wesson, Laurence N.; A086
Westrom, George B.; O004
Weyl, Guy; P025
White, David L.; S039
White, Robert J.; C044
Wiginton, C. Lamar; M023
Wigley, David A.; A060
Wijmans, Hans; M028
Wilby, John F.; A079; A081
Wilcox, David C.; D001
Wilkes, Donald R.; J004
Williams, Wiyman L.; M034
Willoughby, David E.; A036
Wilson, Richard C.; R006
Wilson, John R.; S083
Winkler, Anthony J.; C045
Withers, J. C.; M022
Wnuk Jr., Stephen P.; H003
Wolf, Daniel E.; A010
Wolkovitch, Julian; A001
Woo Jr., John; G009
Wood, Colin E. C.; N018
Wood, Gary; S073
Woodhouse, Robert M.; A040
Woods, G. Hamilton; R011
Worden, Alfred M.; M001; M015
Wormhoudt, Joda C.; A037
Wortman, A.; I027
Wright, Gary J.; A030
Wright, James R.; A068
Wright, R. Glenn; P037
Wrigley, Charles Y.; Q006
Wyntjes, Geert; O012

Y

Yakhot, A.; C014
Yancey, Robert N.; A029
Yang, H. Q.; C003
Young, Eddie; N009
Young, Robert D.; E012
Yuen, Walter W.; X001

Z

Zacharias, Greg L.; C027
Zachary, Wayne W.; C033
Zack, John W.; M003
Zaklin, Mitchell; S056
Zakrzewski, Edwin; S065
Zenner, Bruce D.; A074
Zieve, Peter; E017

INDEX OF CONTRACT NUMBERS

1: Langley Research Center

NAS 1-17569: A056	NAS 1-18223: C015	NAS 1-18634: S082	NAS 1-19002: T020
NAS 1-17570: C013	NAS 1-18241: F010	NAS 1-18636: F017	NAS 1-19003: S015
NAS 1-17571: A060	NAS 1-18242: S058	NAS 1-18637: T035	NAS 1-19004: C027
NAS 1-17572: C039	NAS 1-18243: P025	NAS 1-18639: S041	NAS 1-19005: A048
NAS 1-17573: S021	NAS 1-18253: S007	NAS 1-18640: D018	NAS 1-19006: I009
NAS 1-17574: S082	NAS 1-18258: I005	NAS 1-18641: Q002	NAS 1-19007: S014
NAS 1-17575: A051	NAS 1-18279: M011	NAS 1-18643: M026	NAS 1-19008: O005
NAS 1-17576: A009	NAS 1-18285: E021	NAS 1-18644: U002	NAS 1-19009: E010
NAS 1-17577: F006	NAS 1-18287: Q001	NAS 1-18645: M045	NAS 1-19010: S070
NAS 1-17578: M017	NAS 1-18288: R015	NAS 1-18648: C054	NAS 1-19011: R009
NAS 1-17579: O005	NAS 1-18292: F012	NAS 1-18653: F005	NAS 1-19012: R005
NAS 1-17580: I013	NAS 1-18303: L006	NAS 1-18659: F017	NAS 1-19013: H006
NAS 1-17581: A047	NAS 1-18404: A035	NAS 1-18660: S062	NAS 1-19014: I009
NAS 1-17582: C004	NAS 1-18405: M010	NAS 1-18661: M010	NAS 1-19015: I013
NAS 1-17583: S048	NAS 1-18406: A016	NAS 1-18662: E027	NAS 1-19016: C038
NAS 1-17584: K001	NAS 1-18407: A079	NAS 1-18663: S036	NAS 1-19017: N004
NAS 1-17585: P025	NAS 1-18408: O004	NAS 1-18664: O004	NAS 1-19018: H005
NAS 1-17586: B017	NAS 1-18410: S077	NAS 1-18667: C039	NAS 1-19019: R015
NAS 1-17926: V004	NAS 1-18411: H003	NAS 1-18668: H003	NAS 1-19020: D018
NAS 1-17930: F012	NAS 1-18412: B002	NAS 1-18669: S082	NAS 1-19021: S026
NAS 1-17931: M011	NAS 1-18413: C054	NAS 1-18670: V004	NAS 1-19022: A049
NAS 1-17932: S058	NAS 1-18414: S082	NAS 1-18673: R022	NAS 1-19023: C050
NAS 1-17933: D012	NAS 1-18415: F013	NAS 1-18674: E037	NAS 1-19024: C054
NAS 1-17934: M021	NAS 1-18416: P003	NAS 1-18693: F003	NAS 1-19025: F017
NAS 1-17935: F006	NAS 1-18417: S032	NAS 1-18801: I013	NAS 1-19026: I006
NAS 1-17936: O010	NAS 1-18418: S036	NAS 1-18802: A028	NAS 1-19027: N012
NAS 1-17937: I005	NAS 1-18419: V004	NAS 1-18803: E034	NAS 1-19028: S062
NAS 1-17938: T005	NAS 1-18420: F017	NAS 1-18804: S021	NAS 1-19029: C054
NAS 1-17939: F010	NAS 1-18421: I009	NAS 1-18805: E010	NAS 1-19030: E031
NAS 1-17940: Q001	NAS 1-18422: R022	NAS 1-18806: C027	NAS 1-19031: A081
NAS 1-17941: L006	NAS 1-18423: T018	NAS 1-18807: P025	NAS 1-19032: S080
NAS 1-17942: P025	NAS 1-18424: T009	NAS 1-18808: A089	NAS 1-19033: S048
NAS 1-17943: S007	NAS 1-18425: B020	NAS 1-18809: A031	NAS 1-19034: G008
NAS 1-17944: E021	NAS 1-18426: S011	NAS 1-18810: V004	NAS 1-19035: S062
NAS 1-17945: K001	NAS 1-18427: S082	NAS 1-18811: S037	NAS 1-19036: E014
NAS 1-17946: S022	NAS 1-18428: S062	NAS 1-18812: I006	NAS 1-19091: I006
NAS 1-17949: E024	NAS 1-18429: S015	NAS 1-18813: E014	NAS 1-19092: O004
NAS 1-17950: E024	NAS 1-18430: E037	NAS 1-18814: K001	NAS 1-19093: A029
NAS 1-17951: F012	NAS 1-18442: S014	NAS 1-18815: L006	NAS 1-19094: T018
NAS 1-17978: R015	NAS 1-18468: O004	NAS 1-18816: O004	NAS 1-19095: F017
NAS 1-17987: S082	NAS 1-18469: P004	NAS 1-18817: F017	NAS 1-19096: I013
NAS 1-17988: K001	NAS 1-18473: A054	NAS 1-18818: I013	NAS 1-19097: S043
NAS 1-17997: B017	NAS 1-18475: C015	NAS 1-18819: C050	NAS 1-19098: A028
NAS 1-18001: M017	NAS 1-18476: C010	NAS 1-18820: D010	NAS 1-19099: B011
NAS 1-18005: S048	NAS 1-18477: T013	NAS 1-18821: M008	NAS 1-19100: C050
NAS 1-18017: A051	NAS 1-18479: M008	NAS 1-18822: S011	NAS 1-19101: S036
NAS 1-18019: A009	NAS 1-18480: A029	NAS 1-18823: T018	NAS 1-19102: N004
NAS 1-18020: C013	NAS 1-18481: C057	NAS 1-18824: B011	NAS 1-19103: L009
NAS 1-18066: A060	NAS 1-18482: G007	NAS 1-18825: D002	NAS 1-19116: O011
NAS 1-18201: A029	NAS 1-18527: F017	NAS 1-18826: S036	NAS 1-19125: V004
NAS 1-18202: I011	NAS 1-18606: C038	NAS 1-18827: L009	
NAS 1-18203: I013	NAS 1-18607: C050	NAS 1-18828: S062	
NAS 1-18204: O004	NAS 1-18610: S057	NAS 1-18829: S043	
NAS 1-18205: S058	NAS 1-18611: E036	NAS 1-18830: A029	
NAS 1-18206: A025	NAS 1-18615: M008	NAS 1-18831: N004	
NAS 1-18207: S058	NAS 1-18616: P025	NAS 1-18832: M024	
NAS 1-18208: S009	NAS 1-18617: P025	NAS 1-18844: O002	
NAS 1-18209: S081	NAS 1-18618: G002	NAS 1-18845: P025	
NAS 1-18210: S014	NAS 1-18619: S040	NAS 1-18846: F017	
NAS 1-18211: A054	NAS 1-18620: U007	NAS 1-18847: C023	
NAS 1-18212: I006	NAS 1-18621: D006	NAS 1-18848: M026	
NAS 1-18213: F012	NAS 1-18622: A035	NAS 1-18849: A035	
NAS 1-18214: T013	NAS 1-18623: N010	NAS 1-18850: M045	
NAS 1-18215: F017	NAS 1-18625: C023	NAS 1-18851: S019	
NAS 1-18216: C057	NAS 1-18626: O002	NAS 1-18852: Q002	
NAS 1-18217: R017	NAS 1-18627: T018	NAS 1-18853: S011	
NAS 1-18218: S005	NAS 1-18628: T020	NAS 1-18854: T035	
NAS 1-18219: M008	NAS 1-18629: R018	NAS 1-18855: T018	
NAS 1-18220: G007	NAS 1-18630: N007	NAS 1-18856: V004	
NAS 1-18221: U006	NAS 1-18631: S019	NAS 1-18857: S020	
NAS 1-18222: C010	NAS 1-18632: S011	NAS 1-18890: D018	

