

P119

NASA SP-7063 (06)

NASA SCIENTIFIC AND TECHNICAL PUBLICATIONS

A CATALOG OF SPECIAL PUBLICATIONS, REFERENCE PUBLICATIONS, CONFERENCE PUBLICATIONS, AND TECHNICAL PAPERS 1991-1992

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NASA SP-7063 (06)

NASA SCIENTIFIC AND TECHNICAL PUBLICATIONS

A CATALOG OF SPECIAL PUBLICATIONS, REFERENCE
PUBLICATIONS, CONFERENCE PUBLICATIONS, AND
TECHNICAL PAPERS 1991-1992



National Aeronautics and Space Administration
Scientific and Technical Information Program
Washington, DC

1993

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PREFACE

The pursuit of human knowledge through scientific research and technical endeavor has vastly expanded understanding of our world and the universe we live in. The contributions of NASA through scientific and technical research and development affect not only our understanding and use of aeronautics and space but also touch our daily lives. Geologists, oceanographers, meteorologists, archaeologists, aircraft engineers, aerospace decision makers, land-use planners, historians, and rescue teams all make use of the results of NASA's research. The findings of this research and development are published in NASA's scientific and technical report series as a part of NASA's mandate to disseminate the results of the agency's far-reaching work.

This catalog provides a cumulative list of NASA publications from four report series entered into the NASA Scientific and Technical Information Database during the accession years 1991 through 1992. For previous lists, see *Records of Achievement: NASA Special Publications*, NASA SP-470 (accession number N83-33792), *NASA Scientific and Technical Publications: A Catalog of Special Publications, Reference Publications, Conference Publications, and Technical Papers, 1977-1986*, NASA SP-7063(01) (accession number N87-30218). Supplements 02 through 05 of this catalog list NASA publications announced during 1987 through 1990.

Two monthly abstract journals cover all aspects of aeronautics and space research, NASA and non-NASA, nationally and worldwide. *STAR (Scientific and Technical Aerospace Reports)*, focuses on scientific and technical reports, and *IAA (International Aerospace Abstracts)*, covers the open literature. These are available by subscription from the NASA Center for AeroSpace Information and the American Institute of Aeronautics and Astronautics, Inc.

This catalog includes publicly available reports from four NASA report series: Special Publications (SPs), Reference Publications (RPs), Conference Publications (CPs), and Technical Papers (TPs). The scope of each series is defined as follows:

Special Publications are often concerned with subjects of substantial public interest. They report scientific and technical information derived from NASA programs for audiences of diverse technical backgrounds.

Reference Publications contain compilations of scientific and technical data of continuing reference value.

Conference Publications record the proceedings of scientific and technical symposia and other professional meetings sponsored or cosponsored by NASA.

Technical Papers present the results of significant research conducted by NASA scientists and engineers.

Presented here are citations for reports from each of these series. An explanation of the elements in a typical citation follows. Accession numbers (N numbers) at the end of a citation are separate citations to articles within the report. Please use *STAR* to locate these citations.

Also note that some bibliographies in the NASA SP-7000 series are issued periodically. This catalog lists only the last accessioned report in each bibliography series. The periodicity of each bibliography is as follows:

NASA SP-7011	<i>Aerospace Medicine and Biology: A Continuing Bibliography with Indexes</i>	Monthly plus annual cumulative index
NASA SP-7037	<i>Aeronautical Engineering: A Continuing Bibliography with Indexes</i>	Monthly plus annual cumulative index
NASA SP-7039	<i>NASA Patent Abstracts Bibliography: A Continuing Bibliography Section 1: Abstracts; Section 2: Indexes</i>	Semiannual

NASA SP-7085	<i>Large Space Structures and Systems in the Space Station Era: A Bibliography with Indexes</i>	Semiannual
NASA SP-7500	<i>Management: A Bibliography for NASA Managers</i>	Annual

Please note that the reports cited in this catalog are available for purchase from the NASA Center for AeroSpace Information. They are also available at any Federal Regional Depository Library. Additional availability information including current CASI price schedules, can be found in the Appendix at the back of this publication.

TABLE OF CONTENTS

AERONAUTICS For related information see also *Astronautics*.

01 AERONAUTICS (GENERAL)	1
02 AERODYNAMICS	2
Includes aerodynamics of bodies, combinations, wings, rotors, and control surfaces; and internal flow in ducts and turbomachinery. For related information see also <i>34 Fluid Mechanics and Heat Transfer</i> .	
03 AIR TRANSPORTATION AND SAFETY	9
Includes passenger and cargo air transport operations; and aircraft accidents. For related information see also <i>16 Space Transportation</i> and <i>85 Urban Technology and Transportation</i> .	
04 AIRCRAFT COMMUNICATIONS AND NAVIGATION	10
Includes digital and voice communication with aircraft; air navigation systems (satellite and ground based); and air traffic control. For related information see also <i>17 Space Communications, Spacecraft Communications, Command and Tracking</i> and <i>32 Communications and Radar</i> .	
05 AIRCRAFT DESIGN, TESTING AND PERFORMANCE	10
Includes aircraft simulation technology. For related information see also <i>18 Spacecraft Design, Testing and Performance</i> and <i>39 Structural Mechanics</i> . For land transportation vehicles see <i>85 Urban Technology and Transportation</i> .	
06 AIRCRAFT INSTRUMENTATION	11
Includes cockpit and cabin display devices; and flight instruments. For related information see also <i>19 Spacecraft Instrumentation</i> and <i>35 Instrumentation and Photography</i> .	
07 AIRCRAFT PROPULSION AND POWER	12
Includes prime propulsion systems and systems components, e.g., gas turbine engines and compressors; and onboard auxiliary power plants for aircraft. For related information see also <i>20 Spacecraft Propulsion and Power</i> , <i>28 Propellants and Fuels</i> , and <i>44 Energy Production and Conversion</i> .	
08 AIRCRAFT STABILITY AND CONTROL	12
Includes aircraft handling qualities; piloting; flight controls; and autopilots. For related information see also <i>05 Aircraft Design, Testing and Performance</i> .	
09 RESEARCH AND SUPPORT FACILITIES (AIR)	13
Includes airports, hangars and runways; aircraft repair and overhaul facilities; wind tunnels; shock tubes; and aircraft engine test stands. For related information see also <i>14 Ground Support Systems and Facilities (Space)</i> .	

ASTRONAUTICS For related information see also *Aeronautics*.

12 ASTRONAUTICS (GENERAL)	13
For extraterrestrial exploration see <i>91 Lunar and Planetary Exploration</i> .	
13 ASTRODYNAMICS	13
Includes powered and free-flight trajectories; and orbital and launching dynamics.	
14 GROUND SUPPORT SYSTEMS AND FACILITIES (SPACE)	14
Includes launch complexes, research and production facilities; ground support equipment, e.g., mobile transporters; and simulators. For related information see also <i>09 Research and Support Facilities (Air)</i> .	
15 LAUNCH VEHICLES AND SPACE VEHICLES	14
Includes boosters; operating problems of launch/space vehicle systems; and reusable vehicles. For related information see also <i>20 Spacecraft Propulsion and Power</i> .	
16 SPACE TRANSPORTATION	15
Includes passenger and cargo space transportation, e.g., shuttle operations; and space rescue techniques. For related information see also <i>03 Air Transportation and Safety</i> and <i>18 Spacecraft Design, Testing and Performance</i> . For space suits see <i>54 Man/System Technology and Life Support</i> .	
17 SPACE COMMUNICATIONS, SPACECRAFT COMMUNICATIONS, COMMAND AND TRACKING ...	16
Includes telemetry; space communications networks; astronavigation and guidance; and radio blackout. For related information see also <i>04 Aircraft Communications and Navigation</i> and <i>32 Communications and Radar</i> .	

N.A.—no abstracts were assigned to this category for this issue.

18 SPACECRAFT DESIGN, TESTING AND PERFORMANCE 16
Includes satellites; space platforms; space stations; spacecraft systems and components such as thermal and environmental controls; and attitude controls. For life support systems see *54 Man/System Technology and Life Support*. For related information see also *05 Aircraft Design, Testing and Performance*, *39 Structural Mechanics*, and *16 Space Transportation*.

19 SPACECRAFT INSTRUMENTATION 19
For related information see also *06 Aircraft Instrumentation* and *35 Instrumentation and Photography*.

20 SPACECRAFT PROPULSION AND POWER 19
Includes main propulsion systems and components, e.g., rocket engines; and spacecraft auxiliary power sources. For related information see also *07 Aircraft Propulsion and Power*, *28 Propellants and Fuels*, *44 Energy Production and Conversion*, and *15 Launch Vehicles and Space Vehicles*.

CHEMISTRY AND MATERIALS

23 CHEMISTRY AND MATERIALS (GENERAL) 20

24 COMPOSITE MATERIALS 20
Includes physical, chemical, and mechanical properties of laminates and other composite materials. For ceramic materials see *27 Nonmetallic Materials*.

25 INORGANIC AND PHYSICAL CHEMISTRY 22
Includes chemical analysis, e.g., chromatography; combustion theory; electrochemistry; and photochemistry. For related information see also *77 Thermodynamics and Statistical Physics*.

26 METALLIC MATERIALS 22
Includes physical, chemical, and mechanical properties of metals, e.g., corrosion; and metallurgy.

27 NONMETALLIC MATERIALS 23
Includes physical, chemical, and mechanical properties of plastics, elastomers, lubricants, polymers, textiles, adhesives, and ceramic materials. For composite materials see *24 Composite Materials*.

28 PROPELLANTS AND FUELS N.A.
Includes rocket propellants, igniters and oxidizers; their storage and handling procedures; and aircraft fuels. For related information see also *07 Aircraft Propulsion and Power*, *20 Spacecraft Propulsion and Power*, and *44 Energy Production and Conversion*.

29 MATERIALS PROCESSING 24
Includes space-based development of products and processes for commercial application. For biological materials see *55 Space Biology*.

ENGINEERING For related information see also *Physics*.

31 ENGINEERING (GENERAL) 24
Includes vacuum technology; control engineering; display engineering; cryogenics; and fire prevention.

32 COMMUNICATIONS AND RADAR 25
Includes radar; land and global communications; communications theory; and optical communications. For related information see also *04 Aircraft Communications and Navigation* and *17 Space Communications, Spacecraft Communications, Command and Tracking*. For search and rescue see *03 Air Transportation and Safety*, and *16 Space Transportation*.

33 ELECTRONICS AND ELECTRICAL ENGINEERING 25
Includes test equipment and maintainability; components, e.g., tunnel diodes and transistors; microminiaturization; and integrated circuitry. For related information see also *60 Computer Operations and Hardware* and *76 Solid-State Physics*.

34 FLUID MECHANICS AND HEAT TRANSFER 25
Includes boundary layers; hydrodynamics; fluidics; mass transfer and ablation cooling. For related information see also *02 Aerodynamics* and *77 Thermodynamics and Statistical Physics*.

35 INSTRUMENTATION AND PHOTOGRAPHY 27
Includes remote sensors; measuring instruments and gauges; detectors; cameras and photographic supplies; and holography. For aerial photography see *43 Earth Resources and Remote Sensing*. For related information see also *06 Aircraft Instrumentation* and *19 Spacecraft Instrumentation*.

36 LASERS AND MASERS N.A.
Includes parametric amplifiers. For related information see also *76 Solid-State Physics*.

37 MECHANICAL ENGINEERING	28
Includes auxiliary systems (nonpower); machine elements and processes; and mechanical equipment.	
38 QUALITY ASSURANCE AND RELIABILITY	28
Includes product sampling procedures and techniques; and quality control.	
39 STRUCTURAL MECHANICS	29
Includes structural element design and weight analysis; fatigue; and thermal stress. For applications see <i>05 Aircraft Design, Testing and Performance</i> and <i>18 Spacecraft Design, Testing and Performance</i> .	
GEOSCIENCES For related information see also <i>Space Sciences</i> .	
42 GEOSCIENCES (GENERAL)	32
43 EARTH RESOURCES AND REMOTE SENSING	32
Includes remote sensing of earth resources by aircraft and spacecraft; photogrammetry; and aerial photography. For instrumentation see <i>35 Instrumentation and Photography</i> .	
44 ENERGY PRODUCTION AND CONVERSION	33
Includes specific energy conversion systems, e.g., fuel cells; global sources of energy; geophysical conversion; and windpower. For related information see also <i>07 Aircraft Propulsion and Power</i> , <i>20 Spacecraft Propulsion and Power</i> , and <i>28 Propellants and Fuels</i> .	
45 ENVIRONMENT POLLUTION	33
Includes atmospheric, noise, thermal, and water pollution.	
46 GEOPHYSICS	33
Includes aeronomy; upper and lower atmosphere studies; ionospheric and magnetospheric physics; and geomagnetism. For space radiation see <i>93 Space Radiation</i> .	
47 METEOROLOGY AND CLIMATOLOGY	34
Includes weather forecasting and modification.	
48 OCEANOGRAPHY	36
Includes biological, dynamic, and physical oceanography; and marine resources. For related information see also <i>43 Earth Resources and Remote Sensing</i> .	
LIFE SCIENCES	
51 LIFE SCIENCES (GENERAL)	36
52 AEROSPACE MEDICINE	36
Includes physiological factors; biological effects of radiation; and effects of weightlessness on man and animals.	
53 BEHAVIORAL SCIENCES	39
Includes psychological factors; individual and group behavior; crew training and evaluation; and psychiatric research.	
54 MAN/SYSTEM TECHNOLOGY AND LIFE SUPPORT	40
Includes human engineering; biotechnology; and space suits and protective clothing. For related information see also <i>16 Space Transportation</i> .	
55 SPACE BIOLOGY	41
Includes exobiology; planetary biology; and extraterrestrial life.	
MATHEMATICAL AND COMPUTER SCIENCES	
59 MATHEMATICAL AND COMPUTER SCIENCES (GENERAL)	41
60 COMPUTER OPERATIONS AND HARDWARE	N.A.
Includes hardware for computer graphics, firmware, and data processing. For components see <i>33 Electronics and Electrical Engineering</i> .	
61 COMPUTER PROGRAMMING AND SOFTWARE	42
Includes computer programs, routines, algorithms, and specific applications, e.g., CAD/CAM.	
62 COMPUTER SYSTEMS	42
Includes computer networks and special application computer systems.	

63 CYBERNETICS	43
Includes feedback and control theory, artificial intelligence, robotics and expert systems. For related information see also <i>54 Man/System Technology and Life Support</i> .	
64 NUMERICAL ANALYSIS	N.A.
Includes iteration, difference equations, and numerical approximation.	
65 STATISTICS AND PROBABILITY	43
Includes data sampling and smoothing; Monte Carlo method; and stochastic processes.	
66 SYSTEMS ANALYSIS	43
Includes mathematical modeling; network analysis; and operations research.	
67 THEORETICAL MATHEMATICS	N.A.
Includes topology and number theory.	
PHYSICS For related information see also <i>Engineering</i> .	
70 PHYSICS (GENERAL)	44
For precision time and time interval (PTTI) see <i>35 Instrumentation and Photography</i> ; for geophysics, astrophysics or solar physics see <i>46 Geophysics</i> , <i>90 Astrophysics</i> , or <i>92 Solar Physics</i> .	
71 ACOUSTICS	44
Includes sound generation, transmission, and attenuation. For noise pollution see <i>45 Environment Pollution</i> .	
72 ATOMIC AND MOLECULAR PHYSICS	N.A.
Includes atomic structure, electron properties, and molecular spectra.	
73 NUCLEAR AND HIGH-ENERGY PHYSICS	46
Includes elementary and nuclear particles; and reactor theory. For space radiation see <i>93 Space Radiation</i> .	
74 OPTICS	46
Includes light phenomena and optical devices. For lasers see <i>36 Lasers and Masers</i> .	
75 PLASMA PHYSICS	46
Includes magnetohydrodynamics and plasma fusion. For ionospheric plasmas see <i>46 Geophysics</i> . For space plasmas see <i>90 Astrophysics</i> .	
76 SOLID-STATE PHYSICS	46
Includes superconductivity. For related information see also <i>33 Electronics and Electrical Engineering</i> and <i>36 Lasers and Masers</i> .	
77 THERMODYNAMICS AND STATISTICAL PHYSICS	N.A.
Includes quantum mechanics; theoretical physics; and Bose and Fermi statistics. For related information see also <i>25 Inorganic and Physical Chemistry</i> and <i>34 Fluid Mechanics and Heat Transfer</i> .	
SOCIAL SCIENCES	
80 SOCIAL SCIENCES (GENERAL)	N.A.
Includes educational matters.	
81 ADMINISTRATION AND MANAGEMENT	46
Includes management planning and research.	
82 DOCUMENTATION AND INFORMATION SCIENCE	47
Includes information management; information storage and retrieval technology; technical writing; graphic arts; and micrography. For computer documentation see <i>61 Computer Programming and Software</i> .	
83 ECONOMICS AND COST ANALYSIS	N.A.
Includes cost effectiveness studies.	
84 LAW, POLITICAL SCIENCE AND SPACE POLICY	N.A.
Includes NASA appropriation hearings; aviation law; space law and policy; international law; international cooperation; and patent policy.	
85 URBAN TECHNOLOGY AND TRANSPORTATION	N.A.
Includes applications of space technology to urban problems; technology transfer; technology assessment; and surface and mass transportation. For related information see <i>03 Air Transportation and Safety</i> , <i>16 Space Transportation</i> , and <i>44 Energy Production and Conversion</i> .	

SPACE SCIENCES For related information see also *Geosciences*.

88 SPACE SCIENCES (GENERAL)	48
89 ASTRONOMY	49
Includes radio, gamma-ray, and infrared astronomy; and astrometry.	
90 ASTROPHYSICS	49
Includes cosmology; celestial mechanics; space plasmas; and interstellar and interplanetary gases and dust. For related information see also <i>75 Plasma Physics</i> .	
91 LUNAR AND PLANETARY EXPLORATION	49
Includes planetology; and manned and unmanned flights. For spacecraft design or space stations see <i>18 Spacecraft Design, Testing and Performance</i> .	
92 SOLAR PHYSICS	50
Includes solar activity, solar flares, solar radiation and sunspots. For related information see <i>93 Space Radiation</i> .	
93 SPACE RADIATION	50
Includes cosmic radiation; and inner and outer earth's radiation belts. For biological effects of radiation see <i>52 Aerospace Medicine</i> . For theory see <i>73 Nuclear and High-Energy Physics</i> .	

GENERAL

Includes aeronautical, astronautical, and space science related histories, biographies, and pertinent reports too broad for categorization; histories or broad overviews of NASA programs.

99 GENERAL	51
SUBJECT INDEX	A-1
PERSONAL AUTHOR INDEX	B-1
REPORT NUMBER INDEX	C-1
APPENDIX	APP-1

TYPICAL CITATION AND ABSTRACT

NASA SPONSORED
ON MICROFICHE

ACCESSION NUMBER → **N92-20063*** # National Aeronautics and Space Administration. ← CORPORATE SOURCE
 Goddard Space Flight Center, Greenbelt, MD.

TITLE → **LONG-TERM LIFE TESTING OF GEOSTATIONARY OPERATIONAL ENVIRONMENTAL SATELLITE (GOES) ENCODER LAMPS**

AUTHOR → **CHARLES E. POWERS** Feb. 1992 120 p ← PUBLICATION DATE
 (RTOP 030-09-01-01)

REPORT NUMBERS → (NASA-RP-1273; REPT-92B00013; NAS 1.61:1273) Avail: CASI ← AVAILABILITY SOURCE
 HC A06/MF A02

PRICE CODE →

The aging characteristics and lifetimes of tungsten filament encoder lamps were determined as a function of operating voltage and filament material. For pure tungsten and thoria doped (1pct.) filament lamps, crystal grain growth over the center portion of the filament leads to the ultimate failure of the lamp. The development of notches associated with this grain growth is the cause of lamp burn out. Eventually, one of the notches will 'etch' through the filament, causing it to fail open. For rhenium doped (3 pct.) filament lamps, distortion of the filament leads to the ultimate failure of the lamp. The lifetime of these lamps is about 1 year at an operating voltage of 5.0 volts. The pure tungsten filament lamps have the longest average lifetime, and the thoria doped filament lamps have the shortest at 5.0 volts. The lifetimes of these lamps is about 7 years at an operating voltage of 3.5 volts. Data suggest that the rhenium doped lamps will have the longest average lifetime at 3.5 volts, and the thoria doped will have the shortest. These lifetimes are comparable to the desired lifetimes of 7 years. Author

TYPICAL CITATION AND SUBJECT TERMS

NASA SPONSORED
ON MICROFICHE

ACCESSION NUMBER → **N92-31640*** # National Aeronautics and Space Administration. ← CORPORATE SOURCE
 Lewis Research Center, Cleveland, OH.

TITLE → **SUPERSONIC THROUGHFLOW FAN TEST FACILITY AT NASA. LEWIS RESEARCH CENTER**

AUTHORS → **DONALD C. URASEK, WALTER S. CUNNAN, RICHARD L. LANTZ, DENNIS L. FRONEK, RONALD A. DAWSON, and JEFFREY C. BROWN** Sep. 1990 25 p ← PUBLICATION DATE
 (RTOP 505-62-61)

REPORT NUMBERS → (NASA-TP-3038; E-5398; NAS 1.60:3038) Avail: CASI HC ← AVAILABILITY SOURCE
 PRICE CODE → A03/MF A01

PROPULSION SYSTEM CONFIGURATIONS, PROPULSION SYSTEM PERFORMANCE, SUPERSONIC FLOW, SUPERSONIC SPEED, SUPERSONIC TEST APPARATUS, SUPERSONIC TURBINES, SUPERSONIC WIND TUNNELS, TURBOFANS, WIND TUNNEL DRIVES

SCIENTIFIC AND TECHNICAL PUBLICATIONS

1991-1992

February 1993

01

AERONAUTICS (GENERAL)

N91-10002* National Aeronautics and Space Administration, Washington, DC.

AERONAUTICAL ENGINEERING: A CONTINUING BIBLIOGRAPHY WITH INDEXES (SUPPLEMENT 256)

Sep. 1990 129 p
(NASA-SP-7037(256); NAS 1.21:7037(256)) Avail: CASI HC A07

This bibliography lists 426 reports, articles, and other documents introduced into the NASA scientific and technical information system in August 1990. Subject coverage includes: design, construction and testing of aircraft and aircraft engines; aircraft components, equipment and systems; ground support systems; and theoretical and applied aspects of aerodynamics and general fluid dynamics. Author

N91-12589* National Aeronautics and Space Administration, Washington, DC.

AERONAUTICAL ENGINEERING: A CONTINUING BIBLIOGRAPHY WITH INDEXES (SUPPLEMENT 257)

Oct. 1990 156 p
(NASA-SP-7037(257); NAS 1.21:7037(257)) Avail: CASI HC A08

This bibliography lists 560 reports, articles, and other documents introduced into the NASA scientific and technical information system in September 1990. Subject coverage includes: design, construction and testing of aircraft and aircraft engines; aircraft components, equipment and systems; ground support systems; and theoretical and applied aspects of aerodynamics and general fluid dynamics. Author

N91-13399* National Aeronautics and Space Administration, Washington, DC.

AERONAUTICAL ENGINEERING: A CONTINUING BIBLIOGRAPHY WITH INDEXES (SUPPLEMENT 258)

Dec. 1988 167 p
(NASA-SP-7037(258); NAS 1.21:7037(258)) Avail: CASI HC A08

This bibliography lists 536 reports, articles, and other documents introduced into the NASA scientific and technical information system in October 1990. Subject coverage includes: design, construction and testing of aircraft and aircraft engines; aircraft components, equipment and systems; ground support systems; and theoretical and applied aspects of aerodynamics and general fluid dynamics. Author

N91-15978* National Aeronautics and Space Administration, Washington, DC.

AERONAUTICAL ENGINEERING: A CONTINUING BIBLIOGRAPHY WITH INDEXES (SUPPLEMENT 260)

Jan. 1991 132 p
(NASA-SP-7037(260); NAS 1.21:7037(260)) Avail: CASI HC A07

This bibliography lists 405 reports, articles, and other documents introduced into the NASA scientific and technical information system in December, 1990. Subject coverage includes: design, construction and testing of aircraft and aircraft engines; aircraft

components, equipment and systems; ground support systems; and theoretical and applied aspects of aerodynamics and general fluid dynamics. Author

N91-15979* National Aeronautics and Space Administration, Washington, DC.

AERONAUTICAL ENGINEERING: A CONTINUING BIBLIOGRAPHY WITH INDEXES (SUPPLEMENT 259)

Dec. 1990 202 p
(NASA-SP-7037(259); NAS 1.21:7037(259)) Avail: CASI HC A10

This bibliography lists 774 reports, articles, and other documents introduced into the NASA scientific and technical information system in November, 1990. Subject coverage includes: design, construction and testing of aircraft and aircraft engines; aircraft components, equipment and systems; ground support systems; and theoretical and applied aspects of aerodynamics and general fluid dynamics. Author

N91-19024*# National Aeronautics and Space Administration, Langley Research Center, Hampton, VA.

JOINT UNIVERSITY PROGRAM FOR AIR TRANSPORTATION RESEARCH, 1989-1990

FREDERICK R. MORRELL, comp. Washington Dec. 1990 183 p Conference held in Athens, OH, 14-15 Jun. 1990; sponsored by NASA and FAA
(RTOP 505-66-01-02)
(NASA-CP-3095; L-16848; NAS 1.55:3095) Avail: CASI HC A09/MF A02

AIR TRANSPORTATION, AIRCRAFT PERFORMANCE, AVIONICS, CONTROL THEORY, EXPERT SYSTEMS, GUIDANCE (MOTION), NAVIGATION, UNIVERSITY PROGRAM

N91-23073* National Aeronautics and Space Administration, Washington, DC.

AERONAUTICAL ENGINEERING: A CUMULATIVE INDEX TO A CONTINUING BIBLIOGRAPHY (SUPPLEMENT 261)

Feb. 1991 562 p
(NASA-SP-7037(261); NAS 1.21:7037(261)) Avail: CASI HC A24

This publication is a cumulative index to the abstracts contained in Supplements 249 through 260 of Aeronautical Engineering: A Continuing Bibliography. The bibliographic series is compiled through the cooperative efforts of the American Institute of Aeronautics and Astronautics (AIAA) and the National Aeronautics and Space Administration (NASA). Seven indexes are included -- subject, personal author, corporate source, foreign technology, contract number, report number and accession number. Author

N91-23074* National Aeronautics and Space Administration, Washington, DC.