2: Ames Research Center

NAS 2-11725: A001	NAS 2-12351: S071	NAS 2-12643: A008	NAS 2-12985: E010
NAS 2-11726: J002	NAS 2-12352: L009	NAS 2-12666: S071	NAS 2-12987: T028
NAS 2-11727: A052	NAS 2-12353: P027	NAS 2-12725: C027	NAS 2-12988: A001
NAS 2-11728: T011	NAS 2-12354: M032	NAS 2-12726: S082	NAS 2-12989: E010
NAS 2-11729: A052	NAS 2-12355: G002	NAS 2-12728: E010	NAS 2-12990: G012
NAS 2-11730: C050	NAS 2-12356: C030	NAS 2-12738: I013	NAS 2-12991: A066
NAS 2-11731: S082	NAS 2-12357: S068	NAS 2-12741: N014	NAS 2-12994: N017
NAS 2-11732: S058	NAS 2-12358: A037	NAS 2-12773: D007	NAS 2-12997: P002
NAS 2-11733: F018	NAS 2-12359: F012	NAS 2-12774: S044	NAS 2-12999: M039
NAS 2-11734: A046	NAS 2-12360: B008	NAS 2-12776: A037	NAS 2-13000: C040
NAS 2-11735: P010	NAS 2-12361: C043	NAS 2-12777: I002	NAS 2-13014: C027
NAS 2-11736: Q008	NAS 2-12362: S058	NAS 2-12778: A071	NAS 2-13023: A053
NAS 2-11737: D004	NAS 2-12363: S021	NAS 2-12779: J001	NAS 2-13024: B001
NAS 2-11738: F012	NAS 2-12364: S082	NAS 2-12780: V004	NAS 2-13027: I002
NAS 2-11739: I008	NAS 2-12402: T006	NAS 2-12781: C039	NAS 2-13034: R021
NAS 2-11740: N012	NAS 2-12433: A037	NAS 2-12782: M006	NAS 2-13036: D004
NAS 2-11741: S021	NAS 2-12444: Z001	NAS 2-12787: E010	NAS 2-13056: D009
NAS 2-12016: Q008	NAS 2-12449: F006	NAS 2-12789: C050	NAS 2-13060: S044
NAS 2-12082: T011	NAS 2-12476: S068	NAS 2-12795: D009	NAS 2-13092: C050
NAS 2-12083: A067	NAS 2-12481: R007	NAS 2-12796: M023	NAS 2-13113: T025
NAS 2-12084: A037	NAS 2-12531: K001	NAS 2-12797: T025	NAS 2-13125: J005
NAS 2-12087: N003	NAS 2-12540: S082	NAS 2-12801: A050	NAS 2-13129: A049
NAS 2-12088: N012	NAS 2-12548: E037	NAS 2-12808: S034	NAS 2-13130: G001
NAS 2-12091: T011	NAS 2-12549: Q009	NAS 2-12815: T004	NAS 2-13131: D016
NAS 2-12092: T006	NAS 2-12550: P005	NAS 2-12818: C026	NAS 2-13132: S022
NAS 2-12094: S082	NAS 2-12551: V004	NAS 2-12820: D022	NAS 2-13155: E010
NAS 2-12095: A009	NAS 2-12552: E026	NAS 2-12822: E037	NAS 2-13156: A001
NAS 2-12096: C001	NAS 2-12554: C050	NAS 2-12838: C050	NAS 2-13157: A032
NAS 2-12097: G020	NAS 2-12555: C039	NAS 2-12853: C039	NAS 2-13158: A085
NAS 2-12102: V001	NAS 2-12556: C039	NAS 2-12854: C039	NAS 2-13159: F011
NAS 2-12103: D001	NAS 2-12558: O004	NAS 2-12861: E026	NAS 2-13161: I002
NAS 2-12104: F006	NAS 2-12559: A043	NAS 2-12885: M015	NAS 2-13163: M046
NAS 2-12113: S066	NAS 2-12560: C054	NAS 2-12886: R012	NAS 2-13164: D014
NAS 2-12116: D004	NAS 2-12561: A010	NAS 2-12887: S051	NAS 2-13165: D005
NAS 2-12117: A037	NAS 2-12562: D004	NAS 2-12888: S051	NAS 2-13166: E004
NAS 2-12120: S058	NAS 2-12563: P038	NAS 2-12889: D004	NAS 2-13167: S066
NAS 2-12121: R007	NAS 2-12564: M046	NAS 2-12890: I009	NAS 2-13168: F016
NAS 2-12124: A063	NAS 2-12565: P027	NAS 2-12909: M046	NAS 2-13169: A029
NAS 2-12129: N012	NAS 2-12566: S034	NAS 2-12936: S034	NAS 2-13171: M035
NAS 2-12135: A052	NAS 2-12568: C041	NAS 2-12950: C054	NAS 2-13172: D008
NAS 2-12148: C050	NAS 2-12587: E010	NAS 2-12959: P035	NAS 2-13174: K003
NAS 2-12150: S058	NAS 2-12588: I013	NAS 2-12960: V006	NAS 2-13175: S061
NAS 2-12154: I008	NAS 2-12592: M001	NAS 2-12962: A052	NAS 2-13176: A071
NAS 2-12157: F012	NAS 2-12629: M032	NAS 2-12963: E003	NAS 2-13177: D019
NAS 2-12158: A046	NAS 2-12635: S021	NAS 2-12964: S083	NAS 2-13178: C026
NAS 2-12166: A052	NAS 2-12636: P027	NAS 2-12965: E029	NAS 2-13180: A008
NAS 2-12242: A001	NAS 2-12637: Z001	NAS 2-12967: A020	NAS 2-13186: J001
NAS 2-12347: C041	NAS 2-12638: G015	NAS 2-12968: E037	NAS 2-13187: M006
NAS 2-12348: G015	NAS 2-12639: L009	NAS 2-12969: C030	NAS 2-13194: A052
NAS 2-12349: Z001	NAS 2-12640: S082	NAS 2-12970: P024	NAS 2-13196: E010
NAS 2-12350: A021	NAS 2-12641: S066	NAS 2-12972: E020	NAS 2-13202: C039

3: Lewis Research Center

NAS 3-23786: E001	NAS 3-24099: M020	NAS 3-24634: T024	NAS 3-24871: E030
NAS 3-23787: L003	NAS 3-24245: D003	NAS 3-24739: C044	NAS 3-24872: M022
NAS 3-23788: M046	NAS 3-24246: M046	NAS 3-24742: S065	NAS 3-24874: M019
NAS 3-23870: E022	NAS 3-24247: T017	NAS 3-24844: A038	NAS 3-24878: G017
NAS 3-23871: G017	NAS 3-24248: M046	NAS 3-24845: S022	NAS 3-24879: S073
NAS 3-23872: N015	NAS 3-24251: L003	NAS 3-24846: F017	NAS 3-24880: A017
NAS 3-23873: S042	NAS 3-24252: M046	NAS 3-24847: P003	NAS 3-24881: S021
NAS 3-23874: T024	NAS 3-24394: G017	NAS 3-24848: O012	NAS 3-24882: E023
NAS 3-23891: A037	NAS 3-24395: S062	NAS 3-24849: C040	NAS 3-24894: M046
NAS 3-23896: E035	NAS 3-24396: S073	NAS 3-24850: C002	NAS 3-24895: M046
NAS 3-23897: D003	NAS 3-24397: E023	NAS 3-24851: S021	NAS 3-24896: D003
NAS 3-23899: H009	NAS 3-24531: A037	NAS 3-24852: G016	NAS 3-25116: S067
NAS 3-23900: C055	NAS 3-24532: S021	NAS 3-24853: S021	NAS 3-25119: P001
NAS 3-23935: P022	NAS 3-24533: F012	NAS 3-24854: I027	NAS 3-25120: C016
NAS 3-23936: T009	NAS 3-24534: A035	NAS 3-24855: F012	NAS 3-25121: P025
NAS 3-23937: T033	NAS 3-24535: A017	NAS 3-24856: E035	NAS 3-25122: C021
NAS 3-23938: U003	NAS 3-24536: J003	NAS 3-24857: S062	NAS 3-25123: C025
NAS 3-24093: A037	NAS 3-24537: R002	NAS 3-24865: M033	NAS 3-25124: L001
NAS 3-24094: A037	NAS 3-24539: T033	NAS 3-24866: C001	NAS 3-25125: P011
NAS 3-24095: B009	NAS 3-24540: G002	NAS 3-24867: M017	NAS 3-25126: S050
NAS 3-24096: G002	NAS 3-24546: M020	NAS 3-24868: U002	NAS 3-25127: S075
NAS 3-24097: T022	NAS 3-24613: A037	NAS 3-24869: C011	NAS 3-25128: C047
NAS 3-24098: I027	NAS 3-24632: U003	NAS 3-24870: P025	NAS 3-25129: W004