AERONAUTICAL ENGINEERING: A CONTINUING BIBLIOGRAPHY WITH INDEXES (SUPPLEMENT 262)

Feb. 1991 142 p
(NASA-SP-7037(262); NAS 1.21:7037(262)) Avail: CASI HC A07

This bibliography lists 474 reports, articles, and other documents introduced into the NASA scientific and technical information system in Jan. 1991. Subject coverage includes: design, construction and testing of aircraft and aircraft engines; aircraft components, equipment and systems; ground support systems;

ABSTRACTS

01 AERONAUTICS (GENERAL)

and theoretical and applied aspects of aerodynamics and general fluid dynamics. Author

N91-24095* National Aeronautics and Space Administration, Washington, DC.

AERONAUTICAL ENGINEERING: A CONTINUING BIBLIOGRAPHY WITH INDEXES (SUPPLEMENT 265)

May 1991 152 p

(NASA-SP-7037(265); NAS 1.21:7037(265)) Avail: CASI HC A08

This bibliography lists 554 reports, articles, and other documents introduced into the NASA scientific and technical information system in Apr. 1991. Subject coverage includes: design, construction and testing of aircraft and aircraft engines; aircraft components, equipment and systems; ground support systems; and theoretical and applied aspects of aerodynamics and general fluid dynamics. Author

N91-24096* National Aeronautics and Space Administration, Washington, DC.

AERONAUTICAL ENGINEERING: A CONTINUING BIBLIOGRAPHY WITH INDEXES (SUPPLEMENT 263)

Mar. 1991 146 p

(NASA-SP-7037(263); NAS 1.21:7037(263)) Avail: CASI HC A07

This bibliography lists 517 reports, articles, and other documents introduced into the NASA scientific and technical information system in Feb. 1991. Subject coverage includes: design, construction and testing of aircraft and aircraft engines; aircraft components, equipment and systems; ground support systems; and theoretical and applied aspects of aerodynamics and general fluid dynamics. Author

N91-24097* National Aeronautics and Space Administration, Washington, DC.

AERONAUTICAL ENGINEERING: A CONTINUING BIBLIOGRAPHY WITH INDEXES (SUPPLEMENT 264)

Apr. 1991 159 p

(NASA-SP-7037(264); NAS 1.21:7037(264)) Avail: CASI HC A08

This bibliography lists 558 reports, articles, and other documents introduced into the NASA scientific and technical information system in Mar. 1991. Subject coverage includes: design, construction and testing of aircraft and aircraft engines; aircraft components, equipment and systems; ground support systems; and theoretical and applied aspects of aerodynamics and general fluid dynamics. Author

N91-26113*# National Aeronautics and Space Administration. Hugh L. Dryden Flight Research Facility, Edwards, CA.

DEVELOPMENT OF AN INTEGRATED AEROSEROVOELASTIC ANALYSIS PROGRAM AND CORRELATION WITH TEST DATA

K. K. GUPTA, M. J. BRENNER, and L. S. VOELKER

Washington May 1991 105 p

(RTOP 533-02-51)

(NASA-TP-3120; H-1543; NAS 1.60:3120) Avail: CASI HC

A06/MF A02

AEROELASTICITY, COMPUTER PROGRAMS, DYNAMIC RESPONSE, DYNAMIC STRUCTURAL ANALYSIS, FINITE ELEMENT METHOD, FLIGHT CONTROL, MATHEMATICAL MODELS, SERVOCONTROL, STRESS ANALYSIS

N91-27122* National Aeronautics and Space Administration, Washington, DC.

AERONAUTICAL ENGINEERING: A CONTINUING BIBLIOGRAPHY WITH INDEXES (SUPPLEMENT 266)

Jun. 1991 175 p

(NASA-SP-7037(266); NAS 1.21:7037(266))

This bibliography lists 645 reports, articles, and other documents introduced into the NASA scientific and technical information system in May 1991. Subject coverage includes: design, construction and testing of aircraft and aircraft engines; aircraft components, equipment and systems; ground support systems; and theoretical and applied aspects of aerodynamics and general fluid dynamics. Author

N91-30077* National Aeronautics and Space Administration, Washington, DC.

AERONAUTICAL ENGINEERING: A CONTINUING BIBLIOGRAPHY WITH INDEXES (SUPPLEMENT 268)

Aug. 1991 131 p

(NASA-SP-7037(268); NAS 1.21:7037(268)) Avail: CASI HC A07

This bibliography lists 406 reports, articles, and other documents introduced into the NASA scientific and technical information system in July, 1991. Subject coverage includes: design, construction and testing of aircraft and aircraft engines; aircraft components, equipment and systems; ground support systems; and theoretical and applied aspects of aerodynamics and general fluid dynamics. Author

N92-10001* National Aeronautics and Space Administration, Washington, DC.

AERONAUTICAL ENGINEERING: A CONTINUING BIBLIOGRAPHY WITH INDEXES (SUPPLEMENT 267)

Jul. 1991 188 p

(NASA-SP-7037(267); NAS 1.21:7037(267)) Avail: CASI HC A09

This bibliography lists 661 reports, articles, and other documents introduced into the NASA scientific and technical information system in June, 1991. Subject coverage includes design, construction and testing of aircraft and aircraft engines; aircraft components, equipment and systems; ground support systems; theoretical and applied aspects of aerodynamics and general fluid dynamics; electrical engineering; aircraft control; remote sensing; computer sciences; nuclear physics; and social sciences. Author

N92-10973* National Aeronautics and Space Administration, Washington, DC.

AERONAUTICAL ENGINEERING: A CONTINUING BIBLIOGRAPHY WITH INDEXES (SUPPLEMENT 270)

Oct. 1991 176 p

(NASA-SP-7037(270); NAS 1.21:7037(270)) Avail: CASI HC A09

This bibliography lists 600 reports, articles, and other documents introduced into the NASA scientific and technical information system in September, 1991. Subject coverage includes: design, construction and testing of aircraft and aircraft engines; aircraft components, equipment and systems; ground support systems; and theoretical and applied aspects of aerodynamics and general fluid dynamics. Author

N92-10974* National Aeronautics and Space Administration, Washington, DC.

AERONAUTICAL ENGINEERING: A CONTINUING BIBLIOGRAPHY WITH INDEXES (SUPPLEMENT 269)

Sep. 1991 153 p

(NASA-SP-7037(269); NAS 1.21:7037(269)) Avail: CASI HC A08

This bibliography lists 539 reports, articles, and other documents introduced into the NASA scientific and technical information system in August, 1991. Subject coverage includes: design, construction and testing of aircraft and aircraft engines; aircraft components, equipment and systems; ground support systems; and theoretical and applied aspects of aerodynamics and general fluid dynamics. Author

N92-14967* National Aeronautics and Space Administration, Washington, DC.

AERONAUTICAL ENGINEERING: A CONTINUING BIBLIOGRAPHY WITH INDEXES (SUPPLEMENT 271)

Nov. 1991 184 p

(NASA-SP-7037(271); NAS 1.21:7037(271)) Avail: CASI HC A09

This bibliography lists 666 reports, articles, and other documents introduced into the NASA scientific and technical information system in October, 1991. Subject coverage includes design, construction and testing of aircraft and aircraft engines; aircraft components, equipment and systems; ground support systems; and theoretical and applied aspects of aerodynamics and general fluid dynamics. Author

N92-17984*# National Aeronautics and Space Administration, Langley Research Center, Hampton, VA.

JOINT UNIVERSITY PROGRAM FOR AIR TRANSPORTATION RESEARCH, 1990-1991

FREDERICK R. MORRELL, comp. Washington Dec. 1991 183 p Conference held in Athens, OH, 20-21 Jun. 1991; sponsored by NASA and FAA (RTOP 505-64-52-01)

(NASA-CP-3131; L-17017; NAS 1.55:3131) Avail: CASI HC A09/MF A02

AIR TRANSPORTATION, AIRCRAFT SAFETY, NATIONAL AIRSPACE SYSTEM, NAVIGATION, UNIVERSITY PROGRAM

N92-21729* National Aeronautics and Space Administration, Washington, DC.

AERONAUTICAL ENGINEERING: A CONTINUING BIBLIOGRAPHY WITH INDEXES (SUPPLEMENT 273)

Jan. 1992 219 p

(NASA-SP-7037(273); NAS 1.21:7037(273)) Avail: CASI HC A10

This bibliography lists 808 reports, articles, and other documents introduced into the NASA scientific and technical information system in Dec. 1991. Subject coverage includes: design, construction and testing of aircraft and aircraft engines; aircraft components, equipment, and systems; ground support systems; and theoretical and applied aspects of aerodynamics and general fluid dynamics. Author

N92-21844* National Aeronautics and Space Administration, Washington, DC.

AERONAUTICAL ENGINEERING: A CONTINUING BIBLIOGRAPHY WITH INDEXES (SUPPLEMENT 272)

Dec. 1991 192 p

(NASA-SP-7037(272); NAS 1.21:7037(272)) Avail: CASI HC A09

This bibliography lists 719 reports, articles, and other documents introduced into the NASA scientific and technical information system in November, 1991. Subject coverage includes: design, construction and testing of aircraft and aircraft engines; aircraft components, equipment, and systems; ground support systems; and theoretical and applied aspects of aerodynamics and general fluid dynamics. Author

N92-22505*# National Aeronautics and Space Administration, Langley Research Center, Hampton, VA.

THE HIGH RESOLUTION ACCELEROMETER PACKAGE (HIRAP) FLIGHT EXPERIMENT SUMMARY FOR THE FIRST 10 FLIGHTS

ROBERT C. BLANCHARD (Lockheed Engineering and Sciences Co., Hampton, VA.), K. T. LARMAN, and M. BARRETT (Lockheed Engineering and Sciences Co., Hampton, VA.) Apr. 1992 318 p

(RTOP 506-48-11-01)

(NASA-RP-1267; L-16900; NAS 1.61:1267) Avail: CASI HC A14/MF A03

The High Resolution Accelerometer Package (HiRAP) instrument is a triaxial, orthogonal system of gas damped accelerometers with a resolution of 1×10^{-6} g (1 micro-g). The purpose of HiRAP is to measure the low frequency component of the total acceleration along the orbiter vehicle (OV) body axes while the OV descends through the rarefied flow flight regime. Two HiRAP instruments have flown on a total of 10 Space Transport System (STS) missions. The aerodynamic component of the acceleration measurements was separated from the total acceleration. Instrument bias and orbiter mechanical system acceleration effects were incorporated into one bulk bias. The bulk bias was subtracted from the acceleration measurements to produce aerodynamic descent data sets for all 10 flights. The aerodynamic acceleration data sets were input to an aerodynamic coefficient model. The aerodynamic acceleration data and coefficient model were used to estimate the atmospheric density for the altitude range of 140 to 60 km and a downrange distance of 600 km. For 8 of 10 flights results from this model agree with expected results. For the results that do not agree with expected results, a variety of error sources have been explored. Author

N92-27929* National Aeronautics and Space Administration, Washington, DC.

AERONAUTICAL ENGINEERING: A CONTINUING BIBLIOGRAPHY WITH INDEXES (SUPPLEMENT 277)

Apr. 1992 137 p

(NASA-SP-7037(277); NAS 1.21:7037(277)) Avail: CASI HC A07

This bibliography lists 467 reports, articles, and other documents introduced into the NASA scientific and technical information system in Mar. 1992. Subject coverage includes: the engineering and theoretical aspects of design, construction, evaluation, testing, operation, and performance of aircraft (including aircraft engines); and associated aircraft components, equipment, and systems. It also includes research and development in ground support systems, theoretical and applied aspects of aerodynamics, and general fluid dynamics. Author

N92-28677* National Aeronautics and Space Administration, Washington, DC.

AERONAUTICAL ENGINEERING: A CONTINUING BIBLIOGRAPHY WITH INDEXES (SUPPLEMENT 278)

May 1992 128 p

(NASA-SP-7037(278); NAS 1.21:7037(278)) Avail: CASI HC A07

This bibliography lists 414 reports, articles, and other documents introduced into the NASA scientific and technical information system in April 1992. Author

N92-28679* National Aeronautics and Space Administration, Washington, DC.

AERONAUTICAL ENGINEERING: A CONTINUING BIBLIOGRAPHY WITH INDEXES (SUPPLEMENT 275)

Feb. 1992 112 p

(NASA-SP-7037(275); NAS 1.21:7037(275)) Avail: CASI HC A06

This bibliography lists 379 reports, articles, and other documents introduced into the NASA scientific and technical information system in Jan. 1991. Author

N92-31456* National Aeronautics and Space Administration, Washington, DC.

AERONAUTICAL ENGINEERING: A CONTINUING BIBLIOGRAPHY WITH INDEXES (SUPPLEMENT 280)

Jul. 1992 172 p

(NASA-SP-7037(280); NAS 1.21:7037(280)) Avail: CASI HC A08

This bibliography lists 647 reports, articles, and other documents introduced into the NASA scientific and technical information system in June, 1991. Subject coverage includes: aerodynamics, air transportation safety, aircraft communication and navigation, aircraft design and performance, aircraft instrumentation, aircraft propulsion, aircraft stability and control, research facilities, astronautics, chemistry and materials, engineering, geosciences, computer sciences, physics, and social sciences. Author

02

AERODYNAMICS

Includes aerodynamics of bodies, combinations, wings, rotors, and control surfaces; and internal flow in ducts and turbomachinery.

N91-10007*# National Aeronautics and Space Administration, Ames Research Center, Moffett Field, CA.

TRANSONIC FLOW ANALYSIS FOR ROTORS. PART 3: THREE-DIMENSIONAL, QUASI-STEADY, EULER CALCULATION

I-CHUNG CHANG Jun. 1990 23 p

(RTOP 505-61-51)

(NASA-TP-2375; A-86374-PT-3; NAS 1.60:2375) Avail: CASI HC A03/MF A01

COMPUTER PROGRAMS, EULER EQUATIONS OF MOTION, FINITE VOLUME METHOD, LIFTING ROTORS, ROTOR AERODYNAMICS, TRANSONIC FLOW

02 AERODYNAMICS

N91-10839*# National Aeronautics and Space Administration. Ames Research Center, Moffett Field, CA.

NASA COMPUTATIONAL FLUID DYNAMICS CONFERENCE.

VOLUME 1: SESSIONS 1-6

Sep. 1989 475 p Conference held at Moffett Field, CA, 7-9 Mar. 1989 Original contains color illustrations (RTOP 505-60-01)

(NASA-CP-10038-VOL-1; A-89160-VOL-1; NAS

1.55:10038-VOL-1) Avail: CASI HC A20/MF A04; 25 functional color pages

COMPUTATIONAL FLUID DYNAMICS, COMPUTATIONAL GRIDS, CONFERENCES, GRID GENERATION (MATHEMATICS), MATHEMATICAL MODELS, SIMULATION, SUPERCOMPUTERS, TURBULENCE MODELS

N91-10868*# National Aeronautics and Space Administration. Ames Research Center, Moffett Field, CA.

NASA COMPUTATIONAL FLUID DYNAMICS CONFERENCE.

VOLUME 2: SESSIONS 7-12

Sep. 1989 525 p Conference held at Moffett Field, CA, 7-9 Mar. 1989 Original contains color illustrations (RTOP 505-60-01)

(NASA-CP-10038-VOL-2; A-89160-VOL-2; NAS

1.55:10038-VOL-2) Avail: CASI HC A22/MF A04; 30 functional color pages

ALGORITHMS, COMPUTATIONAL FLUID DYNAMICS, CONFERENCES, HYPERSONICS, SHORT TAKEOFF AIRCRAFT, SPACECRAFT DESIGN, SUPERCOMPUTERS

N91-10902*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

PREDICTION OF EFFECTS OF WING CONTOUR

MODIFICATIONS ON LOW-SPEED MAXIMUM LIFT AND TRANSONIC PERFORMANCE FOR THE EA-6B AIRCRAFT

DENNIS O. ALLISON and E. G. WAGGONER Washington Nov. 1990 48 p

(RTOP 505-61-21-03)

(NASA-TP-3046; L-16741; NAS 1.60:3046) Avail: CASI HC A03/MF A01

COMPUTER PROGRAMS, CONTOURS, MANEUVERABILITY, PANEL METHOD (FLUID DYNAMICS), PERFORMANCE PREDICTION, TRANSONIC FLOW, WIND TUNNEL TESTS, WING PROFILES

N91-13401*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

NAVIER-STOKES AND EULER SOLUTIONS FOR LEE-SIDE

FLOWS OVER SUPERSONIC DELTA WINGS. A

CORRELATION WITH EXPERIMENT

S. NAOMI MCMILLIN (National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.), JAMES L. THOMAS (National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.), and EARLL M. MURMAN (Massachusetts Inst. of Tech., Cambridge.) Washington Dec. 1990 103 p Original contains color illustrations (RTOP 505-61-71-01)

(NASA-TP-3035; L-16751; NAS 1.60:3035) Avail: CASI HC A06/MF A02; 19 functional color pages

COMPUTER PROGRAMS, DELTA WINGS, EULER EQUATIONS OF MOTION, FLOW DISTRIBUTION, NAVIER-STOKES EQUATION, SUPERSONIC FLOW

N91-13402*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

EFFECT OF LOCATION OF AFT-MOUNTED NACELLES ON THE LONGITUDINAL AERODYNAMIC CHARACTERISTICS OF A HIGH-WING TRANSPORT AIRPLANE

WILLIAM K. ABEYOUNIS (National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.) and JAMES C. PATTERSON, JR. (Vigyan Research Associates, Inc., Hampton, VA.) Washington Dec. 1990 98 p (RTOP 505-62-41-05)

(NASA-TP-3047; L-16743; NAS 1.60:3047) Avail: CASI HC A05/MF A02

AERODYNAMIC INTERFERENCE, AIRCRAFT DESIGN, ENGINE AIRFRAME INTEGRATION, TRANSPORT AIRCRAFT, WING NACELLE CONFIGURATIONS

N91-14316*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

PARAMETRIC STUDY OF AFTERBODY/NOZZLE DRAG ON TWIN TWO-DIMENSIONAL CONVERGENT-DIVERGENT NOZZLES AT MACH NUMBERS FROM 0.60 TO 1.20

ODIS C. PENDERGRAFT, JR., JAMES R. BURLEY, II, and E. ANN BARE Oct. 1986 267 p

(RTOP 505-62-91-01)

(NASA-TP-2640; L-16158; NAS 1.60:2640) Avail: CASI HC A12/MF A03

AERODYNAMIC COEFFICIENTS, AFTERBODIES, CONVERGENT-DIVERGENT NOZZLES, DRAG MEASUREMENT, PARAMETERIZATION

N91-16990*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

A PARAMETRIC EXPERIMENTAL INVESTIGATION OF A SCRAMJET NOZZLE AT MACH 6 WITH FREON AND ARGON OR AIR USED FOR EXHAUST SIMULATION

JAMES M. CUBBAGE (Vigyan Research Associates, Inc., Hampton, VA.) and WILLIAM J. MONTA Washington Feb. 1991 106 p (RTOP 763-01-31-24)

(NASA-TP-3048; L-16707; NAS 1.60:3048) Avail: CASI HC A06/MF A02

EXHAUST FLOW SIMULATION, EXHAUST GASES, EXHAUST NOZZLES, FLOW DISTRIBUTION, NOZZLE FLOW, SUPERSONIC COMBUSTION RAMJET ENGINES

N91-18030*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

DETAILED FLOW-FIELD MEASUREMENTS OVER A 75 DEG SWEPT DELTA WING

SCOTT O. KJELGAARD and WILLIAM L. SELLERS, III Washington Oct. 1990 45 p Original contains color illustrations (RTOP 505-60-11-03)

(NASA-TP-2997; L-16718; NAS 1.60:2997) Avail: CASI HC A03/MF A01; 16 functional color pages

DELTA WINGS, FLOW DISTRIBUTION, FLOW VISUALIZATION, FREE FLOW, JET FLOW, SWEPT WINGS, VORTICES

N91-18031*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

PHYSICALLY WEIGHTED APPROXIMATIONS OF UNSTEADY AERODYNAMIC FORCES USING THE MINIMUM-STATE METHOD

MORDECHAY KARPEL (Technion - Israel Inst. of Tech., Haifa.) and SHERWOOD TIFFANY HOADLEY Washington Mar. 1991 46 p

(RTOP 505-63-21-04)

(NASA-TP-3025; L-16491; NAS 1.60:3025) Avail: CASI HC A03/MF A01

AERODYNAMIC COEFFICIENTS, COMPUTER PROGRAMS, LEAST SQUARES METHOD, MATRICES (MATHEMATICS), UNSTEADY AERODYNAMICS

N91-18032*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

AN EXPLICIT UPWIND ALGORITHM FOR SOLVING THE PARABOLIZED NAVIER-STOKES EQUATIONS

JOHN J. KORTE Washington Feb. 1991 71 p Original contains color illustrations (RTOP 506-80-11-01)

(NASA-TP-3050; L-16753; NAS 1.60:3050) Avail: CASI HC A04/MF A01; 1 functional color page

ALGORITHMS, FLOW DISTRIBUTION, GAS FLOW, HYPERSONIC FLOW, NAVIER-STOKES EQUATION, PARABOLIC DIFFERENTIAL EQUATIONS

N91-19042*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

EXPERIMENTAL INVESTIGATION OF POROUS-FLOOR EFFECTS ON CAVITY FLOW FIELDS AT SUPERSONIC SPEEDS

FLOYD J. WILCOX, JR. Washington Nov. 1990 105 p (RTOP 505-61-71-01) (NASA-TP-3032; L-16711; NAS 1.60:3032) Avail: CASI HC A06/MF A02

CAVITIES, CAVITY FLOW, FLOW DISTRIBUTION, MACH NUMBER, POROSITY, SUPERSONIC SPEED, VENTS, WIND TUNNEL MODELS

N91-19057*# National Aeronautics and Space Administration. Lewis Research Center, Cleveland, OH.

THREE-COMPONENT LASER ANEMOMETER MEASUREMENT SYSTEMS

LOUIS J. GOLDMAN Washington Jan. 1991 20 p (NASA-TP-3080; E-5526; NAS 1.60:3080) Avail: CASI HC A03/MF A01

ANNULAR FLOW, LASER ANEMOMETERS, LASER DOPPLER VELOCIMETERS, LASER INTERFEROMETRY, THREE DIMENSIONAL FLOW, TURBOMACHINERY

N91-19058*# National Aeronautics and Space Administration. Ames Research Center, Moffett Field, CA.

PANEL METHODS: AN INTRODUCTION

LARRY L. ERICKSON Washington Dec. 1990 64 p (RTOP 505-60-21)

(NASA-TP-2995; A-89266; NAS 1.60:2995) Avail: CASI HC A04/MF A01

BOUNDARY CONDITIONS, COMPUTER PROGRAMS, INVISCID FLOW, PANEL METHOD (FLUID DYNAMICS), POTENTIAL FLOW, SUBSONIC SPEED, SUPERSONIC SPEED

N91-20043*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

WALL-INTERFERENCE ASSESSMENT AND CORRECTIONS FOR TRANSONIC NACA 0012 AIRFOIL DATA FROM VARIOUS WIND TUNNELS M.S. Thesis - George Washington Univ., 1988

LAWRENCE L. GREEN and PERRY A. NEWMAN Apr. 1991 63 p Presented at AIAA Meeting, Honolulu, HI, 8-10 Jun. 1987 (RTOP 505-61-01-04)

(NASA-TP-3070; L-16721; NAS 1.60:3070; AIAA PAPER 87-1431) Avail: CASI HC A04/MF A01

AERODYNAMIC INTERFERENCE, AIRFOIL PROFILES, BOUNDARY LAYER FLOW, TRANSONIC FLOW, WALL FLOW, WIND TUNNEL WALLS

N91-21059*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

STATIC THRUST-VECTORING PERFORMANCE OF NONAXISYMMETRIC CONVERGENT-DIVERGENT NOZZLES WITH POST-EXIT YAW VANES M.S. Thesis - George Washington Univ., Aug. 1988

ROBERT J. FOLEY (George Washington Univ., Washington, DC.) and ODIS C. PENDERGRAFT, JR. May 1991 81 p (RTOP 505-62-71-01)

(NASA-TP-3085; L-16784; NAS 1.60:3085) Avail: CASI HC A05/MF A01

CONVERGENT-DIVERGENT NOZZLES, JET VANES, NOZZLE GEOMETRY, STATIC TESTS, STATIC THRUST, THRUST VECTOR CONTROL, YAW

N91-21062*# National Aeronautics and Space Administration. Lewis Research Center, Cleveland, OH.