Lewis Research Center, continued

NAS 3-25130: C010	NAS 3-25349: U002	NAS 3-25605: P012	NAS 3-25828: T016
NAS 3-25131: I020	NAS 3-25350: P031	NAS 3-25606: L003	NAS 3-25829: A035
NAS 3-25132: M017	NAS 3-25352: A070	NAS 3-25607: C056	NAS 3-25830: A038
NAS 3-25133: M053	NAS 3-25371: P009	NAS 3-25608: W002	NAS 3-25833: U005
NAS 3-25134: S071	NAS 3-25372: S012	NAS 3-25610: K004	NAS 3-25834: C003
NAS 3-25135: K004	NAS 3-25400: C058	NAS 3-25611: C035	NAS 3-25835: S021
NAS 3-25136: F013	NAS 3-25401: D008	NAS 3-25612: F014	NAS 3-25836: E017
NAS 3-25137: V001	NAS 3-25402: P025	NAS 3-25613: B020	NAS 3-25837: E016
NAS 3-25138: S021	NAS 3-25403: M046	NAS 3-25614: M012	NAS 3-25838: C052
NAS 3-25139: V004	NAS 3-25404: A044	NAS 3-25615: G014	NAS 3-25839: P025
NAS 3-25143: I027	NAS 3-25405: C054	NAS 3-25616: C002	NAS 3-25840: P025
NAS 3-25145: U002	NAS 3-25406: A041	NAS 3-25617: A045	NAS 3-25862: A045
NAS 3-25146: S062	NAS 3-25407: G005	NAS 3-25618: I009	NAS 3-25867: S062
NAS 3-25149: M033	NAS 3-25408: R021	NAS 3-25619: A086	NAS 3-25868: A034
NAS 3-25150: A088	NAS 3-25411: U002	NAS 3-25620: S073	NAS 3-25869: N005
NAS 3-25192: E030	NAS 3-25418: U002	NAS 3-25621: G017	NAS 3-25870: H008
NAS 3-25196: C040	NAS 3-25419: S071	NAS 3-25627: M043	NAS 3-25871: F017
NAS 3-25197: C001	NAS 3-25422: S050	NAS 3-25630: M022	NAS 3-25872: R015
NAS 3-25199: P025	NAS 3-25424: A007	NAS 3-25632: S039	NAS 3-25873: M052
NAS 3-25200: I009	NAS 3-25448: M017	NAS 3-25633: N012	NAS 3-25874: B020
NAS 3-25201: P003	NAS 3-25449: K004	NAS 3-25635: A038	NAS 3-25875: A024
NAS 3-25202: A089	NAS 3-25450: V001	NAS 3-25637: L003	NAS 3-25876: C005
NAS 3-25203: U002	NAS 3-25451: C047	NAS 3-25642: S072	NAS 3-25879: C006
NAS 3-25204: A038	NAS 3-25452: S067	NAS 3-25650: U002	NAS 3-25880: P035
NAS 3-25206: M022	NAS 3-25453: I027	NAS 3-25712: M046	NAS 3-25885: H011
NAS 3-25282: T032	NAS 3-25461: F008	NAS 3-25717: Q001	NAS 3-25886: U002
NAS 3-25283: S062	NAS 3-25558: F017	NAS 3-25783: R021	NAS 3-25887: A011
NAS 3-25284: P025	NAS 3-25562: P026	NAS 3-25784: P032	NAS 3-25888: E023
NAS 3-25285: N012	NAS 3-25563: S038	NAS 3-25785: C054	NAS 3-25889: G021
NAS 3-25326: S062	NAS 3-25564: E035	NAS 3-25797: P025	NAS 3-25941: F015
NAS 3-25327: S072	NAS 3-25565: H008	NAS 3-25798: S062	NAS 3-25942: C014
NAS 3-25331: C025	NAS 3-25566: P025	NAS 3-25803: T032	NAS 3-25944: P012
NAS 3-25332: F013	NAS 3-25567: A027	NAS 3-25806: A070	NAS 3-25946: F014
NAS 3-25333: I004	NAS 3-25568: L006	NAS 3-25813: S015	NAS 3-25947: G014
NAS 3-25334: S069	NAS 3-25569: A034	NAS 3-25814: P009	NAS 3-25948: K004
NAS 3-25335: S039	NAS 3-25573: P036	NAS 3-25815: S043	NAS 3-25955: M014
NAS 3-25336: M056	NAS 3-25574: C050	NAS 3-25817: G014	NAS 3-25956: C056
NAS 3-25337: G014	NAS 3-25575: T013	NAS 3-25819: S069	NAS 3-25966: I009
NAS 3-25338: D025	NAS 3-25576: T032	NAS 3-25824: A062	NAS 3-25971: S012
NAS 3-25339: L003	NAS 3-25601: N012	NAS 3-25825: I025	NAS 3-26057: S038
NAS 3-25348: A038	NAS 3-25604: C014	NAS 3-25826: D013	

5: Goddard Space Flight Center

NAS 5-27977: F009	NAS 5-28656: N011	NAS 5-30040: A054	NAS 5-30171: P017
NAS 5-27992: A064	NAS 5-28657: F007	NAS 5-30041: A064	NAS 5-30172: C054
NAS 5-27993: C045	NAS 5-28658: H012	NAS 5-30042: B006	NAS 5-30265: A018
NAS 5-27994: E002	NAS 5-28674: D011	NAS 5-30043: E031	NAS 5-30266: A045
NAS 5-27996: F007	NAS 5-29266: C045	NAS 5-30044: E037	NAS 5-30267: A064
NAS 5-27998: H012	NAS 5-29267: A055	NAS 5-30045: F017	NAS 5-30268: B006
NAS 5-27999: I026	NAS 5-29268: B022	NAS 5-30046: F001	NAS 5-30269: C015
NAS 5-28001: I028	NAS 5-29269: C029	NAS 5-30047: G007	NAS 5-30270: C035
NAS 5-28002: M021	NAS 5-29270: O007	NAS 5-30048: I020	NAS 5-30271: C049
NAS 5-28003: N011	NAS 5-29271: A064	NAS 5-30049: I028	NAS 5-30272: C054
NAS 5-28004: S046	NAS 5-29272: T003	NAS 5-30050: L009	NAS 5-30273: C059
NAS 5-28005: S065	NAS 5-29273: D017	NAS 5-30051: M027	NAS 5-30274: C008
NAS 5-28632: T007	NAS 5-29274: D015	NAS 5-30052: M050	NAS 5-30275: D004
NAS 5-28633: A082	NAS 5-29275: S045	NAS 5-30053: N019	NAS 5-30276: D011
NAS 5-28634: R010	NAS 5-29276: I028	NAS 5-30054: Q006	NAS 5-30277: E004
NAS 5-28635: A004	NAS 5-29277: C054	NAS 5-30055: Q007	NAS 5-30278: E031
NAS 5-28636: H012	NAS 5-29278: S016	NAS 5-30056: R004	NAS 5-30279: F007
NAS 5-28637: A068	NAS 5-29279: E004	NAS 5-30057: R008	NAS 5-30280: L002
NAS 5-28638: S065	NAS 5-29280: S065	NAS 5-30058: S011	NAS 5-30281: M028
NAS 5-28639: P040	NAS 5-29281: S021	NAS 5-30059: T008	NAS 5-30282: M045
NAS 5-28640: B020	NAS 5-29282: S047	NAS 5-30060: T009	NAS 5-30283: T023
NAS 5-28641: A042	NAS 5-29283: P029	NAS 5-30061: T019	NAS 5-30284: O007
NAS 5-28642: C054	NAS 5-29284: P017	NAS 5-30062: K002	NAS 5-30285: O009
NAS 5-28643: F020	NAS 5-29415: H012	NAS 5-30083: A064	NAS 5-30286: P003
NAS 5-28644: G011	NAS 5-29416: S065	NAS 5-30084: D015	NAS 5-30287: P039
NAS 5-28645: T023	NAS 5-29417: A068	NAS 5-30085: D017	NAS 5-30288: R006
NAS 5-28649: S046	NAS 5-29418: A042	NAS 5-30086: E004	NAS 5-30289: S008
NAS 5-28650: T029	NAS 5-29419: P040	NAS 5-30087: I018	NAS 5-30290: S004
NAS 5-28651: M021	NAS 5-29432: D011	NAS 5-30088: I028	NAS 5-30291: S080
NAS 5-28652: A064	NAS 5-29436: C054	NAS 5-30089: S016	NAS 5-30292: T034
NAS 5-28653: C045	NAS 5-29437: T023	NAS 5-30090: S045	NAS 5-30303: A064
NAS 5-28654: I028	NAS 5-29438: R010	NAS 5-30091: T003	NAS 5-30304: K002
NAS 5-28655: S065	NAS 5-29439: F020	NAS 5-30170: O007	NAS 5-30305: L009

Goddard Space Flight Center, continued

NAS 5-30306:	M050	NAS 5-30493:	N016	NAS 5-30636:	S004	NAS 5-30859:	G006
NAS 5-30307:	I028	NAS 5-30494:	E004	NAS 5-30637:	O007	NAS 5-30860:	S069
NAS 5-30308:	R004	NAS 5-30495:	F020	NAS 5-30638:	B006	NAS 5-30861:	T024
NAS 5-30309:	S011	NAS 5-30496:	E014	NAS 5-30709:	T034	NAS 5-30862:	T029
NAS 5-30310:	Q006	NAS 5-30497:	E018	NAS 5-30807:	I016	NAS 5-30863:	R014
NAS 5-30311:	B006	NAS 5-30498:	B019	NAS 5-30809:	E035	NAS 5-30864:	S012
NAS 5-30312:	E031	NAS 5-30499:	O012	NAS 5-30840:	R003	NAS 5-30865:	S012
NAS 5-30313:	I020	NAS 5-30501:	O011	NAS 5-30841:	T001	NAS 5-30866:	O013
NAS 5-30455:	G014	NAS 5-30502:	A030	NAS 5-30842:	P015	NAS 5-30867:	F017
NAS 5-30456:	D015	NAS 5-30504:	M054	NAS 5-30843:	G017	NAS 5-30868:	Q005
NAS 5-30457:	D008	NAS 5-30519:	M013	NAS 5-30844:	E004	NAS 5-30869:	V003
NAS 5-30458:	S069	NAS 5-30595:	F020	NAS 5-30845:	G013	NAS 5-30870:	P017
NAS 5-30459:	P013	NAS 5-30596:	V003	NAS 5-30846:	S045	NAS 5-30871:	I026
NAS 5-30481:	N006	NAS 5-30597:	T021	NAS 5-30847:	P020	NAS 5-30872:	P018
NAS 5-30482:	S015	NAS 5-30598:	A034	NAS 5-30848:	S036	NAS 5-30873:	S013
NAS 5-30483:	H004	NAS 5-30599:	L004	NAS 5-30849:	I019	NAS 5-30874:	M041
NAS 5-30484:	S023	NAS 5-30618:	D011	NAS 5-30850:	I007	NAS 5-30881:	D008
NAS 5-30485:	U002	NAS 5-30619:	S080	NAS 5-30851:	L008	NAS 5-30883:	O012
NAS 5-30486:	N009	NAS 5-30626:	A045	NAS 5-30852:	H002	NAS 5-30885:	N009
NAS 5-30487:	L009	NAS 5-30627:	E031	NAS 5-30853:	S010	NAS 5-30890:	O011
NAS 5-30488:	A003	NAS 5-30628:	A018	NAS 5-30854:	C054	NAS 5-30905:	E018
NAS 5-30489:	S006	NAS 5-30629:	P039	NAS 5-30855:	F004	NAS 5-30909:	E014
NAS 5-30490:	A064	NAS 5-30630:	C054	NAS 5-30856:	W007	NAS 5-31170:	L004
NAS 5-30491:	G014	NAS 5-30631:	C015	NAS 5-30857:	S017	NAS 5-31176:	S069
NAS 5-30492:	W005	NAS 5-30633:	T023	NAS 5-30858:	C017		