COMPUTATIONAL FLUID DYNAMICS SYMPOSIUM ON AEROPROPULSION

Washington Jan. 1991 687 p Symposium held in Cleveland, OH, 24-26 Apr. 1990 Supersedes NASA-CP-10045 Original

contains color illustrations

(NASA-CP-3078; E-5296; NASA-CP-10045; NAS 1.55:3078)

Avail: CASI HC A99/MF A06; 10 functional color pages

COMBUSTIBLE FLOW, COMBUSTION CHAMBERS, COMPUTATIONAL FLUID DYNAMICS, CONFERENCES, GRID GENERATION (MATHEMATICS), PROPULSION SYSTEM PERFORMANCE, TURBOMACHINERY, TURBULENCE MODELS

N91-22069*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

AEROPROPULSIVE CHARACTERISTICS OF CANTED TWIN PITCH-VECTORING NOZZLES AT MACH 0.20 TO 1.20

FRANCIS J. CAPONE, MARY L. MASON, and GEORGE T. CARSON, JR. Washington May 1991 257 p (RTOP 505-62-71-01)

(NASA-TP-3060; L-16823; NAS 1.60:3060) Avail: CASI HC A12/MF A03

CONVERGENT-DIVERGENT NOZZLES, FLAPS (CONTROL SURFACES), FLOW DISTRIBUTION, NOZZLE GEOMETRY, PROPULSIVE EFFICIENCY, THRUST VECTOR CONTROL

N91-22070*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

NUMERICAL STUDY OF THE AERODYNAMIC EFFECTS OF USING SULFUR HEXAFLUORIDE AS A TEST GAS IN WIND TUNNELS

W. KYLE ANDERSON Washington Jan. 1991 26 p Previously announced in IAA as A90-37958

(RTOP 505-60-01-01)

(NASA-TP-3086; L-16849; NAS 1.60:3086) Avail: CASI HC A03/MF A01

AIRFOILS, INVISCID FLOW, SUBSONIC FLOW, SULFUR FLUORIDES, TRANSONIC FLOW, TURBULENT FLOW, WIND TUNNEL TESTS

N91-24132*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

TRANSONIC SYMPOSIUM: THEORY, APPLICATION AND EXPERIMENT, VOLUME 2

JEROME T. FOUGHNER, JR., comp. Apr. 1989 241 p Symposium held in Hampton, VA, 19-21 Apr. 1988

(RTOP 505-60-11-01)

(NASA-CP-3020-VOL-2; L-16502-VOL-2; NAS 1.55:3020-VOL-2)

Avail: CASI HC A11/MF A03

AERODYNAMIC CHARACTERISTICS, AIRCRAFT DESIGN, BODY-WING CONFIGURATIONS, COMPUTATIONAL FLUID DYNAMICS, FLIGHT TESTS, TRANSONIC FLOW, WIND TUNNEL TESTS

N91-25103*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

LOW-SPEED, POWERED GROUND EFFECTS OF A GENERIC, HYPERSONIC CONFIGURATION

GREGORY M. GATLIN 1990 62 p

(RTOP 763-01-31-22)

(NASA-TP-3092; L-16861; NAS 1.60:3092) Avail: CASI HC A04/MF A01

AERODYNAMIC CHARACTERISTICS, AIRCRAFT MODELS, GROUND EFFECT (AERODYNAMICS), HYPERSONIC AIRCRAFT, LOW SPEED, SCALE MODELS, WIND TUNNEL TESTS

N91-27124*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

EFFECTS OF YAW ANGLE AND REYNOLDS NUMBER ON RECTANGULAR-BOX CAVITIES AT SUBSONIC AND TRANSONIC SPEEDS

E. B. PLENTOVICH, JULIO CHU, and M. B. TRACY Washington Jul. 1991 54 p

(RTOP 505-68-91-12)

(NASA-TP-3099; L-16847; NAS 1.60:3099) Avail: CASI HC A04/MF A01

CAVITIES, FLOW DISTRIBUTION, HIGH REYNOLDS NUMBER,

02 AERODYNAMICS

MACH NUMBER, PRESSURE DISTRIBUTION, SUBSONIC FLOW, TRANSONIC FLOW, YAW

N91-27140*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

SHOCK WAVE INTERACTION WITH AN ABRUPT AREA CHANGE

MANUEL D. SALAS Washington Aug. 1991 16 p
(RTOP 505-62-31-07)
(NASA-TP-3113; L-16878; NAS 1.60:3113) Avail: CASI HC A03/MF A01

COMPUTATIONAL FLUID DYNAMICS, EULER EQUATIONS OF MOTION, MATHEMATICAL MODELS, NUMERICAL ANALYSIS, SHOCK WAVE INTERACTION, SHOCK WAVES, UNIQUENESS THEOREM

N91-28136*# National Aeronautics and Space Administration. Lewis Research Center, Cleveland, OH.

EVALUATION OF A TECHNIQUE TO GENERATE ARTIFICIALLY THICKENED BOUNDARY LAYERS IN SUPERSONIC AND HYPERSONIC FLOWS

A. R. PORRO (National Aeronautics and Space Administration. Lewis Research Center, Cleveland, OH.), W. R. HINGST (National Aeronautics and Space Administration. Lewis Research Center, Cleveland, OH.), D. O. DAVIS (Washington Univ., Seattle.), and A. B. BLAIR, JR. (National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.) Washington Aug. 1991 28 p
(RTOP 505-80-21)

(NASA-TP-3142; E-5660; NAS 1.60:3142) Avail: CASI HC A03/MF A01

BOUNDARY LAYERS, COMPRESSIBLE FLOW, HONEYCOMB STRUCTURES, HYPERSONIC FLOW, SUPERSONIC FLOW, TURBULENT BOUNDARY LAYER, WIND TUNNEL MODELS

N91-28143*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

LONGITUDINAL AERODYNAMIC CHARACTERISTICS OF A SUBSONIC, ENERGY-EFFICIENT TRANSPORT CONFIGURATION IN THE NATIONAL TRANSONIC FACILITY

PETER F. JACOBS and BLAIR B. GLOSS Aug. 1989 70 p
(RTOP 505-61-21-03)
(NASA-TP-2922; L-16569; NAS 1.60:2922) Avail: CASI HC A04/MF A01

AEROELASTICITY, BOUNDARY LAYER TRANSITION, LONGITUDINAL STABILITY, NONADIABATIC CONDITIONS, SUBSONIC SPEED, SUPERCRITICAL WINGS, WALL TEMPERATURE

N91-30098*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

FULL-SCALE SEMISPAN TESTS OF A BUSINESS-JET WING WITH A NATURAL LAMINAR FLOW AIRFOIL

DAVID E. HAHNE and FRANK L. JORDAN, JR. Sep. 1991 52 p
(RTOP 505-61-41-01)
(NASA-TP-3133; L-16905; NAS 1.60:3133) Avail: CASI HC A04/MF A01

AIRFOIL PROFILES, FLAPPING, FULL SCALE TESTS, JET AIRCRAFT, LAMINAR FLOW AIRFOILS, LOW SPEED, SEMISPAN MODELS, WIND TUNNEL TESTS

N92-10005*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

MEASUREMENTS OF FORCES, MOMENTS, AND PRESSURES ON A GENERIC STORE SEPARATING FROM A BOX CAVITY AT SUPERSONIC SPEEDS

ROBERT L. STALLINGS, JR. (Lockheed Engineering and Sciences Co., Hampton, VA.), FLOYD J. WILCOX, JR., and DANA K. FORREST Sep. 1991 186 p
(RTOP 505-68-91-12)
(NASA-TP-3110; L-16866; NAS 1.60:3110) Avail: CASI HC A09/MF A02

CAVITIES, EXTERNAL STORE SEPARATION, FLAT PLATES, FLOW DISTRIBUTION, MOMENTS, PRESSURE MEASUREMENT, SUPERSONIC SPEED

N92-10011*# National Aeronautics and Space Administration. Ames Research Center, Moffett Field, CA.

TRANSONIC AND SUPERSONIC EULER COMPUTATIONS OF VORTEX-DOMINATED FLOW FIELDS ABOUT A GENERIC FIGHTER

AGA M. GOODSELL and JOHN E. MELTON Nov. 1991 44 p
(RTOP 505-60-11)
(NASA-TP-3156; A-90161; NAS 1.60:3156) Avail: CASI HC A03/MF A01

ANGLE OF ATTACK, BODY-WING CONFIGURATIONS, EULER EQUATIONS OF MOTION, FIGHTER AIRCRAFT, FLOW DISTRIBUTION, PRESSURE DISTRIBUTION

N92-10975*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

STATIC INTERNAL PERFORMANCE OF VENTRAL AND REAR NOZZLE CONCEPTS FOR SHORT-TAKEOFF AND VERTICAL-LANDING AIRCRAFT

RICHARD J. RE and GEORGE T. CARSON, JR. Washington Sep. 1991 71 p
(RTOP 505-62-30-01)
(NASA-TP-3103; L-16902; NAS 1.60:3103) Avail: CASI HC A04/MF A01

AIRCRAFT CONFIGURATIONS, EXHAUST NOZZLES, EXHAUST SYSTEMS, FIGHTER AIRCRAFT, PROPULSION SYSTEM CONFIGURATIONS, SHORT TAKEOFF AIRCRAFT, VERTICAL LANDING

N92-10981*# National Aeronautics and Space Administration. Ames Research Center, Moffett Field, CA.

NACA 0015 WING PRESSURE AND TRAILING VORTEX MEASUREMENTS

K. W. MCALISTER and R. K. TAKAHASHI Washington Nov. 1991 141 p
(RTOP 505-61-51)
(NASA-TP-3151; A-91056; NAS 1.60:3151; AVSCOM-TR-91-A-003) Avail: CASI HC A07/MF A02

LOW SPEED, PRESSURE MEASUREMENT, SEMISPAN MODELS, TRAILING EDGES, VELOCITY MEASUREMENT, VORTICES, WING TIPS, WINGS

N92-12994*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

WIND TUNNEL INVESTIGATION OF THE INTERACTION AND BREAKDOWN CHARACTERISTICS OF SLENDER WING VORTICES AT SUBSONIC, TRANSONIC, AND SUPERSONIC SPEEDS

GARY E. ERICKSON Washington Nov. 1991 226 p
(RTOP 505-68-71-03)
(NASA-TP-3114; L-16803; NAS 1.60:3114) Avail: CASI HC A11/MF A03

AERODYNAMIC CHARACTERISTICS, DELTA WINGS, FLOW DISTRIBUTION, LASERS, LEADING EDGES, SLENDER WINGS, VORTICES

N92-14968*# National Aeronautics and Space Administration. Lewis Research Center, Cleveland, OH.

WIND TUNNEL INVESTIGATION OF VORTEX FLOWS ON F/A-18 CONFIGURATION AT SUBSONIC THROUGH TRANSONIC SPEED

GARY E. ERICKSON Washington Dec. 1991 166 p
(RTOP 505-68-30-03)
(NASA-TP-3111; L-16799; NAS 1.60:3111) Avail: CASI HC A08/MF A02

F-18 AIRCRAFT, FOREBODIES, INTERACTIONAL AERODYNAMICS, LEADING EDGES, VORTEX BREAKDOWN, VORTICES, WIND TUNNEL TESTS, WINGS

N92-17131*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

TWO-DIMENSIONAL STABILITY OF LAMINAR FLAMES

H. S. MUKUNDA and J. PHILIP DRUMMOND Washington Feb. 1992 30 p
(RTOP 763-01-21-16)
(NASA-TP-3131; L-16604; NAS 1.60:3131) Avail: CASI HC A03/MF A01

ACTIVATION ENERGY, COMBUSTION CHEMISTRY, FLAME STABILITY, LAMINAR FLOW, LEWIS NUMBERS, PREMIXED FLAMES

N92-19002*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

INSTALLATION EFFECTS OF WING-MOUNTED TURBOFAN NACELLE-PYLONS ON A 1/17-SCALE, TWIN-ENGINE, LOW-WING TRANSPORT MODEL

ODIS C. PENDERGRAFT, JR. (Aerospace Research Labs., Wright-Patterson AFB, OH.), ANTHONY M. INGRALDI (Aerospace Research Labs., Wright-Patterson AFB, OH.), RICHARD J. RE (Aerospace Research Labs., Wright-Patterson AFB, OH.), and TIMMY T. KARIYA (Vigyan Research Associates, Inc., Hampton, VA.) Mar. 1992 108 p
(RTOP 535-03-10-01)
(NASA-TP-3168; L-16960; NAS 1.60:3168) Avail: CASI HC A06/MF A02

AERODYNAMIC INTERFERENCE, BYPASS RATIO, INTERACTIONAL AERODYNAMICS, SUPERCRITICAL WINGS, TURBOFAN ENGINES, TURBOFANS, WING NACELLE CONFIGURATIONS

N92-19175*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

A WEAKLY NONLINEAR THEORY FOR WAVE-VORTEX INTERACTIONS IN CURVED CHANNEL FLOW

BART A. SINGER (High Technology Corp., Hampton, VA.), GORDON ERLEBACHER (Institute for Computer Applications in Science and Engineering, Hampton, VA.), and THOMAS A. ZANG Mar. 1992 26 p
(RTOP 505-59-50-01)
(NASA-TP-3158; L-16989; NAS 1.60:3158) Avail: CASI HC A03/MF A01

CHANNEL FLOW, FLUID DYNAMICS, NONLINEARITY, TOLLIEN-SCHLICHTING WAVES, VORTICES

N92-20038*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

INFLUENCE OF AIRFOIL GEOMETRY ON DELTA WING LEADING-EDGE VORTICES AND VORTEX-INDUCED AERODYNAMICS AT SUPERSONIC SPEEDS

RICHARD M. WOOD (Lockheed Engineering and Sciences Co., Hampton, VA.), JAMES E. BYRD, and GARY F. WESSELMANN (Arnold Engineering Development Center, Arnold Air Force Station, TN.) Washington Feb. 1992 86 p
(RTOP 505-61-71-01)
(NASA-TP-3105; L-16851; NAS 1.60:3105) Avail: CASI HC A05/MF A01

AIRFOIL PROFILES, DELTA WINGS, LEADING EDGES, SUPERSONIC SPEED, VORTICES, WIND TUNNEL TESTS

N92-20494*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

COMPARISON OF A TWO-DIMENSIONAL ADAPTIVE-WALL TECHNIQUE WITH ANALYTICAL WALL INTERFERENCE CORRECTION TECHNIQUES

RAYMOND E. MINECK Apr. 1992 73 p
(RTOP 505-59-10-03)
(NASA-TP-3132; L-16911; NAS 1.60:3132) Avail: CASI HC A04/MF A01

AERODYNAMIC INTERFERENCE, AIRFOILS, CORRECTION, MODELS, REYNOLDS NUMBER, TRANSONIC WIND TUNNELS, WALL FLOW, WIND TUNNEL WALLS

N92-20545*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

DIFFRACTED AND HEAD WAVES ASSOCIATED WITH WAVES ON NONSEPARABLE SURFACES

RAYMOND L. BARGER Apr. 1992 17 p
(RTOP 505-59-53-01)
(NASA-TP-3169; L-16968; NAS 1.60:3169) Avail: CASI HC A03/MF A01

SURFACE WAVES, THIN WALLED SHELLS, WAVE DIFFRACTION

N92-23095*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

STATIC PERFORMANCE OF A CRUCIFORM NOZZLE WITH MULTIAxis THRUST-VECTORING AND REVERSE-THRUST CAPABILITIES

DAVID J. WING and SCOTT C. ASBURY Apr. 1992 82 p
(RTOP 505-62-30-01)
(NASA-TP-3188; L-16958; NAS 1.60:3188) Avail: CASI HC A05/MF A01

CONVERGENT-DIVERGENT NOZZLES, PERFORMANCE TESTS, THRUST REVERSAL, THRUST VECTOR CONTROL, TWO DIMENSIONAL FLOW, WIND TUNNEL TESTS

N92-25133*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

COMPARISON OF JET PLUME SHAPE PREDICTIONS AND PLUME INFLUENCE ON SONIC BOOM SIGNATURE

RAYMOND L. BARGER and N. DUANE MELSON Mar. 1992 23 p
(RTOP 505-59-53-01)
(NASA-TP-3172; L-16970; NAS 1.60:3172) Avail: CASI HC A03/MF A01

PLUMES, PREDICTIONS, SHAPES, SIGNATURES, SONIC BOOMS

N92-25202*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

THE NATURAL FLOW WING-DESIGN CONCEPT

RICHARD M. WOOD and STEVEN X. S. BAUER May 1992 44 p Previously announced in IAA as A89-49677
(RTOP 505-61-71-01)
(NASA-TP-3193; L-16837; NAS 1.60:3193) Avail: CASI HC A03/MF A01

AERODYNAMIC CHARACTERISTICS, AIRCRAFT CONFIGURATIONS, AIRCRAFT DESIGN, FLOW DISTRIBUTION, LEADING EDGES, SLENDER WINGS, SUPERSONIC FLOW, SWEPT WINGS

N92-25276*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

WIND-TUNNEL STATIC AND FREE-FLIGHT INVESTIGATION OF HIGH-ANGLE-OF-ATTACK STABILITY AND CONTROL CHARACTERISTICS OF A MODEL OF THE EA-6B AIRPLANE

FRANK L. JORDAN, JR. and DAVID E. HAHNE May 1992 60 p
(RTOP 505-61-71-07)
(NASA-TP-3194; L-16813; NAS 1.60:3194) Avail: CASI HC A04/MF A01

AERODYNAMIC STABILITY, AIRCRAFT CONTROL, ANGLE OF ATTACK, DIRECTIONAL STABILITY, DYNAMIC STABILITY, FREE FLIGHT, STATIC TESTS, WIND TUNNEL TESTS

N92-28477*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

CALCULATION OF UNSTEADY TRANSONIC FLOWS WITH MILD SEPARATION BY VISCOUS-INVISCID INTERACTION

JAMES T. HOWLETT Jun. 1992 39 p
(RTOP 509-10-02-03)
(NASA-TP-3197; L-16996; NAS 1.60:3197) Avail: CASI HC A03/MF A01

BOUNDARY LAYERS, FLOW DISTRIBUTION, FLOW

02 AERODYNAMICS

EQUATIONS, MATHEMATICAL MODELS, THREE DIMENSIONAL FLOW, TRANSONIC FLOW, UNSTEADY FLOW, VISCOUS FLOW

N92-28980*# National Aeronautics and Space Administration. Lewis Research Center, Cleveland, OH.

LASER ANEMOMETER MEASUREMENTS AND COMPUTATIONS IN AN ANNULAR CASCADE OF HIGH TURNING CORE TURBINE VANES

LOUIS J. GOLDMAN and RICHARD G. SEASHOLTZ Jul. 1992 38 p

(RTOP 505-62-52)
(NASA-TP-3252; E-6354; NAS 1.60:3252) Avail: CASI HC A03/MF A01

ANNULAR FLOW, CASCADE FLOW, CRITICAL VELOCITY, LASER ANEMOMETERS, TURBINE BLADES, TURBOMACHINERY, TURBULENCE, TURBULENT FLOW, VANES

N92-29625*# National Aeronautics and Space Administration. Ames Research Center, Moffett Field, CA.

NASA WORKSHOP ON FUTURE DIRECTIONS IN SURFACE MODELING AND GRID GENERATION

W. R. VANDALSEM (National Aeronautics and Space Administration, Langley Research Center, Hampton, VA.), R. E. SMITH (National Aeronautics and Space Administration, Langley Research Center, Hampton, VA.), Y. K. CHOO (National Aeronautics and Space Administration, Lewis Research Center, Cleveland, OH.), L. D. BIRCKELBAW, and A. A. VOGEL Mar. 1992 24 p Workshop held at Moffett Field, CA, 5-7 Dec. 1989 (RTOP 505-59-00)

(NASA-CP-10092; A-92072; NAS 1.55:10092) Avail: CASI HC A03/MF A01

COMPUTATIONAL FLUID DYNAMICS, CONFERENCES, GRID GENERATION (MATHEMATICS), NASA PROGRAMS

N92-30295*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

VALIDATION OF THREE-DIMENSIONAL INCOMPRESSIBLE SPATIAL DIRECT NUMERICAL SIMULATION CODE: A COMPARISON WITH LINEAR STABILITY AND PARABOLIC STABILITY EQUATION THEORIES FOR BOUNDARY-LAYER TRANSITION ON A FLAT PLATE

RONALD D. JOSLIN, CRAIG L. STREETT, and CHAU-LYAN CHANG (High Technology Corp., Hampton, VA.) Jul. 1992 49 p

(RTOP 505-59-50-01)
(NASA-TP-3205; L-17026; NAS 1.60:3205) Avail: CASI HC A03/MF A01

BOUNDARIES, BOUNDARY CONDITIONS, BOUNDARY LAYER TRANSITION, BOUNDARY LAYERS, COMPUTERIZED SIMULATION, FINITE DIFFERENCE THEORY, FLAT PLATES, FLUID DYNAMICS, FOURIER SERIES, INCOMPRESSIBLE FLOW, RUNGE-KUTTA METHOD, WAVE REFLECTION

N92-30394*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

TWO-DIMENSIONAL AERODYNAMIC CHARACTERISTICS OF SEVERAL POLYGON-SHAPED CROSS-SECTIONAL MODELS APPLICABLE TO HELICOPTER FUSELAGES

HENRY L. KELLEY, CYNTHIA A. CROWELL, and JOHN C. WILSON Aug. 1992 30 p

(DA PROJ. 1L2-36003-D-313; RTOP 505-59-36-01)
(NASA-TP-3233; L-16951; NAS 1.60:3233;
AVSCOM-TR-92-B-002) Avail: CASI HC A03/MF A01

AERODYNAMIC CHARACTERISTICS, AIRCRAFT MODELS, BLUNT BODIES, CROSS SECTIONS, FUSELAGES, HELICOPTERS, POLYGONS, WIND TUNNEL TESTS

N92-30747*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

TRAJECTORY FITTING IN FUNCTION SPACE WITH APPLICATION TO ANALYTIC MODELING OF SURFACES

RAYMOND L. BARGER Jul. 1992 15 p

(RTOP 505-59-53-01)
(NASA-TP-3232; L-17054; NAS 1.60:3232) Avail: CASI HC A03/MF A01

COMPUTATIONAL GRIDS, CURVE FITTING, FUNCTION SPACE, GRID GENERATION (MATHEMATICS), MATHEMATICAL MODELS, SMOOTHING, TRAJECTORIES

N92-30909*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

DIRECT SIMULATION OF HIGH-SPEED MIXING LAYERS

H. S. MUKUNDA, B. SEKAR (General Electric Co., Cincinnati, OH.), M. H. CARPENTER, J. PHILIP DRUMMOND, and AJAY KUMAR Jul. 1992 63 p

(RTOP 505-62-40-06)
(NASA-TP-3186; L-16929; NAS 1.60:3186) Avail: CASI HC A04/MF A01

COMPUTATIONAL GRIDS, COMPUTERIZED SIMULATION, CONVECTION, FLOW CHARACTERISTICS, FREE WING AIRCRAFT, MIXING LAYERS (FLUIDS), TURBULENCE

N92-31532*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

WIND TUNNEL AERODYNAMIC CHARACTERISTICS OF A TRANSPORT-TYPE AIRFOIL IN A SIMULATED HEAVY RAIN ENVIRONMENT

GAUDY M. BEZOS, R. EARL DUNHAM, JR., GARL L. GENTRY, JR., and W. EDWARD MELSON, JR. (National Aeronautics and Space Administration, Wallops Flight Facility, Wallops Island, VA.) Aug. 1992 68 p

(RTOP 505-68-01-02)
(NASA-TP-3184; L-16959; NAS 1.60:3184) Copyright Avail: CASI HC A04/MF A01

AERODYNAMIC CHARACTERISTICS, AIRFOILS, ENVIRONMENT EFFECTS, ENVIRONMENT SIMULATION, PERFORMANCE PREDICTION, RAIN, SCALE MODELS, WIND TUNNEL TESTS

N92-32480*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

A METHOD FOR DESIGNING BLENDED WING-BODY CONFIGURATIONS FOR LOW WAVE DRAG

RAYMOND L. BARGER Sep. 1992 19 p

(RTOP 505-59-53-01)
(NASA-TP-3261; L-17095; NAS 1.60:3261) Avail: CASI HC A03/MF A01

AERODYNAMIC CONFIGURATIONS, AIRCRAFT DESIGN, BODY-WING CONFIGURATIONS, COMPUTATIONAL GRIDS, DRAG REDUCTION, SUPERSONIC AIRCRAFT, WAVE DRAG

N92-33484*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

APPLICATIONS OF A DIRECT/ITERATIVE DESIGN METHOD TO COMPLEX TRANSONIC CONFIGURATIONS

LEIGH ANN SMITH and RICHARD L. CAMPBELL Sep. 1992 36 p

(RTOP 505-59-10-03)
(NASA-TP-3234; L-16962; NAS 1.60:3234) Avail: CASI HC A03/MF A01

AERODYNAMIC DRAG, AIRCRAFT CONFIGURATIONS, AIRCRAFT DESIGN, DRAG REDUCTION, INDUCED DRAG, INTERFERENCE DRAG, NACELLES, TRANSPORT AIRCRAFT

N92-33625*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

A NOZZLE INTERNAL PERFORMANCE PREDICTION METHOD

JOHN R. CARLSON Oct. 1992 50 p

(RTOP 505-62-30-01)
(NASA-TP-3221; L-16965; NAS 1.60:3221) Avail: CASI HC A03/MF A01

DISCHARGE COEFFICIENT, FLOW DISTRIBUTION, NAVIER-STOKES EQUATION, NOZZLE DESIGN, NOZZLE

EFFICIENCY, NOZZLE FLOW, NOZZLE THRUST COEFFICIENTS, PERFORMANCE PREDICTION, PITCHING MOMENTS, ROLLING MOMENTS, YAWING MOMENTS

N92-33656*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

SURVEY AND ANALYSIS OF RESEARCH ON SUPERSONIC DRAG-DUE-TO-LIFT MINIMIZATION WITH RECOMMENDATIONS FOR WING DESIGN

HARRY W. CARLSON (Lockheed Engineering and Sciences Co., Hampton, VA.) and MICHAEL J. MANN Sep. 1992 158 p (RTOP 505-68-70-02)

(NASA-TP-3202; L-16963; NAS 1.60:3202) Avail: CASI HC A08/MF A02

AIRCRAFT DESIGN, BODY-WING CONFIGURATIONS, CAMBERED WINGS, SUPERSONIC AIRCRAFT, SUPERSONIC DRAG, SURVEYS, TWISTED WINGS, WINGS

N92-33706*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

EFFECT OF AFTERBODY GEOMETRY ON AERODYNAMIC CHARACTERISTICS OF ISOLATED NONAXISYMMETRIC AFTERBODIES AT TRANSONIC MACH NUMBERS

LINDA S. BANGERT and GEORGE T. CARSON, JR. Sep. 1992 265 p

(RTOP 505-62-30-01)

(NASA-TP-3236; L-17034; NAS 1.60:3236) Avail: CASI HC A12/MF A03

AERODYNAMIC CHARACTERISTICS, AFTERBODIES, AIRCRAFT CONFIGURATIONS, AIRCRAFT MODELS, BOATTAILS, FIGHTER AIRCRAFT, INTERACTIONAL AERODYNAMICS, WIND TUNNEL MODELS, WIND TUNNEL TESTS

N92-34193*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

PARAMETRIC INVESTIGATION OF SINGLE-EXPANSION-RAMP NOZZLES AT MACH NUMBERS FROM 0.60 TO 1.20

FRANCIS J. CAPONE, RICHARD J. RE, and E. ANN BARE Oct. 1992 276 p

(RTOP 505-62-30-01)

(NASA-TP-3240; L-17067; NAS 1.60:3240) Avail: CASI HC A13/MF A03

AERODYNAMIC COEFFICIENTS, AERODYNAMIC DRAG, CONVERGENT NOZZLES, CONVERGENT-DIVERGENT NOZZLES, MACH NUMBER, NOZZLE DESIGN, NOZZLE FLOW, PROPULSION SYSTEM PERFORMANCE, WIND TUNNEL TESTS

03

AIR TRANSPORTATION AND SAFETY

Includes passenger and cargo air transport operations; and aircraft accidents.

N91-10936*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

AVIATION SAFETY/AUTOMATION PROGRAM CONFERENCE

SAMUEL A. MORELLO, comp. Washington Oct. 1990 270 p Conference held in Virginia Beach, VA, 11-12 Oct. 1989

(RTOP 505-67-21-07)

(NASA-CP-3090; L-16840; NAS 1.55:3090) Avail: CASI HC A12/MF A03

AIR TRAFFIC CONTROL, AIRCRAFT SAFETY, AVIONICS, COCKPITS, CONFERENCES, HUMAN FACTORS ENGINEERING, MAN MACHINE SYSTEMS, MAN-COMPUTER INTERFACE, TEST FACILITIES

N91-11682*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

AIRBORNE WIND SHEAR DETECTION AND WARNING SYSTEMS. SECOND COMBINED MANUFACTURERS' AND TECHNOLOGISTS' CONFERENCE, PART 1

AMOS A. SPADY, JR., comp., ROLAND L. BOWLES, comp., and HERBERT SCHLICKENMAIER, comp. (Federal Aviation Administration, Washington, DC.) Jul. 1990 347 p Conference held in Williamsburg, VA, 18-20 Oct. 1988

(RTOP 505-67-41-54)

(NASA-CP-10050-PT-1; NAS 1.55:10050-PT-1) Avail: CASI HC A15/MF A03

AIRBORNE EQUIPMENT, AIRCRAFT HAZARDS, CONFERENCES, DETECTION, WARNING SYSTEMS, WIND SHEAR

N91-11695*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

AIRBORNE WIND SHEAR DETECTION AND WARNING SYSTEMS. SECOND COMBINED MANUFACTURERS' AND TECHNOLOGISTS' CONFERENCE, PART 2

AMOS A. SPADY, JR., comp., ROLAND L. BOWLES, comp., and HERBERT SCHLICKENMAIER, comp. (Federal Aviation Administration, Washington, DC.) Jul. 1990 452 p Conference held in Williamsburg, VA, 18-20 Oct. 1988

(RTOP 505-67-41-54)

(NASA-CP-10050-PT-2; NAS 1.55:10050-PT-2) Avail: CASI HC A20/MF A04

AIRCRAFT GUIDANCE, CONFERENCES, DETECTION, MICROBURSTS (METEOROLOGY), WARNING SYSTEMS, WIND SHEAR

N91-15141*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

REPORT OF THE WORKSHOP ON AVIATION SAFETY/AUTOMATION PROGRAM

SAMUEL A. MORELLO, ed. Oct. 1990 45 p Workshop held in Virginia Beach, VA, 10 Oct. 1989

(RTOP 505-64-13-22)

(NASA-CP-10054; NAS 1.55:10054) Avail: CASI HC A03/MF A01

AIR TRAFFIC CONTROL, AIR TRAFFIC CONTROLLERS (PERSONNEL), COMPUTER TECHNIQUES, CONFERENCES, FLIGHT MANAGEMENT SYSTEMS, WORKSTATIONS

N91-24140*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

AIRBORNE WIND SHEAR DETECTION AND WARNING SYSTEMS: THIRD COMBINED MANUFACTURERS' AND TECHNOLOGISTS' CONFERENCE, PART 2

DAN D. VICROY, comp. (National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.), ROLAND L. BOWLES, comp. (National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.), and HERBERT SCHLICKENMAIER, comp. (Federal Aviation Administration, Washington, DC.) Jan. 1991 464 p Conference held in Hampton, VA, 16-18 Oct. 1990 Prepared in cooperation with Federal Aviation Administration, Washington, DC

(RTOP 505-64-12)

(NASA-CP-10060-PT-2; NAS 1.55:10060-PT-2; DOT/FAA/RD-91/2-PT-2) Avail: CASI HC A20/MF A04

AIRBORNE EQUIPMENT, CONFERENCES, DOPPLER RADAR, METEOROLOGICAL RADAR, MICROBURSTS (METEOROLOGY), OPTICAL RADAR, RADAR DETECTION, WARNING SYSTEMS, WIND SHEAR

N91-24166*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

AIRBORNE WIND SHEAR DETECTION AND WARNING SYSTEMS: THIRD COMBINED MANUFACTURERS' AND TECHNOLOGISTS' CONFERENCE, PART 1

DAN D. VICROY, comp. (National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.), ROLAND

03 AIR TRANSPORTATION AND SAFETY

L. BOWLES, comp. (National Aeronautics and Space Administration, Langley Research Center, Hampton, VA.), and HERBERT SCHLICKENMAIER, comp. (Federal Aviation Administration, Washington, DC.) Jan. 1991 490 p Conference held in Hampton, VA, 16-18 Oct. 1990 Prepared in cooperation with FAA, Washington, DC
(RTOP 505-64-12)
(NASA-CP-10060-PT-1; NAS 1.55:10060-PT-1;
DOT/FAA/RD-91/2-PT-1) Avail: CASI HC A21/MF A04
AERODYNAMICS, AIRCRAFT PERFORMANCE, FLIGHT HAZARDS, FLIGHT MANAGEMENT SYSTEMS, FLIGHT TESTS, MICROBURSTS (METEOROLOGY), RAIN, WARNING SYSTEMS, WIND SHEAR

N91-70436*# National Aeronautics and Space Administration. Ames Research Center, Moffett Field, CA.

THE DEVELOPMENT OF THE NASA AVIATION SAFETY REPORTING SYSTEM

W. D. REYNARD, C. E. BILLINGS, E. S. CHEANEY, and R. HARDY Nov. 1986 192 p
(RTOP 505-67-41)
(NASA-RP-1114; A-85127; NAS 1.61:1114) Avail: CASI HC A09

N92-10994*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

A COMPARISON OF AIRBORNE WAKE VORTEX DETECTION MEASUREMENTS WITH VALUES PREDICTED FROM POTENTIAL THEORY

ERIC C. STEWART Washington Nov. 1991 38 p
(RTOP 505-68-10-01)
(NASA-TP-3125; L-16899; NAS 1.60:3125) Avail: CASI HC A03/MF A01

ALGORITHMS, FLIGHT SAFETY, FLOW DISTRIBUTION, IN-FLIGHT MONITORING, NEAR WAKES, VORTICES, WAKES

N92-30395*# National Aeronautics and Space Administration. Lewis Research Center, Cleveland, OH.

LEWIS ICING RESEARCH TUNNEL TEST OF THE AERODYNAMIC EFFECTS OF AIRCRAFT GROUND DEICING/ANTI-ICING FLUIDS

L. JAMES RUNYAN (Boeing Commercial Airplane Co., Seattle, WA.), THOMAS A. ZIERTEN (Boeing Commercial Airplane Co., Seattle, WA.), EUGENE G. HILL (Boeing Commercial Airplane Co., Seattle, WA.), and HAROLD E. ADDY, JR. Aug. 1992 134 p
(RTOP 505-68-11)
(NASA-TP-3238; E-5808; NAS 1.15:3238) Avail: CASI HC A07/MF A02

AERODYNAMIC CHARACTERISTICS, BOEING AIRCRAFT, DEICING, ICE FORMATION, NEWTONIAN FLUIDS, RHEOLOGY, WIND TUNNEL TESTS

04

AIRCRAFT COMMUNICATIONS AND NAVIGATION

Includes digital and voice communication with aircraft; air navigation systems (satellite and ground based); and air traffic control.

N92-21459*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

FLIGHT DECK BENEFITS OF INTEGRATED DATA LINK COMMUNICATION

MARVIN C. WALLER Washington NASA. Langley Research Center Apr. 1992 49 p
(RTOP 505-64-13-01)
(NASA-TP-3219; L-16845; NAS 1.60:3219) Avail: CASI HC A03/MF A01

AIR TRAFFIC CONTROL, AIRCRAFT COMMUNICATION, COMPUTERIZED SIMULATION, DATA LINKS, DATA

MANAGEMENT, DATA TRANSMISSION, DIGITAL DATA, GROUND-AIR-GROUND COMMUNICATION, PULSE COMMUNICATION

05

AIRCRAFT DESIGN, TESTING AND PERFORMANCE

Includes aircraft simulation technology.

N91-14323*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

A METHOD FOR THE DESIGN OF TRANSONIC FLEXIBLE WINGS

LEIGH ANN SMITH and RICHARD L. CAMPBELL Washington Dec. 1990 41 p
(RTOP 505-61-21-03)
(NASA-TP-3045; L-16762; NAS 1.60:3045) Avail: CASI HC A03/MF A01

AERODYNAMIC LOADS, AEROELASTICITY, AIRCRAFT DESIGN, AIRFOIL PROFILES, FLEXIBLE WINGS, TRANSONIC SPEED

N91-17014*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

STATIC FOOTPRINT LOCAL FORCES, AREAS, AND ASPECT RATIOS FOR THREE TYPE 7 AIRCRAFT TIRES

WILLIAM E. HOWELL (National Aeronautics and Space Administration, Langley Research Center, Hampton, VA.), SHARON E. PEREZ, and WILLIAM A. VOGLER (Lockheed Engineering and Sciences Co., Hampton, VA.) Washington Feb. 1991 95 p
(RTOP 505-63-41-02)

(NASA-TP-2983; L-16521; NAS 1.60:2983) Avail: CASI HC A05/MF A01

AIRCRAFT TIRES, AREA, ASPECT RATIO, LOAD DISTRIBUTION (FORCES), VEHICULAR TRACKS

N91-19082*# National Aeronautics and Space Administration. Ames Research Center, Moffett Field, CA.

STATE ESTIMATION APPLICATIONS IN AIRCRAFT FLIGHT-DATA ANALYSIS: A USER'S MANUAL FOR SMACK

RALPH E. BACH, JR. Mar. 1991 134 p
(RTOP 505-66-41)
(NASA-RP-1252; A-88203; NAS 1.61:1252) Avail: CASI HC A07/MF A02

The evolution in the use of state estimation is traced for the analysis of aircraft flight data. A unifying mathematical framework for state estimation is reviewed, and several examples are presented that illustrate a general approach for checking instrument accuracy and data consistency, and for estimating variables that are difficult to measure. Recent applications associated with research aircraft flight tests and airline turbulence upsets are described. A computer program for aircraft state estimation is discussed in some detail. This document is intended to serve as a user's manual for the program called SMACK (SMoothing for AirCRAFT Kinematics). The diversity of the applications described emphasizes the potential advantages in using SMACK for flight-data analysis.
Author

N91-20071*# National Aeronautics and Space Administration. Hugh L. Dryden Flight Research Facility, Edwards, CA.

PROCEEDINGS OF THE X-15 FIRST FLIGHT 30TH ANNIVERSARY CELEBRATION

Washington Jan. 1991 174 p Symposium held in Edwards, CA, 8 Jun. 1989
(RTOP 533-02-00)
(NASA-CP-3105; H-1622; NAS 1.55:3105) Avail: CASI HC A08/MF A02

AIRCRAFT DESIGN, CONFERENCES, HISTORIES, HYPERSONIC FLIGHT, NASA PROGRAMS, RESEARCH AND DEVELOPMENT, SPACE FLIGHT, X-15 AIRCRAFT

N91-21127*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

SPAN REDUCTION EFFECTS ON THE FLUTTER CHARACTERISTICS OF ARROW-WING SUPERSONIC TRANSPORT CONFIGURATIONS

DONALD F. KELLER and ELLEN PARKER BULLOCK 26 Dec. 1990 55 p
(RTOP 505-63-21)
(NASA-TP-3077; L-16807; NAS 1.60:3077) Avail: CASI HC A04/MF A01

AIRCRAFT CONFIGURATIONS, ARROW WINGS, DYNAMIC PRESSURE, FLUTTER ANALYSIS, SUPERSONIC TRANSPORTS, TRANSONIC FLUTTER, WIND TUNNEL TESTS, WING SPAN

N91-24199*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

EVALUATION OF CLOUD DETECTION INSTRUMENTS AND PERFORMANCE OF LAMINAR-FLOW LEADING-EDGE TEST ARTICLES DURING NASA LEADING-EDGE FLIGHT-TEST PROGRAM

RICHARD E. DAVIS (National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.), DAL V. MADDALON (National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.), RICHARD D. WAGNER (National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.), DAVID F. FISHER (National Aeronautics and Space Administration. Ames Research Center, Moffett Field, CA.), and RONALD YOUNG (National Aeronautics and Space Administration. Hugh L. Dryden Flight Research Facility, Edwards, CA.) Apr. 1989 58 p
(RTOP 505-60-31-01)
(NASA-TP-2888; L-16509; NAS 1.60:2888) Avail: CASI HC A04/MF A01

AIRCRAFT DESIGN, AIRLINE OPERATIONS, BOUNDARY LAYER CONTROL, CLOUDS, DETECTION, FLIGHT SIMULATION, HAZE, LAMINAR BOUNDARY LAYER, LEADING EDGES

N91-24200*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

NASA-LARC FLIGHT-CRITICAL DIGITAL SYSTEMS TECHNOLOGY WORKSHOP

C. W. MEISSNER, JR., ed., J. R. DUNHAM, ed., and G. CRIM, ed. Apr. 1989 191 p Workshop held in Hampton, VA, 13-15 Dec. 1988
(RTOP 505-66-21-03)
(NASA-CP-10028; REPT-412U-3181-29; NAS 1.55:10028) Avail: CASI HC A09/MF A02

COMPUTER SYSTEMS DESIGN, DIGITAL SYSTEMS, FLIGHT CONTROL, QUALITY CONTROL, RELIABILITY ENGINEERING, SYSTEMS ENGINEERING, TECHNOLOGY ASSESSMENT

N92-13054*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

PLANFORM CURVATURE EFFECTS ON FLUTTER CHARACTERISTICS OF A WING WITH 56 DEG LEADING-EDGE SWEEP AND PANEL ASPECT RATIO OF 1.14

DONALD F. KELLER, MAYNARD C. SANDFORD, and THERESA L. PINKERTON (Illinois Univ., Urbana.) Washington Sep. 1991 46 p
(RTOP 505-63-50-13)
(NASA-TP-3116; L-16858; NAS 1.60:3116) Avail: CASI HC A03/MF A01

AEROELASTICITY, CURVATURE, FLUTTER ANALYSIS, LEADING EDGE SWEEP, PLANFORMS, SWEEPED WINGS, TRANSONIC FLUTTER, WIND TUNNEL MODELS, WIND TUNNEL TESTS

N92-33874*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

HIGH-SPEED RESEARCH: SONIC BOOM, VOLUME 1

CHRISTINE M. DARDEN, comp. Washington Oct. 1992 195 p Workshop held in Hampton, VA, 25-27 Feb. 1992
(RTOP 537-03-21-01)
(NASA-CP-3172; L-17145-VOL-1; NAS 1.55:3172) Avail: CASI HC A09/MF A03

ATMOSPHERIC EFFECTS, ATMOSPHERIC TURBULENCE, SHOCK WAVE PROPAGATION, SONIC BOOMS, TURBULENCE EFFECTS

06

AIRCRAFT INSTRUMENTATION

Includes cockpit and cabin display devices; and flight instruments.

N91-17020*# National Aeronautics and Space Administration, Washington, DC.

SPACE TRANSPORTATION AVIONICS TECHNOLOGY SYMPOSIUM. VOLUME 2: CONFERENCE PROCEEDINGS

Aug. 1990 742 p Symposium held in Williamsburg, VA, 7-9 Nov. 1989
(NASA-CP-3081-VOL-2; NAS 1.55:3081-VOL-2) Avail: CASI HC A99/MF A06

AVIONICS, COMPUTER PROGRAMMING, CONFERENCES, SOFTWARE ENGINEERING, SPACE TRANSPORTATION SYSTEM, SYSTEMS ENGINEERING, SYSTEMS INTEGRATION

N91-31143*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

FLIGHT TESTS WITH A DATA LINK USED FOR AIR TRAFFIC CONTROL INFORMATION EXCHANGE

CHARLES E. KNOX and CHARLES H. SCANLON Sep. 1991 38 p
(RTOP 505-64-13-01)
(NASA-TP-3135; L-16936; NAS 1.60:3135) Avail: CASI HC A03/MF A01

AIR TRAFFIC CONTROL, CIVIL AVIATION, DATA LINKS, FLIGHT OPERATIONS, FLIGHT TESTS, RADIO FREQUENCIES, SAFETY FACTORS, SYSTEMS ENGINEERING, VOICE COMMUNICATION

N92-13065*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

EFFECT OF SHORT-TERM EXPOSURE TO STEREOSCOPIC THREE-DIMENSIONAL FLIGHT DISPLAYS ON REAL-WORLD DEPTH PERCEPTION

ANTHONY M. BUSQUETS, RUSSELL V. PARRISH, and STEVEN P. WILLIAMS Washington Oct. 1991 26 p
(DA PROJ. 1L1-61102-AH-45; RTOP 505-64-13-32)
(NASA-TP-3117; L-16897; NAS 1.60:3117; AVSCOM-TR-91-B-014; AD-A242333) Avail: CASI HC A03/MF A01

DEPTH, DISPLAY DEVICES, FLIGHT INSTRUMENTS, HUMAN FACTORS ENGINEERING, PILOT PERFORMANCE, SPACE PERCEPTION, STEREOSCOPIC VISION

N92-20546*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

VENTURI AIR-JET VACUUM EJECTORS FOR HIGH-VOLUME ATMOSPHERIC SAMPLING ON AIRCRAFT PLATFORMS

GERALD F. HILL (Lockheed Engineering and Sciences Co., Hampton, VA.), GLEN W. SACHSE, DOUGLAS C. YOUNG, LARRY O. WADE (Lockheed Engineering and Sciences Co., Hampton, VA.), and LEWIS G. BURNEY Apr. 1992 38 p
(RTOP 464-54-17-70)
(NASA-TP-3183; L-16937; NAS 1.60:3183) Avail: CASI HC A03/MF A01

07 AIRCRAFT PROPULSION AND POWER

AIR JETS, AIR SAMPLING, AIRBORNE EQUIPMENT, EJECTORS, ELECTRA AIRCRAFT, FLYING PLATFORMS, VACUUM PUMPS, VENTURI TUBES

07

AIRCRAFT PROPULSION AND POWER

Includes prime propulsion systems and systems components, e.g., gas turbine engines and compressors; and onboard auxiliary power plants for aircraft.

N91-20086*# National Aeronautics and Space Administration. Lewis Research Center, Cleveland, OH.

AEROPROPULSION 1991

Mar. 1991 574 p Conference held in Cleveland, OH, 20-21

Mar. 1991

(RTOP 505-62-00)

(NASA-CP-10063; E-5954; NAS 1.55:10063) Avail: CASI HC A24/MF A04

AIR BREATHING ENGINES, AIRCRAFT DESIGN, AIRCRAFT ENGINES, COMPUTER PROGRAMS, CONTROL SYSTEMS DESIGN, FLUID MECHANICS, PROPULSION SYSTEM CONFIGURATIONS, STRUCTURAL DESIGN

N92-22510*# National Aeronautics and Space Administration. Lewis Research Center, Cleveland, OH.

AEROPROPULSION 1987

Washington Feb. 1990 498 p Conference held in Cleveland, OH, 17-19 Nov. 1987 Previously announced as N88-16697, N88-15785, N88-15790, N88-15794, N88-15800 and N88-15807

(RTOP 505-62-3B)

(NASA-CP-3049; E-3798; NAS 1.55:3049) Avail: CASI HC A21/MF A04

AIRCRAFT ENGINES, CONFERENCES, ENGINE DESIGN, PROPULSION SYSTEM CONFIGURATIONS, PROPULSION SYSTEM PERFORMANCE

N92-22863*# National Aeronautics and Space Administration. Lewis Research Center, Cleveland, OH.

DESIGN AND PERFORMANCE OF CONTROLLED-DIFFUSION STATOR COMPARED WITH ORIGINAL DOUBLE-CIRCULAR-ARC STATOR

THOMAS F. GELDER, JAMES F. SCHMIDT, KENNETH L. SUDER, and MICHAEL D. HATHAWAY (Army Aviation Systems Command, Cleveland, OH.) Mar. 1989 80 p Presented at the 1987 Aerospace Technology Conference and Exposition, Long Beach, CA, 5-8 Oct. 1987; sponsored by SAE (DA PROJ. 1L1-61102-AH-45; RTOP 505-62-51)

(NASA-TP-2852; E-4195; NAS 1.60:2852; AVSCOM-TR-88-C-013; SAE-871783) Avail: CASI HC A05/MF A01

DIFFUSION, ENERGY CONVERSION EFFICIENCY, FAN BLADES, STATOR BLADES, STATORS

N92-25712*# National Aeronautics and Space Administration. Lewis Research Center, Cleveland, OH.

WORKSHOP ON GRID GENERATION AND RELATED AREAS

Apr. 1992 160 p Workshop held in Cleveland, OH, 14-15 Nov. 1991

(RTOP 505-62-52)

(NASA-CP-10089; E-6823; NAS 1.55:10089) Avail: CASI HC A08/MF A02

COMPUTATIONAL GRIDS, CONFERENCES, GRID GENERATION (MATHEMATICS), MULTIGRID METHODS, SURFACES

N92-25808*# National Aeronautics and Space Administration. Lewis Research Center, Cleveland, OH.

COMPUTATIONAL FLUID DYNAMICS

Feb. 1992 219 p Conference held at Moffett Field, CA, 12-14

Mar. 1991; sponsored by NASA. Ames Research Center Original contains color illustrations (RTOP 505-62-52)

(NASA-CP-10078; E-6374; NAS 1.55:10078)

ALGORITHMS, COMPUTATIONAL FLUID DYNAMICS, FLOW DISTRIBUTION, MATHEMATICAL MODELS, NUMERICAL ANALYSIS, REAL GASES, RESEARCH AND DEVELOPMENT

08

AIRCRAFT STABILITY AND CONTROL

Includes aircraft handling qualities; piloting; flight controls; and autopilots.

N91-10079*# National Aeronautics and Space Administration. Hugh L. Dryden Flight Research Facility, Edwards, CA.

FLIGHT CHARACTERISTICS OF A MODIFIED SCHWEIZER SGS1-36 SAILPLANE AT LOW AND VERY HIGH ANGLES OF ATTACK

ALEX G. SIM Jul. 1990 48 p

(RTOP 505-45-21)

(NASA-TP-3022; H-1563; NAS 1.60:3022) Avail: CASI HC A03/MF A01

AERODYNAMIC STABILITY, ANGLE OF ATTACK, FLIGHT CHARACTERISTICS, GLIDERS, PARAMETER IDENTIFICATION, PILOT PERFORMANCE

N91-20128*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

A CONTROLS ENGINEERING APPROACH FOR ANALYZING AIRPLANE INPUT-OUTPUT CHARACTERISTICS

P. DOUGLAS ARBUCKLE Washington Apr. 1991 22 p (RTOP 505-66-71-03)

(NASA-TP-3072; L-16798; NAS 1.60:3072) Avail: CASI HC A03/MF A01

AIRCRAFT CONTROL, AIRCRAFT MODELS, CONTROL SYSTEMS DESIGN, MODAL RESPONSE

N91-25151*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

DEVELOPMENT OF AN ADAPTIVE FAILURE DETECTION AND IDENTIFICATION SYSTEM FOR DETECTING AIRCRAFT CONTROL ELEMENT FAILURES

W. THOMAS BUNDICK 1990 150 p Sponsored in part by Planning Research Corp., Hampton, VA (RTOP 505-66-41-04)

(NASA-TP-3051; L-16801; NAS 1.60:3051) Avail: CASI HC A07/MF A02

ADAPTIVE CONTROL, AIRCRAFT CONTROL, ATMOSPHERIC TURBULENCE, FAILURE ANALYSIS, FAULT TOLERANCE

N91-30154*# National Aeronautics and Space Administration. Hugh L. Dryden Flight Research Facility, Edwards, CA.

APPLICATION AND FLIGHT TEST OF LINEARIZING TRANSFORMATIONS USING MEASUREMENT FEEDBACK TO THE NONLINEAR CONTROL PROBLEM

ROBERT F. ANTONIEWICZ (National Aeronautics and Space Administration. Hugh L. Dryden Flight Research Center, Edwards, CA.), EUGENE L. DUKE (National Aeronautics and Space Administration. Hugh L. Dryden Flight Research Center, Edwards, CA.), and P. K. A. MENON (Georgia Inst. of Tech., Atlanta.) Sep. 1991 56 p (RTOP 505-60-21)

(NASA-TP-3154; H-1629; NAS 1.60:3154) Avail: CASI HC A04/MF A01

AIRCRAFT CONTROL, CONTROL SYSTEMS DESIGN, CONTROLLERS, F-15 AIRCRAFT, FEEDBACK CONTROL, FLIGHT CONTROL, NONLINEAR SYSTEMS, TRAJECTORY CONTROL

N92-10027*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.
ON THE FORMULATION OF A MINIMAL UNCERTAINTY MODEL FOR ROBUST CONTROL WITH STRUCTURED UNCERTAINTY
 CHRISTINE M. BELCASTRO (Drexel Univ., Philadelphia, PA.), B.-C. CHANG, and ROBERT FISCHL (Drexel Univ., Philadelphia, PA.)
 Sep. 1991 34 p
 (RTOP 505-66-01-02)
 (NASA-TP-3094; L-16893; NAS 1.60:3094) Avail: CASI HC A03/MF A01
 CONTROL SYSTEMS DESIGN, FEEDBACK CONTROL, MATRICES (MATHEMATICS), ROBUSTNESS (MATHEMATICS), TRANSFER FUNCTIONS

N92-20195*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.
CONTROL INTEGRATION CONCEPT FOR HYPERSONIC CRUISE-TURN MANEUVERS
 DAVID L. RANEY and FREDERICK J. LALLMAN Feb. 1992 63 p
 (RTOP 505-64-40-01)
 (NASA-TP-3136; L-16928; NAS 1.60:3136) Avail: CASI HC A04/MF A01
 AIRCRAFT MANEUVERS, AIRCRAFT PERFORMANCE, FLIGHT CONTROL, HYPERSONIC FLIGHT, HYPERSONIC VEHICLES

N92-21410*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.
A METHODOLOGY FOR COMPUTING UNCERTAINTY BOUNDS OF MULTIVARIABLE SYSTEMS BASED ON SECTOR STABILITY THEORY CONCEPTS
 MARTIN R. WASZAK Apr. 1992 42 p
 (RTOP 505-66-71-01)
 (NASA-TP-3166; L-16846; NAS 1.60:3166) Avail: CASI HC A03/MF A01
 CONTROL STABILITY, CONTROL THEORY, LINEAR SYSTEMS, MIMO (CONTROL SYSTEMS), MULTIVARIABLE CONTROL, SYSTEMS STABILITY

09

RESEARCH AND SUPPORT FACILITIES (AIR)

Includes airports, hangars and runways; aircraft repair and overhaul facilities; wind tunnels; shock tubes; and aircraft engine test stands.