7: Jet Propulsion Laboratory

NAS 7-921 :	A009	NAS 7-970 :	L007	NAS 7-1023:	C053	NAS 7-1072:	S021
NAS 7-922 :	A054	NAS 7-973 :	W007	NAS 7-1024:	M031	NAS 7-1074:	K001
NAS 7-923 :	B014	NAS 7-974 :	A054	NAS 7-1025:	M034	NAS 7-1075:	A034
NAS 7-924 :	S025	NAS 7-975 :	R005	NAS 7-1026:	V003	NAS 7-1076:	L009
NAS 7-925 :	O002	NAS 7-976 :	U001	NAS 7-1027:	T010	NAS 7-1077:	N013
NAS 7-926 :	M049	NAS 7-977 :	C045	NAS 7-1028:	S048	NAS 7-1078:	A006
NAS 7-927 :	R005	NAS 7-978 :	S048	NAS 7-1029:	S030	NAS 7-1079:	I001
NAS 7-928 :	A033	NAS 7-979 :	B017	NAS 7-1030:	D004	NAS 7-1080:	E032
NAS 7-929 :	T026	NAS 7-980 :	C046	NAS 7-1031:	A042	NAS 7-1081:	W005
NAS 7-930 :	G021	NAS 7-981 :	M002	NAS 7-1032:	R005	NAS 7-1082:	A084
NAS 7-931 :	R005	NAS 7-982 :	B021	NAS 7-1033:	M002	NAS 7-1083:	A029
NAS 7-932 :	A054	NAS 7-983 :	A042	NAS 7-1034:	G011	NAS 7-1084:	C024
NAS 7-933 :	M049	NAS 7-984 :	E034	NAS 7-1035:	E001	NAS 7-1085:	M004
NAS 7-934 :	B014	NAS 7-985:	G011	NAS 7-1036:	A054	NAS 7-1086:	D026
NAS 7-935 :	L007	NAS 7-986 :	E004	NAS 7-1037:	P030	NAS 7-1087:	E031
NAS 7-936 :	C035	NAS 7-987 :	P030	NAS 7-1038:	O004	NAS 7-1088:	S030
NAS 7-937 :	A005	NAS 7-988 :	D004	NAS 7-1039:	I008	NAS 7-1090:	S074
NAS 7-938 :	P025	NAS 7-989 :	S030	NAS 7-1040:	L005	NAS 7-1091:	S011
NAS 7-939 :	M051	NAS 7-990 :	P006	NAS 7-1041:	C054	NAS 7-1092:	E004
NAS 7-940 :	C045	NAS 7-991 :	E001	NAS 7-1042:	E004	NAS 7-1093:	A084
NAS 7-941 :	R023	NAS 7-992 :	P006	NAS 7-1043:	E031	NAS 7-1094:	A007
NAS 7-942 :	B014	NAS 7-993 :	P030	NAS 7-1044:	B014	NAS 7-1095:	B004
NAS 7-943 :	O009	NAS 7-994 :	C038	NAS 7-1045:	C009	NAS 7-1096:	D026
NAS 7-944 :	C053	NAS 7-995 :	A030	NAS 7-1046:	I012	NAS 7-1097:	I020
NAS 7-945 :	S064	NAS 7-996 :	M049	NAS 7-1047:	H011	NAS 7-1098:	M046
NAS 7-946 :	C035	NAS 7-998 :	C035	NAS 7-1048:	P020	NAS 7-1100:	E004
NAS 7-947 :	M046	NAS 7-999 :	L009	NAS 7-1049:	S060	NAS 7-1102:	I012
NAS 7-948 :	C007	NAS 7-1000:	M046	NAS 7-1050:	I024	NAS 7-1103:	L005
NAS 7-949 :	I018	NAS 7-1001:	D027	NAS 7-1051:	M045	NAS 7-1104:	M024
NAS 7-950 :	C038	NAS 7-1002:	P025	NAS 7-1052:	A006	NAS 7-1106:	S030
NAS 7-951 :	L009	NAS 7-1003:	T012	NAS 7-1053:	M024	NAS 7-1109:	O012
NAS 7-952 :	M049	NAS 7-1004:	D018	NAS 7-1054:	D004	NAS 7-1111:	C054
NAS 7-953 :	T015	NAS 7-1005:	E008	NAS 7-1055:	O004	NAS 7-1113:	C009
NAS 7-954 :	P025	NAS 7-1006:	O004	NAS 7-1056:	P008		
NAS 7-955 :	L006	NAS 7-1007:	F017	NAS 7-1057:	P025		
NAS 7-956 :	P030	NAS 7-1008:	I026	NAS 7-1058:	N006		
NAS 7-957 :	M030	NAS 7-1009:	K001	NAS 7-1059:	A042		
NAS 7-958 :	E002	NAS 7-1010:	D004	NAS 7-1060:	O012		
NAS 7-959 :	A030	NAS 7-1011:	M046	NAS 7-1061:	C036		
NAS 7-960 :	D027	NAS 7-1012:	S021	NAS 7-1062:	O004		
NAS 7-961 :	A005	NAS 7-1014:	C037	NAS 7-1063:	D004		
NAS 7-962 :	R023	NAS 7-1015:	B007	NAS 7-1064:	E028		
NAS 7-963 :	P025	NAS 7-1016:	N018	NAS 7-1065:	I026		
NAS 7-964 :	C012	NAS 7-1017:	S023	NAS 7-1066:	K001		
NAS 7-965 :	T012	NAS 7-1018:	R005	NAS 7-1067:	B004		
NAS 7-966 :	O009	NAS 7-1019:	O004	NAS 7-1068:	C037		
NAS 7-967 :	C053	NAS 7-1020:	E028	NAS 7-1069:	M031		
NAS 7-968 :	B007	NAS 7-1021:	B004	NAS 7-1070:	V003		
NAS 7-969 :	B014	NAS 7-1022:	P017	NAS 7-1071:	M034		

8: Marshall Space Flight Center

NAS 8-35254: A042	NAS 8-36273: S016	NAS 8-37617: A038	NAS 8-38404: C040
NAS 8-35255: M020	NAS 8-37253: E023	NAS 8-37618: A005	NAS 8-38407: F017
NAS 8-35256: E023	NAS 8-37254: S078	NAS 8-37619: C003	NAS 8-38408: H001
NAS 8-35257: A014	NAS 8-37255: S021	NAS 8-37620: C003	NAS 8-38409: I021
NAS 8-35258: S058	NAS 8-37256: M020	NAS 8-37621: C040	NAS 8-38410: I026
NAS 8-35259: T034	NAS 8-37257: D003	NAS 8-37622: E012	NAS 8-38416: R011
NAS 8-35260: C051	NAS 8-37258: R011	NAS 8-37623: E032	NAS 8-38417: R022
NAS 8-35261: E033	NAS 8-37259: E004	NAS 8-37624: F017	NAS 8-38418: S011
NAS 8-35262: S062	NAS 8-37260: A042	NAS 8-37625: H001	NAS 8-38419: S052
NAS 8-35263: T024	NAS 8-37261: T024	NAS 8-37626: H001	NAS 8-38420: U001
NAS 8-35264: D003	NAS 8-37262: H011	NAS 8-37627: I021	NAS 8-38421: U004
NAS 8-35265: A075	NAS 8-37263: A091	NAS 8-37628: I026	NAS 8-38422: V005
NAS 8-35266: A069	NAS 8-37303: A050	NAS 8-37629: M047	NAS 8-38423: R011
NAS 8-35267: E004	NAS 8-37304: S027	NAS 8-37630: M055	NAS 8-38425: C003
NAS 8-35268: M020	NAS 8-37305: R011	NAS 8-37631: O009	NAS 8-38436: C054
NAS 8-35269: T024	NAS 8-37306: M047	NAS 8-37632: P003	NAS 8-38437: T024
NAS 8-35270: H011	NAS 8-37307: A019	NAS 8-37633: K005	NAS 8-38438: S021
NAS 8-35271: E022	NAS 8-37308: M057	NAS 8-37635: R011	NAS 8-38439: A015
NAS 8-35272: T024	NAS 8-37309: A059	NAS 8-37636: R011	NAS 8-38440: F017
NAS 8-35273: A042	NAS 8-37310: A012	NAS 8-37637: R011	NAS 8-38441: E015
NAS 8-35274: S021	NAS 8-37311: G009	NAS 8-37638: R022	NAS 8-38442: M036
NAS 8-35275: S062	NAS 8-37312: B003	NAS 8-37639: S011	NAS 8-38443: A013
NAS 8-35276: R011	NAS 8-37313: E007	NAS 8-37640: S052	NAS 8-38444: P003
NAS 8-35277: R011	NAS 8-37314: R011	NAS 8-37641: U001	NAS 8-38445: I003
NAS 8-35278: S078	NAS 8-37315: C017	NAS 8-37642: U004	NAS 8-38446: C031
NAS 8-35279: E023	NAS 8-37316: E023	NAS 8-37643: V005	NAS 8-38447: C003
NAS 8-35280: A091	NAS 8-37317: S005	NAS 8-38020: S021	NAS 8-38448: A090
NAS 8-35821: M016	NAS 8-37318: T024	NAS 8-38021: S050	NAS 8-38449: A042
NAS 8-35838: F019	NAS 8-37319: T024	NAS 8-38022: H010	NAS 8-38450: M044
NAS 8-35839: S019	NAS 8-37320: S021	NAS 8-38023: A034	NAS 8-38451: I026
NAS 8-35840: T034	NAS 8-37321: C025	NAS 8-38024: G010	NAS 8-38452: E025
NAS 8-35841: T024	NAS 8-37322: A069	NAS 8-38025: P003	NAS 8-38453: H010
NAS 8-35842: S059	NAS 8-37323: A038	NAS 8-38026: S078	NAS 8-38454: S027
NAS 8-35843: E023	NAS 8-37324: C032	NAS 8-38027: S036	NAS 8-38455: T013
NAS 8-35844: M020	NAS 8-37325: P033	NAS 8-38028: S027	NAS 8-38456: R011
NAS 8-35845: A014	NAS 8-37336: A005	NAS 8-38029: O006	NAS 8-38457: R011
NAS 8-35846: C051	NAS 8-37337: S016	NAS 8-38030: S021	NAS 8-38458: C042
NAS 8-35847: E033	NAS 8-37338: R011	NAS 8-38031: M025	NAS 8-38459: B011
NAS 8-35848: S062	NAS 8-37339: O006	NAS 8-38032: R011	NAS 8-38460: U004
NAS 8-35849: S058	NAS 8-37340: S021	NAS 8-38033: Q003	NAS 8-38461: S011
NAS 8-35850: A042	NAS 8-37341: F017	NAS 8-38034: C003	NAS 8-38462: S018
NAS 8-36255: E014	NAS 8-37342: R016	NAS 8-38035: P001	NAS 8-38463: J004
NAS 8-36256: R011	NAS 8-37343: M029	NAS 8-38036: I014	NAS 8-38464: C022
NAS 8-36257: H011	NAS 8-37344: G010	NAS 8-38037: P035	NAS 8-38465: F002
NAS 8-36258: R011	NAS 8-37345: R011	NAS 8-38038: U004	NAS 8-38466: E025
NAS 8-36259: O006	NAS 8-37346: D003	NAS 8-38039: S062	NAS 8-38467: M049
NAS 8-36260: S021	NAS 8-37400: R011	NAS 8-38040: F002	NAS 8-38468: I022
NAS 8-36261: D003	NAS 8-37401: M047	NAS 8-38041: C003	NAS 8-38469: R020
NAS 8-36262: F017	NAS 8-37402: S005	NAS 8-38042: O014	NAS 8-38470: R013
NAS 8-36263: R016	NAS 8-37403: A038	NAS 8-38043: M035	NAS 8-38471: A050
NAS 8-36264: D003	NAS 8-37404: A012	NAS 8-38044: A026	NAS 8-38472: S027
NAS 8-36265: C002	NAS 8-37405: B003	NAS 8-38045: S033	NAS 8-38477: G010
NAS 8-36266: G012	NAS 8-37406: A050	NAS 8-38046: C040	NAS 8-38481: F002
NAS 8-36267: G010	NAS 8-37407: G009	NAS 8-38047: I017	NAS 8-38483: O014
NAS 8-36268: A005	NAS 8-37408: S027	NAS 8-38048: S056	NAS 8-38485: A034
NAS 8-36269: R019	NAS 8-37409: R011	NAS 8-38049: S079	NAS 8-38487: S021
NAS 8-36270: C025	NAS 8-37410: S021	NAS 8-38050: F017	NAS 8-38489: C003
NAS 8-36271: R011	NAS 8-37411: A069	NAS 8-38051: A065	NAS 8-38490: U004
NAS 8-36272: M029	NAS 8-37616: A019	NAS 8-38052: S035	

9: Johnson Space Center

NAS 9-17026: E001	NAS 9-17280: T024	NAS 9-17303: R005	NAS 9-17572: M028
NAS 9-17027: D024	NAS 9-17281: S065	NAS 9-17304: O003	NAS 9-17573: S024
NAS 9-17028: C034	NAS 9-17282: A078	NAS 9-17305: T024	NAS 9-17574: C054
NAS 9-17029: M005	NAS 9-17283: E021	NAS 9-17306: B010	NAS 9-17575: E005
NAS 9-17030: M020	NAS 9-17284: C052	NAS 9-17561: F017	NAS 9-17576: C027
NAS 9-17031: B010	NAS 9-17285: S063	NAS 9-17562: A076	NAS 9-17577: O004
NAS 9-17032: E011	NAS 9-17286: B010	NAS 9-17563: J006	NAS 9-17578: B016
NAS 9-17033: R005	NAS 9-17287: C018	NAS 9-17564: A054	NAS 9-17579: A007
NAS 9-17034: B012	NAS 9-17288: C018	NAS 9-17565: P025	NAS 9-17580: M009
NAS 9-17035: O003	NAS 9-17289: O004	NAS 9-17566: N001	NAS 9-17581: B010
NAS 9-17036: T024	NAS 9-17290: V001	NAS 9-17567: M042	NAS 9-17582: G004
NAS 9-17037: S053	NAS 9-17291: P027	NAS 9-17568: T034	NAS 9-17603: E021
NAS 9-17277: L010	NAS 9-17292: P027	NAS 9-17569: B013	NAS 9-17604: O004
NAS 9-17278: E033	NAS 9-17293: M020	NAS 9-17570: D003	NAS 9-17605: C018
NAS 9-17279: A080	NAS 9-17294: A065	NAS 9-17571: D003	NAS 9-17606: L010