N91-13461*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.
CALIBRATION OF THE 13- BY 13-INCH ADAPTIVE WALL TEST SECTION FOR THE LANGLEY 0.3-METER TRANSONIC CRYOGENIC TUNNEL
 RAYMOND E. MINECK and ACQUILLA S. HILL Washington
 Dec. 1990 111 p
 (RTOP 505-61-21-03)
 (NASA-TP-3049; L-16787; NAS 1.60:3049) Avail: CASI HC A06/MF A02
 AIRFOIL PROFILES, CALIBRATING, FLEXIBILITY, FLOW DISTRIBUTION, WIND TUNNEL WALLS

N91-24211*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.
ADVANCED HYPERVELOCITY AEROPHYSICS FACILITY WORKSHOP
 ROBERT D. WITCOFSKI, comp. and WILLIAM I. SCALLION, comp. May 1989 170 p Workshop held in Hampton, VA, 10-11 May 1988

(RTOP 506-40-41-02)
 (NASA-CP-10031; NAS 1.55:10031) Avail: CASI HC A08/MF A02
 AEROTHERMODYNAMICS, COMPUTATIONAL FLUID DYNAMICS, HYPERSONIC AIRCRAFT, HYPERVELOCITY FLOW, TECHNOLOGY ASSESSMENT

N92-31640*# National Aeronautics and Space Administration. Lewis Research Center, Cleveland, OH.
SUPERSONIC THROUGHFLOW FAN TEST FACILITY AT NASA. LEWIS RESEARCH CENTER
 DONALD C. URASEK, WALTER S. CUNNAN, RICHARD L. LANTZ, DENNIS L. FRONEK, RONALD A. DAWSON, and JEFFREY C. BROWN Sep. 1990 25 p
 (RTOP 505-62-61)
 (NASA-TP-3038; E-5398; NAS 1.60:3038) Avail: CASI HC A03/MF A01
 PROPULSION SYSTEM CONFIGURATIONS, PROPULSION SYSTEM PERFORMANCE, SUPERSONIC FLOW, SUPERSONIC SPEED, SUPERSONIC TEST APPARATUS, SUPERSONIC TURBINES, SUPERSONIC WIND TUNNELS, TURBOFANS, WIND TUNNEL DRIVES

12

ASTRONAUTICS (GENERAL)

N91-20147*# National Aeronautics and Space Administration. Ames Research Center, Moffett Field, CA.
MANUAL CONTROL ASPECTS OF ORBITAL FLIGHT Abstracts Only
 ADAM R. BRODY, ed. (Sterling Software, Palo Alto, CA.) and STEPHEN R. ELLIS, ed. Dec. 1990 14 p Workshop held at Moffett Field, CA, 22 Feb. 1990
 (RTOP 506-47-31)
 (NASA-CP-10056; A-90286; NAS 1.55:10056) Avail: CASI HC A03/MF A01
 HUMAN FACTORS ENGINEERING, MANUAL CONTROL, ORBITAL MANEUVERS, SPACE STATIONS, SPACE TRANSPORTATION SYSTEM

N91-22139*# National Aeronautics and Space Administration. Lewis Research Center, Cleveland, OH.
VISION-21: SPACE TRAVEL FOR THE NEXT MILLENNIUM
 GEOFFREY A. LANDIS, ed. (Sverdrup Technology, Inc., Brook Park, OH.) Apr. 1990 600 p Symposium held in Cleveland, OH, 3-4 Apr. 1990
 (NASA-CP-10059; E-5838; NAS 1.55:10059) Avail: CASI HC A25/MF A06
 CONFERENCES, MISSION PLANNING, NUCLEAR PROPULSION, NUCLEAR REACTORS, PROJECT PLANNING, REACTOR DESIGN, REACTOR TECHNOLOGY, SPACE EXPLORATION, SPACECRAFT PROPULSION

13

ASTRODYNAMICS

Includes powered and free-flight trajectories; and orbital and launching dynamics.

N91-10092*# National Aeronautics and Space Administration. Marshall Space Flight Center, Huntsville, AL.
LONG-TERM ORBITAL LIFETIME PREDICTIONS

13 ASTRODYNAMICS

P. E. DREHER and A. T. LYONS Oct. 1990 26 p
(NASA-TP-3058; NAS 1.60:3058) Avail: CASI HC A03/MF A01
BOILER PLATE, LONG DURATION EXPOSURE FACILITY,
LONG TERM EFFECTS, ORBITAL LIFETIME, PERFORMANCE
PREDICTION

N91-17073*# National Aeronautics and Space Administration.
Goddard Space Flight Center, Greenbelt, MD.

FLIGHT MECHANICS/ESTIMATION THEORY SYMPOSIUM, 1990

THOMAS STENGLE, ed. Dec. 1990 549 p Symposium held
in Greenbelt, MD, 22-24 May 1990
(NASA-CP-3102; REPT-91B00018; NAS 1.55:3102) Avail: CASI
HC A23/MF A04

AERODYNAMICS, ATTITUDE (INCLINATION), CONFER-
ENCES, ESTIMATES, FLIGHT MECHANICS, SATELLITE ATTIT-
UDE CONTROL, SPACECRAFT ORBITS, SPACECRAFT TRA-
JECTORIES

N92-14070*# National Aeronautics and Space Administration.
Goddard Space Flight Center, Greenbelt, MD.

FLIGHT MECHANICS/ESTIMATION THEORY SYMPOSIUM, 1991

THOMAS STENGLE, ed. Washington Oct. 1991 490 p
Symposium held in Greenbelt, MD, 21-23 May 1991
(NASA-CP-3123; REPT-91B00133; NAS 1.55:3123) Avail: CASI
HC A21/MF A04

ATTITUDE (INCLINATION), MISSION PLANNING, ORBIT
CALCULATION, ORBIT DECAY

14

GROUND SUPPORT SYSTEMS AND FACILITIES (SPACE)

Includes launch complexes, research and production facilities;
ground support equipment, e.g., mobile transporters; and
simulators.

N92-12010*# National Aeronautics and Space Administration.
Lyndon B. Johnson Space Center, Houston, TX.

CONTROL CENTER TECHNOLOGY CONFERENCE PROCEEDINGS

Aug. 1991 641 p Conference held in Clear Lake, TX, 18-20
Jun. 1991 Sponsored in part by Houston Univ., Clear Lake, TX
(NASA-CP-10081; NAS 1.55:10081) Avail: CASI HC A99/MF
A06

ARCHITECTURE (COMPUTERS), COMMUNICATION
NETWORKS, COMPUTER NETWORKS, CONFERENCES, FLIGHT
CONTROL, GROUND BASED CONTROL, GROUND SUPPORT
EQUIPMENT, GROUND SUPPORT SYSTEMS, INTEGRATED
MISSION CONTROL CENTER

N92-30307*# National Aeronautics and Space Administration.
Lewis Research Center, Cleveland, OH.

THREE-DIMENSIONAL LASER WINDOW FORMATION

VINCENT G. VERHOFF Jul. 1992 12 p
(RTOP 505-62-84)
(NASA-RP-1280; E-6096; NAS 1.61:1280) Avail: CASI HC
A03/MF A01

The NASA Lewis Research Center has developed and
implemented a unique process for forming flawless
three-dimensional laser windows. These windows represent a major
part of specialized, nonintrusive laser data acquisition systems
used in a variety of compressor and turbine research test facilities.
This report discusses in detail the aspects of three-dimensional
laser window formation. It focuses on the unique methodology
and the peculiarities associated with the formation of these
windows. Included in this discussion are the design criteria, bonding

mediums, and evaluation testing for three-dimensional laser
windows. Author

15

LAUNCH VEHICLES AND SPACE VEHICLES

Includes boosters; operating problems of launch/space vehicle
systems; and reusable vehicles.

N91-18180*# National Aeronautics and Space Administration.
Langley Research Center, Hampton, VA.

PARAMETRIC TRADE STUDIES ON A SHUTTLE 2 LAUNCH SYSTEM ARCHITECTURE

DOUGLAS O. STANLEY, THEODORE A. TALAY, ROGER A.
LEPSCH, W. DOUGLAS MORRIS, J. CHRISTOPHER NAFTEL,
and CHRISTOPHER I. CRUZ Washington Mar. 1991 56 p
(RTOP 506-40-61-01)

(NASA-TP-3059; L-16790; NAS 1.60:3059) Avail: CASI HC
A04/MF A01

BOOSTER ROCKET ENGINES, LAUNCH VEHICLE
CONFIGURATIONS, PROPULSION SYSTEM CONFIGURATIONS,
SPACECRAFT CONFIGURATIONS, SPACECRAFT DESIGN,
THRUST-WEIGHT RATIO

N91-20177*# National Aeronautics and Space Administration.
Langley Research Center, Hampton, VA.

BENEFITS FROM SYNERGIES AND ADVANCED TECHNOLOGIES FOR AN ADVANCED-TECHNOLOGY SPACE STATION

L. BERNARD GARRETT (National Aeronautics and Space
Administration, Langley Research Center, Hampton, VA.), MELVIN
J. FEREBEE, JR. (National Aeronautics and Space Administration,
Langley Research Center, Hampton, VA.), MANUEL J. QUEIJO
(Bionetics Corp., Hampton, VA.), and ANSEL J. BUTTERFIELD
(Bionetics Corp., Hampton, VA.) Washington Apr. 1991 25 p
(RTOP 506-49-31-01)

(NASA-TP-3067; L-16618; NAS 1.60:3067) Avail: CASI HC
A03/MF A01

ARTIFICIAL GRAVITY, SPACE STATIONS, SPACECRAFT
CABINS, SPACECRAFT CONFIGURATIONS, SYSTEMS
ANALYSIS

N91-27177*# National Aeronautics and Space Administration.
Langley Research Center, Hampton, VA.

TECHNOLOGY FOR THE FUTURE: IN-SPACE TECHNOLOGY EXPERIMENTS PROGRAM, PART 1

ROGER A. BRECKENRIDGE, comp. (National Aeronautics and
Space Administration, Langley Research Center, Hampton, VA.),
LENWOOD G. CLARK, comp. (National Aeronautics and Space
Administration, Langley Research Center, Hampton, VA.), KELLI
F. WILLSHIRE, comp. (National Aeronautics and Space
Administration, Langley Research Center, Hampton, VA.),
SHERWIN M. BECK, comp. (National Aeronautics and Space
Administration, Langley Research Center, Hampton, VA.), and LISA
D. COLLIER, comp. (Computer Technology Associates, Inc.,
Hampton, VA.) Jun. 1991 304 p Workshop held in Atlanta,
GA, 6-9 Dec. 1988

(RTOP 506-44-41-01)
(NASA-CP-10073-PT-1; NAS 1.55:10073-PT-1) Avail: CASI HC
A14/MF A03

CONFERENCES, INDUSTRIES, NASA SPACE PROGRAMS,
SPACE STATIONS, UNIVERSITY PROGRAM

N91-27178*# National Aeronautics and Space Administration.
Langley Research Center, Hampton, VA.

TECHNOLOGY FOR THE FUTURE: IN-SPACE TECHNOLOGY EXPERIMENTS PROGRAM, PART 2

ROGER A. BRECKENRIDGE, comp. (National Aeronautics and
Space Administration, Langley Research Center, Hampton, VA.),

SPACE TRANSPORTATION

Includes passenger and cargo space transportation, e.g., shuttle operations; and space rescue techniques.

LENWOOD G. CLARK, comp. (National Aeronautics and Space Administration, Langley Research Center, Hampton, VA.), KELLI F. WILLSHIRE, comp. (National Aeronautics and Space Administration, Langley Research Center, Hampton, VA.), SHERWIN M. BECK, comp. (National Aeronautics and Space Administration, Langley Research Center, Hampton, VA.), and LISA D. COLLIER, comp. (Computer Technology Associates, Inc., Hampton, VA.) Jun. 1991 304 p Workshop held in Atlanta, GA, 6-9 Dec. 1988
(RTOP 506-44-41-01)
(NASA-CP-10073-PT-2; NAS 1.55:10073-PT-2) Avail: CASI HC A14/MF A03
CONFERENCES, INDUSTRIES, NASA SPACE PROGRAMS, SPACE STATIONS, UNIVERSITY PROGRAM

N91-29209*# National Aeronautics and Space Administration, Marshall Space Flight Center, Huntsville, AL.
RESOURCE ENVELOPE CONCEPTS FOR MISSION PLANNING
K. Y. IBRAHIM (National Aeronautics and Space Administration, Marshall Space Flight Center, Huntsville, AL.), J. D. WEILER (National Aeronautics and Space Administration, Marshall Space Flight Center, Huntsville, AL.), and J. C. TOKAZ (Sverdrup Technology, Inc., Huntsville, AL.) Aug. 1991 74 p
(NASA-TP-3139; M-666; NAS 1.60:3139) Avail: CASI HC A04/MF A01

COST ANALYSIS, MISSION PLANNING, RESOURCES MANAGEMENT, SPACE STATION FREEDOM, SPACE STATIONS

N92-31251*# National Aeronautics and Space Administration, Lewis Research Center, Cleveland, OH.
GRAPHITE/EPOXY COMPOSITE ADAPTERS FOR THE SPACE SHUTTLE/CENTAUR VEHICLE
HAROLD J. KASPER and DARRYL S. RING (General Dynamics Corp., San Diego, CA.) Sep. 1990 34 p
(NAS3-2290)
(NASA-TP-3014; E-4969; NAS 1.60:3014) Avail: CASI HC A03/MF A01

ADAPTERS, CENTAUR LAUNCH VEHICLE, COMPOSITE STRUCTURES, GRAPHITE-EPOXY COMPOSITES, LAUNCH VEHICLE CONFIGURATIONS, SPACE SHUTTLE PAYLOADS, SPACECRAFT CONSTRUCTION MATERIALS, SPACECRAFT DESIGN, SPACECRAFT STRUCTURES, STRUCTURAL ANALYSIS, UPPER STAGE ROCKET ENGINES

N92-32456*# National Aeronautics and Space Administration, Lewis Research Center, Cleveland, OH.
RELIABILITY TRAINING
VINCENT R. LALLI, ed., HENRY A. MALEC, ed. (Siemens Stromberg-Carlson, Albuquerque, NM.), RICHARD B. DILLARD (Martin Marietta Corp., Orlando, FL.), KAM L. WONG (Hughes Aircraft Co., El Segundo, CA.), FRANK J. BARBER, and FRANK J. BARINA Jun. 1992 225 p A reliability/probability device as supplement
(RTOP 572-10-00)
(NASA-RP-1253; E-5456; NAS 1.61:1253) Avail: CASI HC A10/MF A03

Discussed here is failure physics, the study of how products, hardware, software, and systems fail and what can be done about it. The intent is to impart useful information, to extend the limits of production capability, and to assist in achieving low cost reliable products. A review of reliability for the years 1940 to 2000 is given. Next, a review of mathematics is given as well as a description of what elements contribute to product failures. Basic reliability theory and the disciplines that allow us to control and eliminate failures are elucidated. Author

N91-27180*# National Aeronautics and Space Administration, Langley Research Center, Hampton, VA.
LAUNCH VEHICLE INTEGRATION OPTIONS FOR A LARGE EARTH SCIENCES GEOSTATIONARY PLATFORM CONCEPT
JAMES L. GARRISON and LAWRENCE F. ROWELL Jul. 1991 49 p
(RTOP 506-49-21-02)
(NASA-TP-3083; L-16819; NAS 1.60:3083) Avail: CASI HC A03/MF A01

EARTH SCIENCES, GEOSYNCHRONOUS ORBITS, LAUNCH VEHICLES, ORBIT TRANSFER VEHICLES, ORBITAL ASSEMBLY, PAYLOAD INTEGRATION, SPACE ERECTABLE STRUCTURES, SPACE STATIONS, SPACECRAFT LAUNCHING, SYNCHRONOUS PLATFORMS

N92-15082*# National Aeronautics and Space Administration, Lewis Research Center, Cleveland, OH.
SEALS FLOW CODE DEVELOPMENT
Mar. 1991 172 p Workshop held in Cleveland, OH, 26 Mar. 1991
(RTOP 506-42-72)
(NASA-CP-10070; E-6219; NAS 1.55:10070) Avail: CASI HC A08/MF A02
COMPUTATIONAL FLUID DYNAMICS, MATHEMATICAL MODELS, PUMP SEALS

N92-20676*# National Aeronautics and Space Administration, John F. Kennedy Space Center, Cocoa Beach, FL.
PAYLOAD BAY DOORS AND RADIATOR PANELS FAMILIARIZATION HANDBOOK
JOHN A. GODBOLD 1992 92 p LIMITED REPRODUCIBILITY: More than 20% of this document may be affected by color photographs Original contains color illustrations
(NASA-TM-107793; NASA-TP-POD-2; NAS 1.15:107793)
AERODYNAMIC FORCES, BAYS (STRUCTURAL UNITS), CONTAMINATION, DOORS, FAIRINGS, PANELS, PAYLOADS, SPACE SHUTTLES, THERMAL PROTECTION

N92-22660*# National Aeronautics and Space Administration, Langley Research Center, Hampton, VA.
SPACE TRANSPORTATION MATERIALS AND STRUCTURES TECHNOLOGY WORKSHOP. VOLUME 1: EXECUTIVE SUMMARY
F. W. CAZIER, JR., comp. and J. E. GARDNER, comp. Apr. 1992 34 p Workshop held in Newport News, VA, 23-26 Sep. 1991
(RTOP 506-43-31-07)
(NASA-CP-3148-VOL-1; L-17098; NAS 1.55:3148-VOL-1) Avail: CASI HC A03/MF A01
GOVERNMENT/INDUSTRY RELATIONS, SPACE TRANSPORTATION, SPACECRAFT CONSTRUCTION MATERIALS, SPACECRAFT STRUCTURES, STRUCTURAL ENGINEERING

SPACE COMM., SPACECRAFT COMM., COMMAND & TRACKING

Includes telemetry; space communications networks; astronavigation and guidance; and radio blackout.

N92-11039*# National Aeronautics and Space Administration. Goddard Space Flight Center, Greenbelt, MD.

SPACE NETWORK CONTROL CONFERENCE ON RESOURCE ALLOCATION CONCEPTS AND APPROACHES

KAREN L. MOE, ed. Sep. 1991 298 p Conference held in Greenbelt, MD, 12-13 Dec. 1990
(NASA-CP-3124; REPT-91B00130; NAS 1.55:3124) Avail: CASI HC A13/MF A03

ALGORITHMS, DATA LINKS, NETWORK CONTROL, RESOURCE ALLOCATION, SPACE COMMUNICATION

N92-19762*# National Aeronautics and Space Administration. Lewis Research Center, Cleveland, OH.

DESTINATION-DIRECTED, PACKET-SWITCHING ARCHITECTURE FOR 30/20-GHZ FDMA/TDM

WILLIAM D. IVANCIC and MARY JO SHALKHAUSER Feb. 1992 14 p Previously announced as N92-14204
(RTOP 650-60-21)

(NASA-TP-3201; E-6539; NAS 1.60:3201) Avail: CASI HC A03/MF A01

ARCHITECTURE (COMPUTERS), COMMUNICATION SATELLITES, FREQUENCY DIVISION MULTIPLEXING, PACKET SWITCHING, SATELLITE COMMUNICATION, SATELLITE NETWORKS, TIME DIVISION MULTIPLEXING

N92-22001*# National Aeronautics and Space Administration. Lewis Research Center, Cleveland, OH.

ADVANCED MODULATION AND CODING TECHNOLOGY CONFERENCE

Feb. 1992 324 p Conference held in Cleveland, OH, 21-22 Jun. 1989
(RTOP 650-60-21)

(NASA-CP-10053; E-5535; NAS 1.55:10053) Avail: CASI HC A14/MF A03

CODING, CONFERENCES, FREQUENCY SHIFT KEYING, MODULATION, PHASE SHIFT KEYING, SATELLITE COMMUNICATION, SATELLITE INSTRUMENTS

N92-26667*# National Aeronautics and Space Administration. Goddard Space Flight Center, Greenbelt, MD.

SMALL EXPLORER DATA SYSTEM MIL-STD-1773 FIBER OPTIC BUS

MARK FLANEGAN and KEN LABEL Jun. 1992 30 p
(NASA-TP-3227; NAS 1.60:3227; REPT-92B00041) Avail: CASI HC A03/MF A01

DATA SYSTEMS, EXPLORER SATELLITES, FIBER OPTICS, SMALL SCIENTIFIC SATELLITES, SPACECRAFT EQUIPMENT

N92-33933*# National Aeronautics and Space Administration. Ames Research Center, Moffett Field, CA.

THE EFFECTS OF VIDEO COMPRESSION ON ACCEPTABILITY OF IMAGES FOR MONITORING LIFE SCIENCES EXPERIMENTS

RICHARD F. HAINES (Foothill-De Anza Community Coll., Los Altos Hills, CA.) and SHERRY L. CHUANG Jul. 1992 18 p Presented at the IEEE Computer Society Data Compression Conference, Snowbird, UT, 24-26 Mar. 1992
(RTOP 476-14-03)

(NASA-TP-3239; A-92040; NAS 1.60:3239) Avail: CASI HC A03/MF A01

ACCEPTABILITY, ALGORITHMS, BANDWIDTH, DATA

COMPRESSION, IMAGE RESOLUTION, LIFE SCIENCES, PULSE COMMUNICATION, VIDEO DATA

SPACECRAFT DESIGN, TESTING AND PERFORMANCE

Includes satellites; space platforms; space stations; spacecraft systems and components such as thermal and environmental controls; and attitude controls.

N91-11041*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

THERMAL-DISTORTION ANALYSIS OF A SPACECRAFT BOX TRUSS IN GEOSTATIONARY ORBIT

PATRICK A. COSGROVE (Lockheed Engineering and Sciences Co., Hampton, VA.), JEFFERY T. FARMER, and LAWRENCE F. ROWELL Washington Nov. 1990 26 p
(RTOP 506-49-21-02)

(NASA-TP-3054; L-16828; NAS 1.60:3054) Avail: CASI HC A03/MF A01

DISTORTION, GEOSYNCHRONOUS ORBITS, HEAT FLUX, POINTING CONTROL SYSTEMS, SYNCHRONOUS PLATFORMS, THERMAL ANALYSIS, TRUSSES

N91-17114*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

ON-ORBIT STRUCTURAL DYNAMIC PERFORMANCE OF A 15-METER MICROWAVE RADIOMETER ANTENNA

DEBORAH M. WAHLS (National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.), JEFFERY T. FARMER (National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.), and DAVID W. SLEIGHT (Illinois Univ., Urbana.) Washington Dec. 1990 44 p
(RTOP 506-49-21-02)

(NASA-TP-3041; L-16795; NAS 1.60:3041) Avail: CASI HC A03/MF A01

ANTENNA DESIGN, COMPUTER AIDED DESIGN, GEOSYNCHRONOUS ORBITS, MICROWAVE RADIOMETERS, MODAL RESPONSE, STRUCTURAL DESIGN, SYNCHRONOUS PLATFORMS

N91-18186*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

THE 5TH ANNUAL NASA SPACECRAFT CONTROL LABORATORY EXPERIMENT (SCOLE) WORKSHOP, PART 1

LAWRENCE W. TAYLOR, JR., comp. Dec. 1990 383 p Workshop held in Lake Arrowhead, CA, 31 Oct. 1988
(RTOP 506-46-11-01)

(NASA-CP-10057-PT-1; NAS 1.55:10057-PT-1) Avail: CASI HC A17/MF A03

CONTROL SYSTEMS DESIGN, LARGE SPACE STRUCTURES, MATHEMATICAL MODELS, SPACECRAFT CONTROL

N91-18189*# National Aeronautics and Space Administration. Marshall Space Flight Center, Huntsville, AL.

SECOND CONFERENCE ON NDE FOR AEROSPACE REQUIREMENTS

KENNETH W. WOODIS, comp. (National Aeronautics and Space Administration. Marshall Space Flight Center, Huntsville, AL.), CRAIG C. BRYSON, comp. (National Aeronautics and Space Administration. Marshall Space Flight Center, Huntsville, AL.), and GARY L. WORKMAN, comp. (Alabama Univ., Huntsville.) Washington Dec. 1990 276 p Conference held in Huntsville, AL, 22-24 Aug. 1989; sponsored by NASA. Marshall Space Flight Center and Alabama Univ.
(NASA-CP-3091; M-646; NAS 1.55:3091) Avail: CASI HC A13/MF A03

ACOUSTIC MEASUREMENT, AEROSPACE SYSTEMS,

COMPUTER AIDED TOMOGRAPHY, CONFERENCES, INSPECTION, NONDESTRUCTIVE TESTS, ULTRASONIC FLAW DETECTION

N91-18199* National Aeronautics and Space Administration, Washington, DC.

LARGE SPACE STRUCTURES AND SYSTEMS IN THE SPACE STATION ERA: A BIBLIOGRAPHY WITH INDEXES

JOHN J. FERRAINOLO, ed. (National Aeronautics and Space Administration, Langley Research Center, Hampton, VA.) Nov. 1990 350 p
(NASA-SP-7085(01); NAS 1.21:7085(01)) Avail: CASI HC A15

Bibliographies and abstracts are listed for 1372 reports, articles, and other documents introduced into the NASA scientific and technical information system between January 1, 1990 and June 30, 1990. Its purpose is to provide helpful information to the researcher, manager, and designer in technology development and mission design according to system, interactive analysis and design, structural and thermal analysis and design, structural concepts and control systems, electronics, advanced materials, assembly concepts, propulsion, and solar power satellite systems. Author

N91-19122*# National Aeronautics and Space Administration, Langley Research Center, Hampton, VA.

THE 5TH ANNUAL NASA SPACECRAFT CONTROL LABORATORY EXPERIMENT (SCOLE) WORKSHOP, PART 2

LAWRENCE W. TAYLOR, JR., comp. Dec. 1990 369 p
Workshop held in Lake Arrowhead, CA, 31 Oct. 1988
(RTOP 506-46-11-01)
(NASA-CP-10057-PT-2; NAS 1.55:10057-PT-2) Avail: CASI HC A16/MF A03

CONFERENCES, CONTROL SYSTEMS DESIGN, DYNAMIC STRUCTURAL ANALYSIS, FLEXIBLE SPACECRAFT, LARGE SPACE STRUCTURES, MATHEMATICAL MODELS, SPACECRAFT CONTROL

N91-19126*# National Aeronautics and Space Administration, Goddard Space Flight Center, Greenbelt, MD.

SIXTEENTH SPACE SIMULATION CONFERENCE CONFIRMING SPACEWORTHINESS INTO THE NEXT MILLENNIUM

JOSEPH L. STECHER, III, ed. Washington Nov. 1990 464 p
Symposium held in Albuquerque, NM, 5-8 Nov. 1990; sponsored by NASA, Inst. of Environmental Sciences, AIAA, and the American Society for Testing and Materials
(NASA-CP-3096; REPT-90B00146; NAS 1.55:3096) Avail: CASI HC A20/MF A04

CONFERENCES, SPACE ENVIRONMENT SIMULATION, SPACECRAFT CONTAMINATION, THERMAL SIMULATION

N91-21185*# National Aeronautics and Space Administration, Lewis Research Center, Cleveland, OH.

A NEW FABRICATION METHOD FOR PRECISION ANTENNA REFLECTORS FOR SPACE FLIGHT AND GROUND TEST

G. RICHARD SHARP, JOYCE S. WANHAINEN, and DEAN A. KETELSEN Washington Mar. 1991 19 p Presented at the 13th International Communications Satellite Systems Conference, Los Angeles, CA, 11-15 Mar. 1990; sponsored by AIAA Previously announced in IAA as A90-25627 Original contains color illustrations
(RTOP 650-60-20)

(NASA-TP-3078; E-5176; NAS 1.60:3078) Avail: CASI HC A03/MF A01; 2 functional color pages

ANTENNA DESIGN, COMMUNICATION SATELLITES, DESIGN ANALYSIS, FABRICATION, REFLECTOR ANTENNAS, REFLECTORS, SATELLITE ANTENNAS

N91-21188*# National Aeronautics and Space Administration, Langley Research Center, Hampton, VA.

AEROSPACE APPLICATIONS OF MAGNETIC SUSPENSION TECHNOLOGY, PART 1

NELSON J. GROOM, ed. (National Aeronautics and Space Administration, Langley Research Center, Hampton, VA.) and COLIN P. BRITCHER, ed. (Old Dominion Univ., Norfolk, VA.) Mar.

1991 377 p Workshop held in Hampton, VA, 25-27 Sep. 1990
(RTOP 590-14-11-02)
(NASA-CP-10066-PT-1; NAS 1.55:10066-PT-1) Avail: CASI HC A17/MF A03

AEROSPACE ENGINEERING, MAGNETIC SUSPENSION, REDUCED GRAVITY, SUPERCONDUCTIVITY, TECHNOLOGY UTILIZATION

N91-21203*# National Aeronautics and Space Administration, Langley Research Center, Hampton, VA.

AEROSPACE APPLICATIONS OF MAGNETIC SUSPENSION TECHNOLOGY, PART 2

NELSON J. GROOM, ed. (National Aeronautics and Space Administration, Langley Research Center, Hampton, VA.) and COLIN P. BRITCHER, ed. (Old Dominion Univ., Norfolk, VA.) Mar. 1991 394 p Workshop held in Hampton, VA, 25-27 Sep. 1990
(RTOP 590-14-11-02)

(NASA-CP-10066-PT-2; NAS 1.55:10066-PT-2) Avail: CASI HC A17/MF A04

CONTROL SYSTEMS DESIGN, CONTROL THEORY, MAGNETIC BEARINGS, MAGNETIC SUSPENSION, POINTING CONTROL SYSTEMS, SUPERCONDUCTIVITY

N91-22302*# National Aeronautics and Space Administration, Langley Research Center, Hampton, VA.

RIGID-BODY-CONTROL SUBSYSTEM SIZING FOR AN EARTH SCIENCE GEOSTATIONARY PLATFORM

A. DON SCOTT (National Aeronautics and Space Administration, Langley Research Center, Hampton, VA.), JAMES A. DURICY (George Washington Univ., Hampton, VA.), and CHERYL C. JACKSON (Flight Mechanics and Control, Inc., Hampton, VA.) Washington May 1991 22 p
(RTOP 506-49-21-02)

(NASA-TP-3087; L-16796; NAS 1.60:3087) Avail: CASI HC A03/MF A01

CONTROL SYSTEMS DESIGN, EARTH SCIENCES, POINTING CONTROL SYSTEMS, REACTION WHEELS, RIGID STRUCTURES, SATELLITE ATTITUDE CONTROL, SPACECRAFT CONTROL, SYNCHRONOUS PLATFORMS

N91-22307*# National Aeronautics and Space Administration, Langley Research Center, Hampton, VA.

FOURTH NASA WORKSHOP ON COMPUTATIONAL CONTROL OF FLEXIBLE AEROSPACE SYSTEMS, PART 1

LAWRENCE W. TAYLOR, JR., comp. Mar. 1991 457 p
Workshop held in Williamsburg, VA, 11-13 Jul. 1990
(RTOP 506-46-11-01)

(NASA-CP-10065-PT-1; NAS 1.55:10065-PT-1) Avail: CASI HC A20/MF A04

AEROSPACE SYSTEMS, CONTROL SYSTEMS DESIGN, CONTROL THEORY, FLEXIBLE SPACECRAFT, ROBOT CONTROL, SPACECRAFT CONTROL

N91-22331*# National Aeronautics and Space Administration, Langley Research Center, Hampton, VA.

FOURTH NASA WORKSHOP ON COMPUTATIONAL CONTROL OF FLEXIBLE AEROSPACE SYSTEMS, PART 2

LAWRENCE W. TAYLOR, JR., comp. Mar. 1991 464 p
Workshop held in Williamsburg, VA, 11-13 Jul. 1990
(RTOP 506-46-11-01)

(NASA-CP-10065-PT-2; NAS 1.55:10065-PT-2) Avail: CASI HC A20/MF A04

AEROSPACE SYSTEMS, AIRCRAFT CONTROL, CONFERENCES, DYNAMIC STRUCTURAL ANALYSIS, FLEXIBLE SPACECRAFT, FLEXIBLE WINGS, FLUTTER, LARGE SPACE STRUCTURES, OPTIMAL CONTROL, ROBOTICS, VIBRATION DAMPING

N91-27182*# National Aeronautics and Space Administration, Langley Research Center, Hampton, VA.

PACKAGING, DEVELOPMENT, AND ON-ORBIT ASSEMBLY OPTIONS FOR LARGE GEOSTATIONARY SPACECRAFT

WILLIAM T. DAVIS (National Aeronautics and Space

18 SPACECRAFT DESIGN, TESTING AND PERFORMANCE

Administration. Langley Research Center, Hampton, VA.) and CHARLES B. KING (Bionetics Corp., Hampton, VA.) Washington Jul. 1991 34 p
(RTOP 506-49-31-01)
(NASA-TP-3088; L-16863; NAS 1.60:3088) Avail: CASI HC A03/MF A01

GEOSYNCHRONOUS ORBITS, LARGE SPACE STRUCTURES, LAUNCH VEHICLES, ORBITAL ASSEMBLY, PAYLOAD INTEGRATION, SPACE ERECTABLE STRUCTURES, SPACECRAFT DESIGN, SYNCHRONOUS SATELLITES

N91-28191* National Aeronautics and Space Administration, Washington, DC.

LARGE SPACE STRUCTURES AND SYSTEMS IN THE SPACE STATION ERA: A BIBLIOGRAPHY WITH INDEXES

JOHN J. FERRAINOLO, comp. and GEORGE F. LAWRENCE, comp. May 1991 329 p
(NASA-SP-7085(02); NAS 1.21:7085(02)) Avail: CASI HC A15

Bibliographies and abstracts are listed for 1219 reports, articles, and other documents introduced into the NASA scientific and technical information system between July 1, 1990 and December 31, 1990. The purpose is to provide helpful information to the researcher, manager, and designer in technology development and mission design according to system, interactive analysis and design, structural and thermal analysis and design, structural concepts and control systems, electronics, advanced materials, assembly concepts, propulsion, and solar power satellite systems. Author

N92-11087*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

MULTIDISCIPLINARY OPTIMIZATION OF CONTROLLED SPACE STRUCTURES WITH GLOBAL SENSITIVITY EQUATIONS

SHARON L. PADULA, BENJAMIN B. JAMES, PHILIP C. GRAVES (Vigyan Research Associates, Inc., Hampton, VA.), and STANLEY E. WOODARD Nov. 1991 39 p
(RTOP 506-43-41-01)

(NASA-TP-3130; NAS 1.60:3130) Avail: CASI HC A03/MF A01
CONTROL SYSTEMS DESIGN, LARGE SPACE STRUCTURES, OPTIMIZATION, SPACECRAFT CONTROL, SPACECRAFT DESIGN, SPACECRAFT STRUCTURES, WEIGHT REDUCTION

N92-17098*# National Aeronautics and Space Administration, Washington, DC.

BEYOND THE BASELINE 1991: PROCEEDINGS OF THE SPACE STATION EVOLUTION SYMPOSIUM. VOLUME 1: SPACE STATION FREEDOM, PART 1

Sep. 1991 336 p Symposium held in League City, TX, 6-8 Aug. 1991

(NASA-CP-10083-VOL-1-PT-1; S-653-VOL-1-PT-1; NAS 1.55:10083-VOL-1-PT-1) Avail: CASI HC A15/MF A03
SPACE STATION FREEDOM, SPACECRAFT CONFIGURATIONS, SPACECRAFT DESIGN, USER REQUIREMENTS

N92-17348*# National Aeronautics and Space Administration, Washington, DC.

BEYOND THE BASELINE 1991: PROCEEDINGS OF THE SPACE STATION EVOLUTION SYMPOSIUM. VOLUME 2: SPACE STATION FREEDOM, PART 2

Sep. 1991 464 p Symposium held in League City, TX, 6-8 Aug. 1991

(NASA-CP-10083-VOL-2-PT-2; S-653-VOL-2-PT-2; NAS 1.55:10083-VOL-2-PT-2) Avail: CASI HC A20/MF A04
CONFERENCES, EVOLUTION (DEVELOPMENT), PROJECT PLANNING, SOFTWARE ENGINEERING, SPACE STATION FREEDOM, SYSTEMS ENGINEERING

N92-17409*# National Aeronautics and Space Administration, Washington, DC.

BEYOND THE BASELINE 1991: PROCEEDINGS OF THE SPACE STATION EVOLUTION SYMPOSIUM. VOLUME 1: SPACE STATION FREEDOM, PART 2

Sep. 1991 369 p Symposium held in League City, TX, 6-8 Aug. 1991

(NASA-CP-10083-VOL-1-PT-2; S-653-VOL-1-PT-2; NAS 1.55:10083-VOL-1-PT-2) Avail: CASI HC A16/MF A03
CONFERENCES, EXPERT SYSTEMS, SPACE STATION FREEDOM

N92-17768*# National Aeronautics and Space Administration, Washington, DC.

BEYOND THE BASELINE 1991: PROCEEDINGS OF THE SPACE STATION EVOLUTION SYMPOSIUM. VOLUME 2: SPACE STATION FREEDOM, PART 1

Sep. 1991 273 p Symposium held in League City, TX, 6-8 Aug. 1991

(NASA-CP-10083-VOL-2-PT-1; S-653-VOL-2-PT-1; NAS 1.55:10083-VOL-2-PT-1) Avail: CASI HC A12/MF A03
AEROSPACE ENGINEERING, CONFERENCES, DISTRIBUTED PARAMETER SYSTEMS, FUNCTIONAL DESIGN SPECIFICATIONS, MISSION PLANNING, PROJECT PLANNING, SPACE STATION FREEDOM, SPACECRAFT DESIGN, USER REQUIREMENTS

N92-22317* National Aeronautics and Space Administration, Washington, DC.

LARGE SPACE STRUCTURES AND SYSTEMS IN THE SPACE STATION ERA: A BIBLIOGRAPHY WITH INDEXES (SUPPLEMENT 03)

Dec. 1991 324 p
(NASA-SP-7085(03); NAS 1.21:7085(03)) Avail: CASI HC A14

Bibliographies and abstracts are listed for 1221 reports, articles, and other documents introduced into the NASA scientific and technical information system between January 1, 1991 and June 30, 1991. Topics covered include large space structures and systems, space stations, extravehicular activity, thermal environments and control, tethering, spacecraft power supplies, structural concepts and control systems, electronics, advanced materials, propulsion, policies and international cooperation, vibration and dynamic controls, robotics and remote operations, data and communication systems, electric power generation, space commercialization, orbital transfer, and human factors engineering. Author

N92-27721*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

INTERNATIONAL SYMPOSIUM ON MAGNETIC SUSPENSION TECHNOLOGY, PART 1

NELSON J. GROOM, ed. and COLIN P. BRITCHER, ed. (Old Dominion Univ., Norfolk, VA.) Washington May 1992 470 p Symposium held in Hampton, VA, 19-23 Aug. 1991
(RTOP 590-14-11-02)

(NASA-CP-3152-PT-1; L-17092-PT-1; NAS 1.55:3152-PT-1) Avail: CASI HC A20/MF A04
CONFERENCES, CONTROL EQUIPMENT, MAGNETIC BEARINGS, MAGNETIC CONTROL, MAGNETIC LEVITATION VEHICLES, MAGNETIC SUSPENSION, SUPERCONDUCTING MAGNETS

N92-27788*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

INTERNATIONAL SYMPOSIUM ON MAGNETIC SUSPENSION TECHNOLOGY, PART 2

NELSON J. GROOM, ed. (Cray Research, Inc., Albuquerque, NM.) and COLIN P. BRITCHER, ed. (Old Dominion Univ., Norfolk, VA.) Washington May 1992 459 p Symposium held in Hampton, VA, 19-23 Aug. 1991
(RTOP 590-14-11-02)

(NASA-CP-3152-PT-2; L-17092-PT-2; NAS 1.55:3152-PT-2) Avail: CASI HC A20/MF A04
CONTROL SYSTEMS DESIGN, MAGNETIC BEARINGS, MAGNETIC SUSPENSION, SUPERCONDUCTING MAGNETS, SUPERCONDUCTIVITY

N92-28730*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

ONGOING PROGRESS IN SPACECRAFT CONTROLS

DAVE GHOSH, ed. (Lockheed Engineering and Sciences Co., Hampton, VA.) Jul. 1992 143 p Workshop held in Hampton, VA, 13 Jan. 1992

(RTOP 506-59-61-01)

(NASA-CP-10099; NAS 1.55:10099) Avail: CASI HC A07/MF A02

ADAPTIVE CONTROL, CONTROL SYSTEMS DESIGN, DYNAMIC STRUCTURAL ANALYSIS, MANNED MARS MISSIONS, MANNED SPACECRAFT, NASA SPACE PROGRAMS, ROBOTICS, SPACE EXPLORATION, SPACECRAFT CONTROL

19

SPACECRAFT INSTRUMENTATION

N92-25147*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

FEASIBILITY STUDY OF A LOW-ENERGY GAMMA RAY SYSTEM FOR MEASURING QUANTITY AND FLOW RATE OF SLUSH HYDROGEN

JAG J. SINGH, CHIH-PING SHEN, and DANNY R. SPRINKLE (Old Dominion Univ., Norfolk, VA.) Apr. 1992 14 p (RTOP 307-50-10-02)

(NASA-TP-3150; L-16980; NAS 1.60:3150) Avail: CASI HC A03/MF A01

FEASIBILITY ANALYSIS, FLOW VELOCITY, GAMMA RAYS, SLUSH HYDROGEN, X RAYS

20

SPACECRAFT PROPULSION AND POWER

Includes main propulsion systems and components, e.g., rocket engines; and spacecraft auxiliary power sources.

N91-11800*# National Aeronautics and Space Administration. Lewis Research Center, Cleveland, OH.

METALLIZED PROPELLANTS FOR THE HUMAN EXPLORATION OF MARS

BRYAN A. PALASZEWSKI Nov. 1990 14 p (RTOP 506-42-00)

(NASA-TP-3062; E-5544; NAS 1.60:3062) Avail: CASI HC A03/MF A01

EARTH ORBITS, LAUNCHING, MANNED MARS MISSIONS, METAL PROPELLANTS, MISSION PLANNING, PAYLOADS, SPACE TRANSPORTATION

N91-15308*# National Aeronautics and Space Administration. Lewis Research Center, Cleveland, OH.

LUNAR MISSIONS USING CHEMICAL PROPULSION: SYSTEM DESIGN ISSUES

BRYAN PALASZEWSKI Jan. 1991 13 p Presented at the 26th Joint Propulsion Conference, Orlando, FL, 16-18 Jul. 1990; sponsored in part by AIAA, ASME, SAE, and ASEE Previously announced as A90-47221

(RTOP 506-42-51)

(NASA-TP-3065; E-5542; NAS 1.60:3065) Avail: CASI HC A03/MF A01

CHEMICAL PROPULSION, HYDRAZINES, LUNAR BASES, METAL PROPELLANTS, PAYLOADS, PROPELLANT ADDITIVES, PROPULSION SYSTEM CONFIGURATIONS, PROPULSION SYSTEM PERFORMANCE, SPACE TRANSPORTATION

N91-19182*# National Aeronautics and Space Administration. Lewis Research Center, Cleveland, OH.

SPACE PHOTOVOLTAIC RESEARCH AND TECHNOLOGY, 1989

Washington Jan. 1991 515 p Tenth conference held in Cleveland, OH, 7-9 Nov. 1989

(RTOP 506-41-11)

(NASA-CP-3107; E-5728; NAS 1.55:3107) Avail: CASI HC A22/MF A04

CONFERENCES, PHOTOVOLTAIC CELLS, PHOTOVOLTAIC CONVERSION, SOLAR ARRAYS, SOLAR CELLS, SPACECRAFT POWER SUPPLIES

N91-24307*# National Aeronautics and Space Administration. Lewis Research Center, Cleveland, OH.

STRUCTURAL INTEGRITY AND DURABILITY OF REUSABLE SPACE PROPULSION SYSTEMS

Apr. 1989 259 p Conference held in Cleveland, OH, 18-19 Apr. 1989

(RTOP 553-13-00)

(NASA-CP-10030; E-4628; NAS 1.55:10030) Avail: CASI HC A12/MF A03

CONFERENCES, DYNAMIC STRUCTURAL ANALYSIS, LIFE (DURABILITY), PREDICTION ANALYSIS TECHNIQUES, PROPULSION SYSTEM CONFIGURATIONS, REUSABLE ROCKET ENGINES

N91-25176*# National Aeronautics and Space Administration. Washington, DC.

SPACE TRANSPORTATION PROPULSION TECHNOLOGY SYMPOSIUM. VOLUME 1: EXECUTIVE SUMMARY

May 1991 36 p Symposium held in State College, PA, 25-29 Jun. 1990

(NASA-CP-3112; NAS 1.55:3112) Avail: CASI HC A03/MF A01

BOOSTER ROCKET ENGINES, PROPULSION, PROPULSION SYSTEM CONFIGURATIONS, SPACE TRANSPORTATION, SPACE TRANSPORTATION SYSTEM

N91-28193*# National Aeronautics and Space Administration. Washington, DC.

SPACE TRANSPORTATION PROPULSION TECHNOLOGY SYMPOSIUM. VOLUME 2: SYMPOSIUM PROCEEDINGS

May 1991 693 p Symposium held in State College, PA, 25-29 Jun. 1990

(NASA-CP-3112-VOL-2; NAS 1.55:3112-VOL-2) Avail: CASI HC A99/MF A06

PROPULSION SYSTEM CONFIGURATIONS, PROPULSION SYSTEM PERFORMANCE, SPACE TRANSPORTATION, SPACE TRANSPORTATION SYSTEM, SPACECRAFT POWER SUPPLIES

N91-28235*# National Aeronautics and Space Administration. Washington, DC.

SPACE TRANSPORTATION PROPULSION TECHNOLOGY SYMPOSIUM. VOLUME 3: PANEL SESSION SUMMARIES AND PRESENTATIONS

May 1991 620 p Symposium held in State College, PA, 25-29 Jun. 1990

(NASA-CP-3112-VOL-3; NAS 1.55:3112-VOL-3) Avail: CASI HC A99/MF A06

CONFERENCES, PROPULSION SYSTEM CONFIGURATIONS, SPACE TRANSPORTATION, SPACE TRANSPORTATION SYSTEM, SPACECRAFT PROPULSION

N91-30203*# National Aeronautics and Space Administration. Lewis Research Center, Cleveland, OH.

SPACE PHOTOVOLTAIC RESEARCH AND TECHNOLOGY CONFERENCE

Aug. 1991 471 p The 11th Conference was held in Cleveland, OH, 7-9 May 1991

(RTOP 506-41-11)

(NASA-CP-3121; E-6161; NAS 1.55:3121) Avail: CASI HC A20/MF A04

AEROSPACE ENVIRONMENTS, CONFERENCES, ELECTRON

20 SPACECRAFT PROPULSION AND POWER

IRRADIATION, EXPOSURE, PHOTOVOLTAIC CONVERSION, PROTON IRRADIATION, RADIATION DAMAGE, SOLAR CELLS, SPACECRAFT POWER SUPPLIES

N92-10044*# National Aeronautics and Space Administration. Lewis Research Center, Cleveland, OH.

MAGNETOPLASMA DYNAMIC THRUSTER WORKSHOP

1991 178 p Workshop held in Washington, DC, 16 May 1991; sponsored in part by NASA, Washington (RTOP 506-42-31)

(NASA-CP-10084; E-6518; NAS 1.55:10084) Avail: CASI HC A09/MF A02

CONFERENCES, ELECTRIC ROCKET ENGINES, LOW THRUST PROPULSION, MAGNETOPLASMA DYNAMICS, PLASMA PROPULSION

N92-11088*# National Aeronautics and Space Administration. Lewis Research Center, Cleveland, OH.

NUCLEAR THERMAL PROPULSION: A JOINT NASA/DOE/DOD WORKSHOP

JOHN S. CLARK, ed. 1991 500 p Workshop held in Cleveland, OH, 10-12 Jul. 1990 (RTOP 593-71-00)

(NASA-CP-10079; E-6456; NAS 1.55:10079) Avail: CASI HC A21/MF A04

NUCLEAR ENGINE FOR ROCKET VEHICLES, NUCLEAR PROPULSION, PROJECT MANAGEMENT, PROJECT PLANNING, PROPULSION SYSTEM CONFIGURATIONS, PROPULSION SYSTEM PERFORMANCE, REACTOR DESIGN, REACTOR TECHNOLOGY, RESEARCH PROJECTS, ROCKET ENGINE DESIGN

N92-12052*# National Aeronautics and Space Administration. Marshall Space Flight Center, Huntsville, AL.

AUTOMATING A SPACECRAFT ELECTRICAL POWER SYSTEM USING EXPERT SYSTEMS

L. F. LOLLAR Washington Oct. 1991 22 p (NASA-TP-3161; M-670; NAS 1.60:3161) Avail: CASI HC A03/MF A01

AUTOMATIC CONTROL, AUTONOMY, BREADBOARD MODELS, EXPERT SYSTEMS, SPACE STATION FREEDOM, SPACECRAFT POWER SUPPLIES

N92-14108*# National Aeronautics and Space Administration. Marshall Space Flight Center, Huntsville, AL.

LIMIT CYCLE VIBRATIONS IN TURBOMACHINERY

S. G. RYAN Dec. 1991 84 p (NASA-TP-3181; M-676; NAS 1.60:3181) Avail: CASI HC A05/MF A01

ROTOR DYNAMICS, ROTORS, SPACE SHUTTLE MAIN ENGINE, TURBINE PUMPS, TURBOMACHINERY, VIBRATION

N92-17151*# National Aeronautics and Space Administration. Lewis Research Center, Cleveland, OH.

UPPER STAGES USING LIQUID PROPULSION AND METALLIZED PROPELLANTS

BRYAN A. PALASZEWSKI Washington Feb. 1992 22 p (RTOP 506-42-72) (NASA-TP-3191; E-6105; NAS 1.60:3191) Avail: CASI HC A03/MF A01

GELLED PROPELLANTS, INERTIAL UPPER STAGE, LAUNCH VEHICLES, METAL PROPELLANTS, PROPELLANT ADDITIVES, SPACE MISSIONS, SPACE TRANSPORTATION, SPACE TRANSPORTATION SYSTEM, SPACECRAFT PROPULSION

N92-20949*# National Aeronautics and Space Administration. Marshall Space Flight Center, Huntsville, AL.

OPTICAL MEASUREMENTS ON SOLID SPECIMENS OF SOLID ROCKET MOTOR EXHAUST AND SOLID ROCKET MOTOR SLAG

F. E. ROBERTS, III Washington Dec. 1991 20 p (RTOP 476-50-03) (NASA-TP-3177; M-674; NAS 1.60:3177) Avail: CASI HC A03/MF A01

ABSORPTIVITY, COMBUSTION PRODUCTS, EXHAUST EMISSION, OPTICAL MEASUREMENT, ROCKET EXHAUST, SLAGS, SOLID PROPELLANT ROCKET ENGINES, SOLID ROCKET PROPELLANTS, SPACE DEBRIS, SPACE SHUTTLE BOOSTERS, THERMAL EMISSION

N92-21517*# National Aeronautics and Space Administration. Lewis Research Center, Cleveland, OH.

ROCKET-BASED COMBINED-CYCLE (RBCC) PROPULSION TECHNOLOGY WORKSHOP. TUTORIAL SESSION

1992 259 p Workshop held in Huntsville, AL, 23-27 Mar. 1992; sponsored by NASA, Washington (RTOP 590-21-11)

(NASA-CP-10090; E-6929; NAS 1.55:10090) Avail: CASI HC A12/MF A03

AEROSPACE PLANES, ENGINE PARTS, HYPERSONIC FLIGHT, ROCKET ENGINE DESIGN, ROCKET ENGINES

N92-27130*# National Aeronautics and Space Administration. Marshall Space Flight Center, Huntsville, AL.