Johnson Space Center, continued

NAS 9-17607: S065	NAS 9-17815: P025	NAS 9-18083: A020	NAS 9-18171: P021
NAS 9-17608: P027	NAS 9-17926: A020	NAS 9-18084: A007	NAS 9-18172: P025
NAS 9-17609: P027	NAS 9-17927: A020	NAS 9-18085: B010	NAS 9-18173: S001
NAS 9-17610: T024	NAS 9-17928: A023	NAS 9-18086: B013	NAS 9-18301: A022
NAS 9-17611: B010	NAS 9-17929: A007	NAS 9-18087: B018	NAS 9-18302: A037
NAS 9-17612: A078	NAS 9-17930: A065	NAS 9-18088: C030	NAS 9-18303: A007
NAS 9-17723: E037	NAS 9-17931: A074	NAS 9-18089: D018	NAS 9-18304: A064
NAS 9-17724: I007	NAS 9-17932: A083	NAS 9-18090: D020	NAS 9-18305: A073
NAS 9-17725: C019	NAS 9-17933: A087	NAS 9-18091: D021	NAS 9-18306: A077
NAS 9-17726: P028	NAS 9-17934: A092	NAS 9-18092: E038	NAS 9-18307: B005
NAS 9-17727: V002	NAS 9-17935: C001	NAS 9-18093: E039	NAS 9-18308: B007
NAS 9-17728: T031	NAS 9-17936: C054	NAS 9-18094: C028	NAS 9-18309: B010
NAS 9-17729: M037	NAS 9-17937: D008	NAS 9-18095: G015	NAS 9-18310: C020
NAS 9-17730: U004	NAS 9-17938: D003	NAS 9-18096: H007	NAS 9-18311: C033
NAS 9-17731: F017	NAS 9-17939: E004	NAS 9-18097: I015	NAS 9-18312: C048
NAS 9-17732: F017	NAS 9-17940: F017	NAS 9-18098: F017	NAS 9-18313: C052
NAS 9-17733: P016	NAS 9-17941: F017	NAS 9-18099: L010	NAS 9-18314: E009
NAS 9-17734: A036	NAS 9-17942: G018	NAS 9-18100: M018	NAS 9-18315: E005
NAS 9-17735: X001	NAS 9-17943: L006	NAS 9-18101: M048	NAS 9-18316: I023
NAS 9-17736: S061	NAS 9-17944: N002	NAS 9-18102: P007	NAS 9-18317: L011
NAS 9-17737: K001	NAS 9-17945: O001	NAS 9-18103: Q001	NAS 9-18318: M022
NAS 9-17738: W006	NAS 9-17946: O008	NAS 9-18104: S028	NAS 9-18319: M046
NAS 9-17739: E001	NAS 9-17947: P014	NAS 9-18105: S002	NAS 9-18320: M007
NAS 9-17740: H011	NAS 9-17948: P021	NAS 9-18106: S031	NAS 9-18321: N008
NAS 9-17741: S029	NAS 9-17949: P025	NAS 9-18107: S056	NAS 9-18322: O013
NAS 9-17742: C054	NAS 9-17950: S001	NAS 9-18108: T006	NAS 9-18323: O013
NAS 9-17743: E019	NAS 9-17951: T009	NAS 9-18109: T029	NAS 9-18324: P017
NAS 9-17744: P034	NAS 9-17952: T034	NAS 9-18110: T034	NAS 9-18325: P023
NAS 9-17745: E033	NAS 9-17953: U004	NAS 9-18111: T034	NAS 9-18326: P025
NAS 9-17803: A054	NAS 9-17986: S029	NAS 9-18112: U004	NAS 9-18327: Q004
NAS 9-17804: O004	NAS 9-17987: P016	NAS 9-18113: U004	NAS 9-18328: R005
NAS 9-17805: D003	NAS 9-17988: W006	NAS 9-18114: I010	NAS 9-18329: R020
NAS 9-17806: D003	NAS 9-17989: C054	NAS 9-18162: A020	NAS 9-18330: S010
NAS 9-17807: M042	NAS 9-17990: T031	NAS 9-18163: A007	NAS 9-18331: S011
NAS 9-17808: G004	NAS 9-17991: E019	NAS 9-18164: A065	NAS 9-18332: S002
NAS 9-17809: B016	NAS 9-17992: E001	NAS 9-18165: A083	NAS 9-18333: S002
NAS 9-17810: C054	NAS 9-17993: I007	NAS 9-18166: A092	NAS 9-18334: S036
NAS 9-17811: E005	NAS 9-17994: S061	NAS 9-18167: C054	NAS 9-18335: T027
NAS 9-17812: B013	NAS 9-17995: N006	NAS 9-18168: D003	NAS 9-18336: U004
NAS 9-17813: A007	NAS 9-17996: U004	NAS 9-18169: E004	NAS 9-18337: U004
NAS 9-17814: M009	NAS 9-17997: F017	NAS 9-18170: G018	

10: Kennedy Space Center

NAS 10-10916: S056	NAS 10-11456: F005	NAS 10-11651: F005
NAS 10-10917: S055	NAS 10-11457: O012	NAS 10-11652: G014
NAS 10-11127: S055	NAS 10-11458: P037	NAS 10-11653: A039
NAS 10-11141: D023	NAS 10-11459: S056	NAS 10-11654: T002
NAS 10-11142: R001	NAS 10-11460: E001	NAS 10-11655: O009
NAS 10-11143: S049	NAS 10-11461: P027	NAS 10-11656: B015
NAS 10-11144: G012	NAS 10-11462: A058	NAS 10-11657: A093
NAS 10-11145: A072	NAS 10-11463: S003	NAS 10-11658: T031
NAS 10-11146: C017	NAS 10-11464: S076	NAS 10-11659: F017
NAS 10-11285: M028	NAS 10-11465: A061	NAS 10-11660: E006
NAS 10-11286: N011	NAS 10-11466: E006	NAS 10-11668: A040
NAS 10-11287: A002	NAS 10-11467: G019	NAS 10-11669: E004
NAS 10-11288: M039	NAS 10-11501: A005	NAS 10-11671: G014
NAS 10-11289: A057	NAS 10-11502: A089	
NAS 10-11290: H011	NAS 10-11514: S056	
NAS 10-11291: G003	NAS 10-11515: E001	
NAS 10-11292: W003	NAS 10-11544: E006	
NAS 10-11321: R001	NAS 10-11552: S063	
NAS 10-11322: G012	NAS 10-11556: M038	
NAS 10-11372: A005	NAS 10-11557: E004	
NAS 10-11373: A089	NAS 10-11558: S062	
NAS 10-11374: B011	NAS 10-11559: G014	
NAS 10-11375: E001	NAS 10-11560: A040	
NAS 10-11376: E021	NAS 10-11561: T030	
NAS 10-11377: M003	NAS 10-11562: M003	
NAS 10-11379: S056	NAS 10-11563: S005	
NAS 10-11380: T030	NAS 10-11564: E013	
NAS 10-11401: H011	NAS 10-11565: M013	
NAS 10-11404: M039	NAS 10-11601: P027	
NAS 10-11405: M028	NAS 10-11602: P037	
NAS 10-11411: G003	NAS 10-11606: S076	
NAS 10-11412: W003	NAS 10-11607: A058	
NAS 10-11455: S063	NAS 10-11650: N020	

13: Stennis Space Center

NAS 13-300: M040
NAS 13-301: W001
NAS 13-302: O004
NAS 13-339: O004
NAS 13-381: M057
NAS 13-383: S068
NAS 13-384: N006
NAS 13-385: S006
NAS 13-406: P019
NAS 13-409: A091
NAS 13-410: S054
NAS 13-411: T014
NAS 13-414: S006