THE 1990 NASA AEROSPACE BATTERY WORKSHOP

LEWIS M. KENNEDY, comp. Washington May 1991 888 p Workshop held in Huntsville, AL, 4-6 Dec. 1990 (NASA-CP-3119; M-661; NAS 1.55:3119) Avail: CASI HC A99/MF A10

AEROSPACE ENGINEERING, CONFERENCES, LITHIUM SULFUR BATTERIES, NICKEL CADMIUM BATTERIES, NICKEL HYDROGEN BATTERIES, SILVER ZINC BATTERIES, SPACECRAFT POWER SUPPLIES, TECHNOLOGY ASSESSMENT

23

CHEMISTRY AND MATERIALS (GENERAL)

N91-20207*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

NATIONAL EDUCATORS' WORKSHOP: UPDATE 1988. STANDARD EXPERIMENTS IN ENGINEERING MATERIALS SCIENCE AND TECHNOLOGY

JAMES E. GARDNER, comp. (National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.) and JAMES A. JACOBS, comp. (Norfolk State Univ., VA.) Washington Jan. 1990 83 p Workshop held in Gaithersburg, MD, 10-12 May 1988; sponsored by NASA, Washington and NIST, Gaithersburg, MD (NAG1-976; RTOP 505-63-01-15)

(NASA-CP-3060; L-16732; NAS 1.55:3060) Avail: CASI HC A05/MF A01

CONFERENCES, EDUCATION, EXPERIMENTATION, FRACTURE MECHANICS, FRACTURING, HIGH TEMPERATURE SUPERCONDUCTORS, INSPECTION, RADIOGRAPHY, RESEARCH AND DEVELOPMENT, TECHNOLOGIES

24

COMPOSITE MATERIALS

Includes physical, chemical, and mechanical properties of laminates and other composite materials.

N91-10127*# National Aeronautics and Space Administration. Lewis Research Center, Cleveland, OH.

STRUCTURAL PROPERTIES OF LAMINATED DOUGLAS FIR/EPOXY COMPOSITE MATERIAL

DAVID A. SPERA (Sverdrup Technology, Inc., Cleveland, OH.), JACK B. ESGAR (Gougeon Bros., Inc., Bay City, MI.), MEADE GOUGEON, and MICHAEL D. ZUTECK (Gougeon Bros., Inc., Bay City, MI.) May 1990 140 p
(NAS3-25266; DE-AI01-76ET-20320; RTOP 776-33-41)
(NASA-RP-1236; E-4720; NAS 1.61:1236; DOE/NASA/20320-76)
Avail: CASI HC A07/MF A02

This publication contains a compilation of static and fatigue strength data for laminated-wood material made from Douglas fir and epoxy. Results of tests conducted by several organizations are correlated to provide insight into the effects of variables such as moisture, size, lamina-to-lamina joint design, wood veneer grade, and the ratio of cyclic stress to steady stress during fatigue testing. These test data were originally obtained during development of wood rotor blades for large-scale wind turbines of the horizontal-axis (propeller) configuration. Most of the strength property data in this compilation are not found in the published literature. Test sections ranged from round cylinders 2.25 in. in diameter to rectangular slabs 6 by 24 in. in cross section and approximately 30 ft. long. All specimens were made from Douglas fir veneers 0.10 in. thick, bonded together with the WEST epoxy system developed for fabrication and repair of wood boats. Loading was usually parallel to the grain. Size effects (reduction in strength with increase in test volume) are observed in some of the test data, and a simple mathematical model is presented that includes the probability of failure. General characteristics of the wood/epoxy laminate are discussed, including features that make it useful for a wide variety of applications. Author

N91-13492*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

AN INVESTIGATION OF MICROSTRUCTURAL CHARACTERISTICS OF CONTACT-LENS POLYMERS

JAG J. SINGH (National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.), ABE EFTEKHARI (Analytical Services and Materials, Inc., Hampton, VA.), BILLY T. UPCHURCH (National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.), and KAREN S. BURNS (Old Dominion Univ., Norfolk, VA.) Washington Dec. 1990 12 p
(RTOP 412-20-26-01)
(NASA-TP-3034; L-16817; NAS 1.60:3034) Avail: CASI HC A03/MF A01

CONTACT LENSES, GASEOUS DIFFUSION, MICROSTRUCTURE, PERMEABILITY, VOLUME

N91-14437*# National Aeronautics and Space Administration. Goddard Space Flight Center, Greenbelt, MD.

OUTGASSING DATA FOR SELECTING SPACECRAFT MATERIALS, REVISION 2

WILLIAM A. CAMPBELL, JR. and JOHN J. SCIALDONE Washington Nov. 1990 398 p
(NASA-RP-1124-REV-2; REPT-90B00138-REV-2; NAS 1.61:1124-REV-2; NASA-RP-1014; NASA-TN-D-7362; NASA-TN-D-8008) Avail: CASI HC A17/MF A04

Outgassing data, derived from tests at 398 K (125 C) for 24 hours in vacuum as per ASTM E 595-77, were compiled for numerous materials for spacecraft use. The data presented are the total mass loss (TML) and the collected volatile condensable materials (CVCM). The various materials are listed by likely usage and alphabetically. Author

N91-18215*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

COMPRESSION BEHAVIOR OF GRAPHITE-THERMOPLASTIC AND GRAPHITE-EPOXY PANELS WITH CIRCULAR HOLES OR IMPACT DAMAGE

DAWN C. JEGLEY Washington Mar. 1991 18 p
(RTOP 505-63-01-09)
(NASA-TP-3071; L-16853; NAS 1.60:3071) Avail: CASI HC A03/MF A01

AXIAL COMPRESSION LOADS, GRAPHITE-EPOXY

COMPOSITES, HOLE DISTRIBUTION (MECHANICS), IMPACT DAMAGE, LAMINATES, THERMOPLASTIC RESINS

N91-18216*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

INVESTIGATION OF MICROSTRUCTURAL CHANGES IN POLYETHERETHER-KETONE FILMS AT CRYOGENIC TEMPERATURES BY POSITRON LIFETIME SPECTROSCOPY

JAG J. SINGH (National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.), ABE EFTEKHARI (Analytical Services and Materials, Inc., Hampton, VA.), TERRY L. ST.CLAIR (National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.), and DANNY R. SPRINKLE Washington Mar. 1991 13 p
(RTOP 506-43-21-05)
(NASA-TP-3064; L-16841; NAS 1.60:3064) Avail: CASI HC A03/MF A01

COOLING, MICROSTRUCTURE, PEEK, POSITRON ANNIHILATION, SPECTROSCOPY, TEMPERATURE EFFECTS

N91-21242*# National Aeronautics and Space Administration. Marshall Space Flight Center, Huntsville, AL.

A NOVEL METHOD OF TESTING THE SHEAR STRENGTH OF THICK HONEYCOMB COMPOSITES

A. J. HODGE and A. T. NETTLES Mar. 1991 16 p
(NASA-TP-3108; NAS 1.60:3108) Avail: CASI HC A03/MF A01
HONEYCOMB CORES, HONEYCOMB STRUCTURES, IMPACT DAMAGE, IMPACT TESTS, IMPACT TOLERANCES, SHEAR STRENGTH

N91-29240*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

NASA WORKSHOP ON IMPACT DAMAGE TO COMPOSITES

C. C. POE, JR. Jul. 1991 476 p Workshop held in Hampton, Va, 19-20 Mar. 1991
(RTOP 505-63-50-04)
(NASA-CP-10075; NAS 1.55:10075) Avail: CASI HC A21/MF A04

COMPOSITE STRUCTURES, CONFERENCES, IMPACT DAMAGE, POLYMER MATRIX COMPOSITES

N92-10067*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

PROPERTIES OF THREE GRAPHITE/TOUGHENED RESIN COMPOSITES

DONALD L. SMITH (Lockheed Engineering and Sciences Co., Hampton, VA.) and MARVIN B. DOW Washington Sep. 1991 50 p
(RTOP 505-63-50-05)
(NASA-TP-3102; L-16910; NAS 1.60:3102) Avail: CASI HC A03/MF A01

COMPRESSION TESTS, GRAPHITE-EPOXY COMPOSITES, IMPACT DAMAGE, IMPACT LOADS, IMPACT TESTS, LAMINATES

N92-11142*# National Aeronautics and Space Administration. Marshall Space Flight Center, Huntsville, AL.

AN EXAMINATION OF THE DAMAGE TOLERANCE ENHANCEMENT OF CARBON/EPOXY USING AN OUTER LAMINA OF SPECTRA (R) Final Report

D. G. LANCE and A. T. NETTLES Washington Oct. 1991 33 p
(PROJ. 90-17)
(NASA-TP-3160; M-671; NAS 1.60:3160) Avail: CASI HC A03/MF A01

DAMAGE, EPOXY MATRIX COMPOSITES, IMPACT TESTS, PLATES (STRUCTURAL MEMBERS), POLYETHYLENES, RESIDUAL STRENGTH, TOLERANCES (MECHANICS)

N92-20679*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

OPTIMIZATION OF COMPOSITE SANDWICH COVER PANELS SUBJECTED TO COMPRESSIVE LOADINGS

JUAN R. CRUZ Dec. 1991 13 p

24 COMPOSITE MATERIALS

(RTOP 505-63-50-08)
(NASA-TP-3173; L-16942; NAS 1.60:3173) Avail: CASI HC
A03/MF A01

COMPOSITE STRUCTURES, COMPRESSION LOADS,
COMPUTER PROGRAMS, DESIGN ANALYSIS, OPTIMIZATION,
SANDWICH STRUCTURES, STRUCTURAL DESIGN, WING
PANELS

N92-20950*# National Aeronautics and Space Administration.
Marshall Space Flight Center, Huntsville, AL.

A STATISTICAL COMPARISON OF TWO CARBON FIBER/EPOXY FABRICATION TECHNIQUES

A. J. HODGE Washington Dec. 1991 12 p
(NASA-TP-3179; M-673; NAS 1.60:3179) Avail: CASI HC
A03/MF A01

AUTOCLAVES, CARBON FIBER REINFORCED PLASTICS,
CARBON FIBERS, COMPRESSIVE STRENGTH, CURING, EPOXY
MATRIX COMPOSITES, PRESSES

N92-21605*# National Aeronautics and Space Administration.
Goddard Space Flight Center, Greenbelt, MD.

AMSAHTS 1990: ADVANCES IN MATERIALS SCIENCE AND APPLICATIONS OF HIGH TEMPERATURE SUPERCONDUCTORS

LARRY H. BENNETT, ed., YURY FLOM, ed., and KISHIN
MOORJANI, ed. (Johns Hopkins Univ., Laurel, MD.) Jan. 1991
488 p Conference held in Greenbelt, MD, 2-6 Apr. 1990;
sponsored in cooperation with NASA, NIST, JHU, and DARPA
Previously announced as N90-27792

(NASA-CP-3100; REPT-90B00018; NAS 1.55:3100) Avail: CASI
HC A21/MF A04

HIGH TEMPERATURE SUPERCONDUCTORS, OXIDES,
REACTION KINETICS, SURFACE REACTIONS, THER-
MODYNAMIC PROPERTIES

N92-23981*# National Aeronautics and Space Administration.
Langley Research Center, Hampton, VA.

EFFECT OF LOW-SPEED IMPACT DAMAGE AND DAMAGE LOCATION ON BEHAVIOR OF COMPOSITE PANELS

DAWN C. JEGLEY May 1992 27 p Presented at the 9th
DOD/NASA/FAA Conference on Fibrous Composites in Structural
Design, Lake Tahoe, NV, 4-7 Nov. 1991

(RTOP 505-63-50-08)
(NASA-TP-3196; L-17031; NAS 1.60:3196) Avail: CASI HC
A03/MF A01

BUCKLING, GRAPHITE-EPOXY COMPOSITES, IMPACT
DAMAGE, IMPACT TESTS, LAMINATES, LOW SPEED

N92-25160*# National Aeronautics and Space Administration.
Langley Research Center, Hampton, VA.

BUCKLING BEHAVIOR OF LONG SYMMETRICALLY LAMINATED PLATES SUBJECTED TO COMBINED LOADINGS

MICHAEL P. NEMETH May 1992 31 p Presented at the
Ninth DoD/FAA Conference on Fibrous Composites in Structural
Design, Lake Tahoe, NV, 4-7 Nov. 1991

(RTOP 505-63-50-07)
(NASA-TP-3195; L-17035; NAS 1.60:3195) Avail: CASI HC
A03/MF A01

ANISOTROPIC PLATES, BENDING, BUCKLING, LAMINATES,
LOADS (FORCES), STIFFNESS, STRUCTURAL ANALYSIS

N92-32513*# National Aeronautics and Space Administration.
Langley Research Center, Hampton, VA.

EIGHTH DOD/NASA/FAA CONFERENCE ON FIBROUS COMPOSITES IN STRUCTURAL DESIGN, PART 1

JAMES H. STARNES, JR., comp., HERMAN L. BOHON, comp.
(Lockheed Engineering and Sciences Co., Hampton, VA.), and
SHERRY B. GARZON, comp. Sep. 1990 383 p Conference
held in Norfolk, VA, 28-30 Nov. 1989

(RTOP 505-63-01-09)
(NASA-CP-3087-PT-1; L-16832-PT-1; NAS 1.55:3087-PT-1)
Avail: CASI HC A17/MF A03

AIRCRAFT DESIGN, COMPOSITE STRUCTURES,

CONFERENCES, FIBER COMPOSITES, FINITE ELEMENT
METHOD, MATHEMATICAL MODELS, MECHANICAL
PROPERTIES, STRUCTURAL DESIGN

N92-32574*# National Aeronautics and Space Administration.
Langley Research Center, Hampton, VA.

EIGHTH DOD/NASA/FAA CONFERENCE ON FIBROUS COMPOSITES IN STRUCTURAL DESIGN, PART 2

JAMES H. STARNES, JR., comp., HERMAN L. BOHON, comp.
(Lockheed Engineering and Sciences Co., Hampton, VA.), and
SHERRY B. GARZON, comp. Sep. 1990 315 p Conference
held in Norfolk, VA, 28-30 Nov. 1989

(RTOP 505-63-01-09)
(NASA-CP-3087-PT-2; L-16832-PT-2; NAS 1.55:3087-PT-2)
Avail: CASI HC A14/MF A03

AIRCRAFT CONSTRUCTION MATERIALS, COMPOSITE
STRUCTURES, CONFERENCES, FIBER COMPOSITES,
STRUCTURAL ANALYSIS, STRUCTURAL DESIGN

25

INORGANIC AND PHYSICAL CHEMISTRY

Includes chemical analysis, e.g., chromatography; combustion
theory; electrochemistry; and photochemistry.

N92-28374*# National Aeronautics and Space Administration.
Langley Research Center, Hampton, VA.

AN ANALYSIS OF COMBUSTION STUDIES IN SHOCK EXPANSION TUNNELS AND REFLECTED SHOCK TUNNELS

CASIMIR J. JACHIMOWSKI Jul. 1992 12 p
(RTOP 505-62-40-04)
(NASA-TP-3224; L-17025; NAS 1.60:3224) Avail: CASI HC
A03/MF A01

COMBUSTION CHAMBERS, COMBUSTION CHEMISTRY,
COMBUSTION PHYSICS, HYPERSONIC FLIGHT, REACTION
KINETICS, SHOCK TUNNELS

26

METALLIC MATERIALS

Includes physical, chemical, and mechanical properties of metals,
e.g., corrosion; and metallurgy.

N91-13522*# National Aeronautics and Space Administration.
Langley Research Center, Hampton, VA.

OXIDATION CHARACTERISTICS OF TI-25AL-10NB-3V-1MO INTERMETALLIC ALLOY

TERRY L. A. WALLACE (National Aeronautics and Space
Administration, Langley Research Center, Hampton, VA.), RONALD
K. CLARK (National Aeronautics and Space Administration, Langley
Research Center, Hampton, VA.), SANKARA N. SANKARAN
(Analytical Services and Materials, Inc., Hampton, VA.), and KARL
E. WIEDEMANN (Analytical Services and Materials, Inc., Hampton,
VA.) Washington Dec. 1990 18 p

(RTOP 506-43-71-01)
(NASA-TP-3044; L-16808; NAS 1.60:3044) Avail: CASI HC
A03/MF A01

ALUMINIDES, OXIDATION, REACTION KINETICS,
TEMPERATURE EFFECTS, TITANIUM ALLOYS

N91-17208*# National Aeronautics and Space Administration.
Marshall Space Flight Center, Huntsville, AL.

ELECTROCHEMICAL STUDIES OF CORROSION INHIBITORS

M. D. DANFORD Washington Nov. 1990 21 p
(NASA-TP-3066; NAS 1.60:3066) Avail: CASI HC A03/MF A01

CORROSION, CORROSION PREVENTION, ELECTROCHEMISTRY, INHIBITORS, OXYGENATION, THERMODYNAMIC PROPERTIES

NONMETALLIC MATERIALS

N91-20266*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

SURFACE EFFECTS ON HYDROGEN PERMEATION THROUGH TI-14AL-21NB ALLOY

SANDARA N. SANKARAN (Analytical Services and Materials, Inc., Hampton, VA.), RONALD A. OUTLAW, and RONALD K. CLARK Washington Apr. 1991 15 p

(RTOP 506-43-71-01)

(NASA-TP-3109; L-16826; NAS 1.60:3109) Avail: CASI HC A03/MF A01

ALUMINUM ALLOYS, HYDROGEN, NIOBIUM ALLOYS, PERMEABILITY, PERMEATING, TITANIUM ALLOYS, ULTRAHIGH VACUUM

N91-29318*# National Aeronautics and Space Administration. Marshall Space Flight Center, Huntsville, AL.

THE INTERACTION OF HYDROGEN WITH METAL ALLOYS

M. D. DANFORD and J. W. MONTANO Aug. 1991 38 p

(NASA-TP-3128; M-664; NAS 1.60:3128) Avail: CASI HC A03/MF A01

ALLOYS, GAS-METAL INTERACTIONS, GASEOUS DIFFUSION, HELIUM, HYDROGEN, HYDROGEN EMBRITTLEMENT, METAL HYDRIDES

N91-30318*# National Aeronautics and Space Administration. Lewis Research Center, Cleveland, OH.

EQUIVALENT CRYSTAL THEORY OF ALLOYS

GUILLERMO BOZZOLO (Analex Corp., Fairview Park, OH.) and JOHN FERRANTE Sep. 1991 26 p

(RTOP 505-90-51)

(NASA-TP-3155; E-5996; NAS 1.60:3155) Avail: CASI HC A03/MF A01

BINARY ALLOYS, COHESION, CRYSTAL DEFECTS, CRYSTAL LATTICES, CRYSTAL STRUCTURE, ENERGY OF FORMATION, LATTICE PARAMETERS

N92-20063*# National Aeronautics and Space Administration. Goddard Space Flight Center, Greenbelt, MD.

LONG-TERM LIFE TESTING OF GEOSTATIONARY OPERATIONAL ENVIRONMENTAL SATELLITE (GOES) ENCODER LAMPS

CHARLES E. POWERS Feb. 1992 120 p

(RTOP 030-09-01-01)

(NASA-RP-1273; REPT-92B00013; NAS 1.61:1273) Avail: CASI HC A06/MF A02

The aging characteristics and lifetimes of tungsten filament encoder lamps were determined as a function of operating voltage and filament material. For pure tungsten and thoria doped (1 pct.) filament lamps, crystal grain growth over the center portion of the filament leads to the ultimate failure of the lamp. The development of notches associated with this grain growth is the cause of lamp burn out. Eventually, one of the notches will 'etch' through the filament, causing it to fail open. For rhenium doped (3 pct.) filament lamps, distortion of the filament leads to the ultimate failure of the lamp. The lifetime of these lamps is about 1 year at an operating voltage of 5.0 volts. The pure tungsten filament lamps have the longest average lifetime, and the thoria doped filament lamps have the shortest at 5.0 volts. The lifetimes of these lamps is about 7 years at an operating voltage of 3.5 volts. Data suggest that the rhenium doped lamps will have the longest average lifetime at 3.5 volts, and the thoria doped will have the shortest. These lifetimes are comparable to the desired lifetimes of 7 years. Author

Includes physical, chemical, and mechanical properties of plastics, elastomers, lubricants, polymers, textiles, adhesives, and ceramic materials.

N92-17070*# National Aeronautics and Space Administration. Lewis Research Center, Cleveland, OH.

HIGH-TEMPERATURE DURABILITY CONSIDERATIONS FOR HSCT COMBUSTOR

NATHAN S. JACOBSON Washington Jan. 1992 19 p

(RTOP 505-63-20)

(NASA-TP-3162; E-6343; NAS 1.60:3162) Avail: CASI HC A03/MF A01

CERAMIC MATRIX COMPOSITES, COMBUSTION CHAMBERS, HIGH TEMPERATURE TESTS, LININGS, REFRACTORY MATERIALS, THERMAL STABILITY

N92-22593*# National Aeronautics and Space Administration. Goddard Space Flight Center, Greenbelt, MD.

SHORTCOMINGS IN GROUND TESTING, ENVIRONMENT SIMULATIONS, AND PERFORMANCE PREDICTIONS FOR SPACE APPLICATIONS

E. G. STASSINOPOULOS and G. J. BRUCKER (General Electric Co., West Long Branch, NJ.) Apr. 1992 18 p

(NASA-TP-3217; NAS 1.60:3217; REPT-92B00001) Avail: CASI HC A03/MF A01

ENVIRONMENT SIMULATION, GROUND TESTS, PERFORMANCE PREDICTION, RADIATION DAMAGE, SATELLITES, SINGLE EVENT UPSETS, SPACECRAFT

N92-27194*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

EFFECT OF TEMPERATURE AND GAP OPENING RATE ON THE RESILIENCY OF CANDIDATE SOLID ROCKET BOOSTER O-RING MATERIALS

CYNTHIA L. LACH Jul. 1992 14 p

(RTOP 505-63-50-03)

(NASA-TP-3226; L-17023; NAS 1.60:3226) Avail: CASI HC A03/MF A01

DEFLECTION, ELASTOMERS, O RING SEALS, RESILIENCE, SEALING, TEMPERATURE EFFECTS

N92-31278*# National Aeronautics and Space Administration. Marshall Space Flight Center, Huntsville, AL.

GIBBS FREE ENERGY OF REACTIONS INVOLVING SiC, Si₃N₄, H₂, AND H₂O AS A FUNCTION OF TEMPERATURE AND PRESSURE

M. A. ISHAM Aug. 1992 18 p

(RTOP 593-71-51)

(NASA-TP-3275; M-694; NAS 1.60:3275) Avail: CASI HC A03/MF A01

CERAMIC COATINGS, GIBBS FREE ENERGY, HYDROGEN, PRESSURE DEPENDENCE, SILICON CARBIDES, SILICON NITRIDES, SURFACE REACTIONS, TEMPERATURE DEPENDENCE, THERMODYNAMICS, WATER

MATERIALS PROCESSING

Includes space-based development of products and processes for commercial applications.

N92-13340*# National Aeronautics and Space Administration. Lyndon B. Johnson Space Center, Houston, TX.
ANALYSIS OF GRAVITY-INDUCED PARTICLE MOTION AND FLUID PERFUSSION FLOW IN THE NASA-DESIGNED ROTATING ZERO-HEAD-SPACE TISSUE CULTURE VESSEL
 DAVID A. WOLF and RAY P. SCHWARZ (Krug International, Houston, TX.) Washington Oct. 1991 16 p
 (RTOP 694-01-23-05)
 (NASA-TP-3143; S-644; NAS 1.60:3143) Avail: CASI HC A03/MF A01

CULTURE TECHNIQUES, DIFFUSION, FLOW VELOCITY, FLUID MECHANICS, GRAVITATIONAL EFFECTS, PARTICLE MOTION, REDUCED GRAVITY, TISSUES (BIOLOGY)

N92-30263*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.
NATIONAL EDUCATORS' WORKSHOP: UPDATE 1991. STANDARD EXPERIMENTS IN ENGINEERING MATERIALS SCIENCE AND TECHNOLOGY

JAMES E. GARDNER, comp., JAMES A. JACOBS, comp. (Norfolk State Univ., VA.), and JAMES O. STIEGLER, comp. (Oak Ridge National Lab., TN.) Washington Jun. 1992 369 p Workshop held in Oak Ridge, TN, 12-14 Nov. 1991; sponsored by NASA, DOE, Norfolk State Univ., and NIST
 (RTOP 505-63-50-01)
 (NASA-CP-3151; L-17099; NAS 1.55:3151) Avail: CASI HC A16/MF A03

COMPOSITE MATERIALS, CONFERENCES, EDUCATION, EXPERIMENTATION, FRACTURE MECHANICS, METALLURGY, STRUCTURAL ANALYSIS

ENGINEERING (GENERAL)

Includes vacuum technology; control engineering; display engineering; cryogenics; and fire prevention.

N91-25303*# National Aeronautics and Space Administration. Marshall Space Flight Center, Huntsville, AL.
METHODS OF APPLIED DYNAMICS
 M. H. RHEINFURTH and H. B. WILSON (Alabama Univ., Tuscaloosa.) Washington May 1991 210 p
 (NASA-RP-1262; M-659; NAS 1.61:1262) Avail: CASI HC A10/MF A03

The monograph was prepared to give the practicing engineer a clear understanding of dynamics with special consideration given to the dynamic analysis of aerospace systems. It is conceived to be both a desk-top reference and a refresher for aerospace engineers in government and industry. It could also be used as a supplement to standard texts for in-house training courses on the subject. Beginning with the basic concepts of kinematics and dynamics, the discussion proceeds to treat the dynamics of a system of particles. Both classical and modern formulations of the Lagrange equations, including constraints, are discussed and applied to the dynamic modeling of aerospace structures using the modal synthesis technique. Author

N92-11218*# National Aeronautics and Space Administration. Marshall Space Flight Center, Huntsville, AL.
A GENERALIZED METHOD FOR MULTIPLE ROBOTIC MANIPULATOR PROGRAMMING APPLIED TO VERTICAL-UP WELDING.

KENNETH R. FERNANDEZ (Vanderbilt Univ., Nashville, TN.), GEORGE E. COOK (Vanderbilt Univ., Nashville, TN.), KRISTINN ANDERSEN (Vanderbilt Univ., Nashville, TN.), ROBERT JOEL BARNETT, and SALEH ZEIN-SABATTOU (Vanderbilt Univ., Nashville, TN.) Washington Oct. 1991 30 p
 (NASA-TP-3163; M-672; NAS 1.60:3163) Avail: CASI HC A03/MF A01

ALGORITHMS, MANIPULATORS, NUMERICAL CONTROL, PLASMA ARC WELDING, ROBOT ARMS, ROBOT CONTROL, ROBOT DYNAMICS

N92-13343*# National Aeronautics and Space Administration. Marshall Space Flight Center, Huntsville, AL.

A NONLINEAR ESTIMATOR FOR RECONSTRUCTING THE ANGULAR VELOCITY OF A SPACECRAFT WITHOUT RATE GYROS

M. E. POLITES and W. D. LIGHTSEY Washington Dec. 1991 24 p
 (NASA-TP-3178; M-675; NAS 1.60:3178) Avail: CASI HC A03/MF A01

ANGULAR VELOCITY, ATTITUDE GYROS, AXES (REFERENCE LINES), ESTIMATORS, KALMAN FILTERS, NONLINEAR SYSTEMS, SATELLITE ATTITUDE CONTROL

N92-22235*# National Aeronautics and Space Administration. Marshall Space Flight Center, Huntsville, AL.

THE ROLE OF FAILURE/PROBLEMS IN ENGINEERING: A COMMENTARY OF FAILURES EXPERIENCED - LESSONS LEARNED

R. S. RYAN Mar. 1992 142 p
 (NASA-TP-3213; M-684; NAS 1.60:3213) Avail: CASI HC A07/MF A02

FAILURE ANALYSIS, HUBBLE SPACE TELESCOPE, SATURN 5 LAUNCH VEHICLES, SPACE SHUTTLE BOOSTERS, SPACE SHUTTLE MAIN ENGINE, SPACE SHUTTLES, TOTAL QUALITY MANAGEMENT

N92-28436*# National Aeronautics and Space Administration. Lewis Research Center, Cleveland, OH.

INTERNATIONAL WORKSHOP ON VIBRATION ISOLATION TECHNOLOGY FOR MICROGRAVITY SCIENCE APPLICATIONS

JOSEPH F. LUBOMSKI, ed. May 1992 405 p Workshop held in Cleveland, OH, 23-25 Apr. 1991
 (RTOP 694-03-0C)
 (NASA-CP-10094; E-7035; NAS 1.55:10094) Avail: CASI HC A18/MF A04

CONFERENCES, CONTROLLERS, REDUCED GRAVITY, SPACE MANUFACTURING, SPACE SHUTTLES, SPACE STATION FREEDOM, VIBRATION ISOLATORS

N92-29677*# National Aeronautics and Space Administration. Marshall Space Flight Center, Huntsville, AL.

DEFINITION AND DESIGN OF AN EXPERIMENT TO TEST RASTER SCANNING WITH ROTATING UNBALANCED-MASS DEVICES ON GIMBALED PAYLOADS

W. D. LIGHTSEY, D. C. ALHORN, and M. E. POLITES Jun. 1992 19 p
 (NASA-TP-3249; M-691; NAS 1.60:3249) Avail: CASI HC A03/MF A01

EXPERIMENT DESIGN, FEASIBILITY ANALYSIS, PAYLOADS, RASTER SCANNING, ROTATING BODIES, SERVOMECHANISMS, SERVOMOTORS

N92-30378*# National Aeronautics and Space Administration. Goddard Space Flight Center, Greenbelt, MD.

CABLE COMPLIANCE

J. KERLEY, W. EKLUND (NSI Technology Services Corp.,

Greenbelt, MD.), R. BURKHARDT (NSI Technology Services Corp., Greenbelt, MD.), and P. ROSSONI Jun. 1992 138 p (NASA-TP-3216; NAS 1.60:3216; REPT-92B00026) Avail: CASI HC A07/MF A02

CABLES (ROPES), HUMAN FACTORS ENGINEERING, JOINTS (JUNCTIONS), MAN MACHINE SYSTEMS, PROSTHETIC DEVICES, ROBOT ARMS, ROBOTICS

N92-33601*# National Aeronautics and Space Administration. Marshall Space Flight Center, Huntsville, AL.

RECONFIGURING THE RUM EXPERIMENT TO TEST CIRCULAR SCANNING WITH ROTATING UNBALANCED-MASS DEVICES ON GIMBALED PAYLOADS

M. E. POLITES and D. C. ALHORN Sep. 1992 19 p (NASA-TP-3282; M-696; NAS 1.60:3282) Avail: CASI HC A03/MF A01

COMPUTERIZED SIMULATION, ROTATION, SCANNERS, SCANNING, SERVOMECHANISMS, SERVOMOTORS

32

COMMUNICATIONS AND RADAR

Includes radar; land and global communications; communications theory; and optical communications.

N91-27436*# National Aeronautics and Space Administration. Lewis Research Center, Cleveland, OH.

A THREE-DIMENSIONAL FINITE-ELEMENT THERMAL/MECHANICAL ANALYTICAL TECHNIQUE FOR HIGH-PERFORMANCE TRAVELING WAVE TUBES

KAREN F. BARTOS, E. BRIAN FITE, KURT A. SHALKHAUSER, and G. RICHARD SHARP Washington Jun. 1991 17 p Original contains color illustrations (RTOP 650-60-20)

(NASA-TP-3081; E-5917; NAS 1.60:3081) Avail: CASI HC A03/MF A01; 5 functional color pages

COMPUTER PROGRAMS, FAILURE ANALYSIS, FINITE ELEMENT METHOD, STRUCTURAL FAILURE, THERMAL ANALYSIS, THREE DIMENSIONAL MODELS, TRAVELING WAVE TUBES

N92-14202*# National Aeronautics and Space Administration. Lewis Research Center, Cleveland, OH.

SPACE COMMUNICATIONS TECHNOLOGY CONFERENCE: ONBOARD PROCESSING AND SWITCHING

Washington Nov. 1991 288 p Conference held in Cleveland, OH, 12-14 Nov. 1991 (RTOP 650-60-21)

(NASA-CP-3132; E-6548; NAS 1.55:3132) Avail: CASI HC A13/MF A03

COMMUNICATION NETWORKS, COMMUNICATION SATELLITES, CONFERENCES, NETWORK CONTROL, ONBOARD DATA PROCESSING, SATELLITE COMMUNICATION, SATELLITE NETWORKS, SPACE COMMUNICATION, SWITCHING

N92-20404*# Johns Hopkins Univ., Laurel, MD. Applied Physics Lab.

PROPAGATION EFFECTS FOR LAND MOBILE SATELLITE SYSTEMS: OVERVIEW OF EXPERIMENTAL AND MODELING RESULTS

JULIUS GOLDBIRSH and WOLFHARD J. VOGEL Feb. 1992 142 p Prepared in cooperation with Texas Univ., Austin (RTOP 643-10-03)

(NASA-RP-1274; NAS 1.61:1274) Avail: CASI HC A07/MF A02

Models developed and experiments performed to characterize the propagation environment associated with land mobile communication using satellites are discussed. Experiments were carried out with transmitters on stratospheric balloons, remotely

piloted aircraft, helicopters, and geostationary satellites. This text is comprised of compiled experimental results for the expressed use of communications engineers, designers of planned Land Mobile Satellite Systems (LMSS), and modelers of propagation effects. The results presented here are mostly derived from systematic studies of propagation effects for LMSS geometries in the United States associated with rural and suburban regions. Where applicable, the authors also draw liberally from the results of other related investigations in Canada, Europe, and Australia. Frequencies near 1500 MHz are emphasized to coincide with frequency bands allocated for LMSS by the International Telecommunication Union, although earlier experimental work at 870 MHz is also included. Author

33

ELECTRONICS AND ELECTRICAL ENGINEERING

Includes test equipment and maintainability; components, e.g., tunnel diodes and transistors; microminiaturization; and integrated circuitry.

N92-11252*# National Aeronautics and Space Administration. Lewis Research Center, Cleveland, OH.

THE 23 TO 300 C DEMAGNETIZATION RESISTANCE OF SAMARIUM-COBALT PERMANENT MAGNETS

JANIS M. NIEDRA (Sverdrup Technology, Inc., Brook Park, OH.) and ERIC OVERTON Washington Nov. 1991 11 p (RTOP 590-13-11)

(NASA-TP-3119; E-6123; NAS 1.60:3119) Avail: CASI HC A03/MF A01

COBALT, DEMAGNETIZATION, PERMANENT MAGNETS, SAMARIUM, TEMPERATURE EFFECTS

N92-20492*# National Aeronautics and Space Administration. Marshall Space Flight Center, Huntsville, AL.

TIME-FREQUENCY REPRESENTATION OF A HIGHLY NONSTATIONARY SIGNAL VIA THE MODIFIED WIGNER DISTRIBUTION

T. F. ZOLADZ, J. H. JONES, and J. JONG (Wyle Labs., Inc., Huntsville, AL.) Washington Mar. 1992 35 p (NASA-TP-3215; M-685; NAS 1.60:3215) Avail: CASI HC A03/MF A01

HIGH FREQUENCIES, SIGNAL ANALYSIS, SIGNAL PROCESSING, SPACE SHUTTLE MAIN ENGINE

34

FLUID MECHANICS AND HEAT TRANSFER

Includes boundary layers; hydrodynamics; fluidics; mass transfer; and ablation cooling.

N91-15499*# National Aeronautics and Space Administration. Ames Research Center, Moffett Field, CA.

FLOW-INDUCED RESONANCE OF SCREEN-COVERED CAVITIES

PAUL T. SODERMAN Oct. 1990 48 p (RTOP 505-61-11)

(NASA-TP-3052; A-89252; NAS 1.60:3052) Avail: CASI HC A03/MF A01

ACOUSTIC EXCITATION, AEROACOUSTICS, CAVITIES, PRESSURE OSCILLATIONS, RESONANT VIBRATION, SCREENS, VISCOUS FLOW, VORTEX SHEDDING

34 FLUID MECHANICS AND HEAT TRANSFER

N91-17310*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

RELATIVE EFFICIENCY AND ACCURACY OF TWO NAVIER-STOKES CODES FOR SIMULATING ATTACHED TRANSONIC FLOW OVER WINGS

DARYL L. BONHAUS and STEPHEN F. WORNOM Washington Feb. 1991 125 p

(RTOP 505-62-31-06)

(NASA-TP-3061; L-16811; NAS 1.60:3061) Avail: CASI HC A06/MF A02

COMPUTATIONAL GRIDS, FLOW DISTRIBUTION, NAVIER-STOKES EQUATION, PRESSURE DISTRIBUTION, TRANSONIC FLOW, WING PROFILES

N91-18381*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

AN UPWIND-BIASED SPACE MARCHING ALGORITHM FOR SUPERSONIC VISCOUS FLOW

FRANCIS A. GREENE Washington Mar. 1991 44 p

(RTOP 506-40-91-01)

(NASA-TP-3068; L-16788; NAS 1.60:3068) Avail: CASI HC A03/MF A01

ALGORITHM, FLOW DISTRIBUTION, SPATIAL MARCHING, SUPERSONIC FLOW, VISCOUS FLOW

N91-20418*# National Aeronautics and Space Administration. Ames Research Center, Moffett Field, CA.

HYPERVELOCITY ATMOSPHERIC FLIGHT: REAL GAS FLOW FIELDS

JOHN T. HOWE Nov. 1990 249 p

(RTOP 506-40-91)

(NASA-RP-1249; A-90143; NAS 1.61:1249) Avail: CASI HC A11/MF A03

Flight in the atmosphere is examined from the viewpoint of including real gas phenomena in the flow field about a vehicle flying at hypervelocity. That is to say, the flow field is subject not only to compressible phenomena, but is dominated by energetic phenomena. There are several significant features of such a flow field. Spatially, its composition can vary by both chemical and elemental species. The equations which describe the flow field include equations of state and mass, species, elemental, and electric charge continuity; momentum; and energy equations. These are nonlinear, coupled, partial differential equations that were reduced to a relatively compact set of equations of a self-consistent manner (which allows mass addition at the surface at a rate comparable to the free-stream mass flux). The equations and their inputs allow for transport of these quantities relative to the mass-averaged behavior of the flow field. Thus transport of mass by chemical, thermal, pressure, and forced diffusion; transport of momentum by viscosity; and transport of energy by conduction, chemical considerations, viscosity, and radiative transfer are included. The last of these complicate the set of equations by making the energy equation a partial integrodifferential equation. Each phenomenon is considered and represented mathematically by one or more developments. The coefficients which pertain are both thermodynamically and chemically dependent. Solutions of the equations are presented and discussed in considerable detail, with emphasis on severe energetic flow fields. For hypervelocity flight in low-density environments where gaseous reactions proceed at finite rates, chemical nonequilibrium is considered and some illustrations are presented. Finally, flight where the flow field may be out of equilibrium, both chemically and thermodynamically, is presented briefly. Author

N91-22509*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

NUMERICAL STUDIES OF CONVECTIVE COOLING FOR A LOCALLY HEATED SKIN

STEPHEN J. SCOTTI Washington May 1991 22 p

(RTOP 506-43-71-04)

(NASA-TP-3100; L-16867; NAS 1.60:3100) Avail: CASI HC A03/MF A01

CONVECTIVE HEAT TRANSFER, COOLANTS,

MATHEMATICAL MODELS, NATIONAL AEROSPACE PLANE PROGRAM, SKIN TEMPERATURE (NON-BIOLOGICAL), THERMAL PROTECTION

N91-24542*# National Aeronautics and Space Administration. Lyndon B. Johnson Space Center, Houston, TX.

SATURATION POINT MODEL FOR THE FORMATION OF METAL NITRATE IN NITROGEN TETROXIDE OXIDIZER

PAUL R. TORRANCE Washington May 1991 19 p

(NASA-TP-3107; S-630; NAS 1.60:3107) Avail: CASI HC A03/MF A01

DIFFUSION, NITRATES, NITROGEN TETROXIDE, OXIDIZERS, SATURATION (CHEMISTRY)

N91-25352*# National Aeronautics and Space Administration. Ames Research Center, Moffett Field, CA.

AEROACOUSTIC AND AERODYNAMIC APPLICATIONS OF THE THEORY OF NONEQUILIBRIUM THERMODYNAMICS

W. CLIFTON HORNE (National Aeronautics and Space Administration. Ames Research Center, Moffett Field, CA.), CHARLES A. SMITH (National Aeronautics and Space Administration. Ames Research Center, Moffett Field, CA.), and KRISHNAMURTY KARANCHETI (Florida Agricultural and Mechanical Univ., Tallahassee.) Washington Jun. 1991 26 p

(RTOP 505-61-00)

(NASA-TP-3118; A-90084; NAS 1.60:3118) Avail: CASI HC

A03/MF A01

AEROACOUSTICS, AERODYNAMIC CHARACTERISTICS, ENERGY DISSIPATION, ENTROPY, FLOW STABILITY, NONEQUILIBRIUM THERMODYNAMICS, THERMODYNAMIC EQUILIBRIUM, VISCOUS FLOW

N92-10161*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

NUMERICAL ANALYSIS AND SIMULATION OF AN ASSURED CREW RETURN VEHICLE FLOW FIELD

K. JAMES WEILMUNSTER, ROBERT E. SMITH, JR., and FRANCIS A. GREENE Washington Sep. 1991 37 p

(RTOP 506-40-91-01)

(NASA-TP-3101; L-16836; NAS 1.60:3101) Avail: CASI HC A03/MF A01

FLOW DISTRIBUTION, HYPERSONIC FLOW, INVISCID FLOW, LIFTING REENTRY VEHICLES, RESCUE OPERATIONS, SPACE STATION FREEDOM

N92-11285*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

CALCULATIONS AND CURVE FITS OF THERMODYNAMIC AND TRANSPORT PROPERTIES FOR EQUILIBRIUM AIR TO 30000 K

ROOP N. GUPTA (Vigyan Research Associates, Inc., Hampton, VA.), KAM-PUI LEE, RICHARD A. THOMPSON, and JERROLD M. YOS (Textron Defense Systems, Wilmington, MA.)

Washington Oct. 1991 76 p

(RTOP 506-40-91-01)

(NASA-RP-1260; L-16907; NAS 1.61:1260) Avail: CASI HC A05/MF A01

A self-consistent set of equilibrium air values were computed for enthalpy, total specific heat at constant pressure, compressibility factor, viscosity, total thermal conductivity, and total Prandtl number from 500 to 30,000 K over a range of $10(\text{exp } -4)$ atm to $10(\text{exp } 2)$ atm. The mixture values are calculated from the transport and thermodynamic properties of the individual species provided in a recent study by the authors. The concentrations of the individual species, required in the mixture relations, are obtained from a free energy minimization calculation procedure. Present calculations are based on an 11-species air model. For pressures less than $10(\text{exp } -2)$ atm and temperatures of about 15,000 K and greater, the concentrations of $\text{N}(++)$ and $\text{O}(++)$ become important, and consequently, they are included in the calculations determining the various properties. The computed properties are curve fitted as a function of temperature at a constant value of pressure. These curve fits reproduce the computed values within 5 percent

for the entire temperature range considered here at specific pressures and provide an efficient means for computing the flowfield properties of equilibrium air, provided the elemental composition remains constant at 0.24 for oxygen and 0.76 for nitrogen by mass. Author

N92-11299*# National Aeronautics and Space Administration. Lewis Research Center, Cleveland, OH.

MODELING OF THE HEAT TRANSFER IN BYPASS TRANSITIONAL BOUNDARY-LAYER FLOWS

FREDERICK F. SIMON and CRAIG A. STEPHENS (PRC Kentron, Inc., Edwards, CA.) Washington Oct. 1991 15 p (RTOP 505-62-52) (NASA-TP-3170; E-6046; NAS 1.60:3170) Avail: CASI HC A03/MF A01

BOUNDARY LAYER FLOW, BOUNDARY LAYER TRANSITION, BYPASSES, COMPUTERIZED SIMULATION, HEAT TRANSFER, K-EPSILON TURBULENCE MODEL, LEADING EDGES, PREDICTION ANALYSIS TECHNIQUES, TRANSITION FLOW

N92-20677*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

SIMULATION OF REAL-GAS EFFECTS ON PRESSURE DISTRIBUTIONS FOR AEROASSIST FLIGHT EXPERIMENT VEHICLE AND COMPARISON WITH PREDICTION

JOHN R. MICOL Apr. 1992 70 p (RTOP 506-40-41-01) (NASA-TP-3157; L-16923; NAS 1.60:3157) Avail: CASI HC A04/MF A01

AEROASSIST, BASE PRESSURE, BLUNT BODIES, DENSITY DISTRIBUTION, FOREBODIES, HYPERSONIC SPEED, ORBIT TRANSFER VEHICLES, PRESSURE DISTRIBUTION, REAL GASES, SIMULATION

N92-24514*# National Aeronautics and Space Administration. Lewis Research Center, Cleveland, OH.

WORKSHOP ON ENGINEERING TURBULENCE MODELING

LOUIS A. POVINELLI, ed., W. W. LIU, ed., A. SHABBIR, ed., and T.-H. SHIH, ed. Mar. 1992 510 p Workshop held in Cleveland, OH, 21-22 Aug. 1991 (NASA ORDER C-99066-G; RTOP 505-62-21)

(NASA-CP-10088; E-6830; ICOMP-92-02; CMOTT-92-02; NAS 1.55:10088) Avail: CASI HC A22/MF A04

COMPUTATIONAL FLUID DYNAMICS, CONFERENCES, PROPULSION, TURBULENCE, TURBULENCE MODELS

N92-24797*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

A SIMPLIFIED METHOD FOR THERMAL ANALYSIS OF A COWL LEADING EDGE SUBJECT TO INTENSE LOCAL SHOCK-WAVE-INTERFERENCE HEATING

DAVID M. MCGOWAN, CHARLES J. CAMARDA, and STEPHEN J. SCOTTI Washington Mar. 1992 40 p (RTOP 506-43-31-04)

(NASA-TP-3167; L-16505; NAS 1.60:3167) Avail: CASI HC A03/MF A01

AERODYNAMIC HEATING, AERODYNAMIC INTERFERENCE, COWLINGS, HEAT AFFECTED ZONE, LEADING EDGES, SHOCK WAVES, THERMAL ANALYSIS

N92-31281*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

STAGNATION-POINT HEAT-TRANSFER RATE PREDICTIONS AT AEROASSIST FLIGHT CONDITIONS

ROOP N. GUPTA, JIM J. JONES (Analytical Mechanics Associates, Inc., Hampton, VA.), and WILLIAM C. ROCHELLE (Lockheed Engineering and Sciences Co., Houston, TX.) Sep. 1992 21 p (RTOP 506-40-91-02)

(NASA-TP-3208; L-17039; NAS 1.60:3208) Avail: CASI HC A03/MF A01

AEROASSIST, COMPUTATIONAL FLUID DYNAMICS, FLIGHT CONDITIONS, HYPERSONIC FLOW, HYPERSONIC HEAT

TRANSFER, NAVIER-STOKES EQUATION, RADIATIVE HEAT TRANSFER, REACTING FLOW, SHOCK LAYERS, STAGNATION POINT, VISCOUS FLOW

N92-32245*# National Aeronautics and Space Administration. Goddard Space Flight Center, Greenbelt, MD.

TENTH WORKSHOP FOR COMPUTATIONAL FLUID DYNAMIC APPLICATIONS IN ROCKET PROPULSION, PART 2

R. W. WILLIAMS, comp. Washington Jul. 1992 755 p Workshop held in Huntsville, AL, 28-30 Apr. 1992 (NASA-CP-3163-PT-2; M-693-PT-2; NAS 1.55:3163-PT-2) Avail: CASI HC A99/MF A05

COMPUTATIONAL FLUID DYNAMICS, CONFERENCES, HYDROGEN OXYGEN ENGINES, LIQUID PROPELLANT ROCKET ENGINES, PROPULSION SYSTEM CONFIGURATIONS, ROCKET ENGINE DESIGN, SOLID PROPELLANT ROCKET ENGINES, SPACE SHUTTLE MAIN ENGINE, SPACECRAFT PROPULSION

N92-32278*# National Aeronautics and Space Administration. Goddard Space Flight Center, Greenbelt, MD.

TENTH WORKSHOP FOR COMPUTATIONAL FLUID DYNAMIC APPLICATIONS IN ROCKET PROPULSION, PART 1

R. W. WILLIAMS, comp. Washington Jul. 1992 721 p Workshop held in Huntsville, AL, 28-30 Apr. 1992 (NASA-CP-3163-PT-1; M-693-PT-1; NAS 1.55:3163-PT-1) Avail: CASI HC A99/MF A05

COMPUTATIONAL FLUID DYNAMICS, CONFERENCES, GRID GENERATION (MATHEMATICS), HEAT TRANSFER, LIQUID PROPELLANT ROCKET ENGINES, PROPELLANT COMBUSTION, SOLID PROPELLANT ROCKET ENGINES, SPACECRAFT PROPULSION, TURBOMACHINERY

35

INSTRUMENTATION AND PHOTOGRAPHY

Includes remote sensors; measuring instruments and gages; detectors; cameras and photographic supplies; and holography.

N91-14574*# National Aeronautics and Space Administration. Lewis Research Center, Cleveland, OH.

HIGH RESOLUTION, HIGH FRAME RATE VIDEO TECHNOLOGY

Washington May 1990 102 p Workshop held in Cleveland, OH, 11-12 May 1988 List of attendees included as supplement (RTOP 694-03-03)

(NASA-CP-3080; E-5044; NAS 1.55:3080) Avail: CASI HC A06/MF A02

DATA COMPRESSION, DATA TRANSMISSION, FRAMES (DATA PROCESSING), HIGH RESOLUTION, IMAGE PROCESSING, IMAGING TECHNIQUES, VIDEO DATA

N91-22538*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

LOW-ENERGY POSITRON FLUX GENERATOR FOR MICROSTRUCTURAL CHARACTERIZATION OF THIN FILMS

JAG J. SINGH (National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.), ABE EFTEKHARI (Analytical Services and Materials, Inc., Hampton, VA.), and TERRY L. ST.CLAIR Washington May 1991 19 p (RTOP 506-43-21-05)

(NASA-TP-3074; L-16881; NAS 1.60:3074) Avail: CASI HC A03/MF A01

FILM THICKNESS, INSULATORS, MICROSTRUCTURE, POSITRON ANNIHILATION, SPECTROSCOPY, THIN FILMS, TUNGSTEN

35 INSTRUMENTATION AND PHOTOGRAPHY

N92-29228*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

SIXTEENTH INTERNATIONAL LASER RADAR CONFERENCE, PART 1

M. PATRICK MCCORMICK, ed. Washington Jul. 1992 407 p Conference held in Cambridge, MA, 20-24 Jul. 1992; sponsored by NASA. Langley Research Center, AFOSR, AF Phillips Lab., American Meteorological Society, and the Optical Society of America

(RTOP 665-45-20-21)

(NASA-CP-3158-PT-1; L-17126-PT-1; NAS 1.55:3158-PT-1)

Avail: CASI HC A18/MF A04

ATMOSPHERIC CIRCULATION, ATMOSPHERIC EFFECTS, BACKSCATTERING, CLIMATE CHANGE, IMAGING TECHNIQUES, OPTICAL RADAR, RADAR MEASUREMENT, REMOTE SENSING, RESEARCH FACILITIES, STRATOSPHERE, VOLCANOES

N92-31013*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

SIXTEENTH INTERNATIONAL LASER RADAR CONFERENCE, PART 2

M. PATRICK MCCORMICK, ed. Washington Jul. 1992 361 p Conference held in Cambridge, MA, 20-24 Jul. 1992; sponsored by NASA. Langley Research Center, AFOSR, AF Phillips Lab., American Meteorological Society, and the Optical Society of America

(RTOP 665-45-20-21)

(NASA-CP-3158-PT-2; L-17126-PT-2; NAS 1.55:3158-PT-2)

Avail: CASI HC A16/MF A03

CONFERENCES, DOPPLER RADAR, IMAGING TECHNIQUES, LASERS, MESOSPHERE, OPTICAL RADAR, OZONE, REMOTE SENSING, TROPOSPHERE

37

MECHANICAL ENGINEERING

Includes auxiliary systems (nonpower); machine elements and processes; and mechanical equipment.

N91-12956*# National Aeronautics and Space Administration. Lewis Research Center, Cleveland, OH.

EXPERIMENTAL AND ANALYTICAL EVALUATION OF EFFICIENCY OF HELICOPTER PLANETARY STAGE

TIMOTHY L. KRANTZ Nov. 1990 20 p Prepared in cooperation with Army Aviation Systems Command, Cleveland, OH

(DA PROJ. 1L1-62211-A-47-A; RTOP 505-63-51)

(NASA-TP-3063; E-5268; NAS 1.60:3063; AVSCOM-TR-90-C-001)

Avail: CASI HC A03/MF A01

HELICOPTER PROPELLER DRIVE, HELICOPTERS, POWER LOSS, SYSTEM EFFECTIVENESS, TRANSMISSIONS (MACHINE ELEMENTS)

N91-30531*# Ohio State Univ., Columbus. Dept. of Mechanical Engineering.

FUNDAMENTALS OF FLUID LUBRICATION

BERNARD J. HAMROCK Washington NASA Aug. 1991 670 p Sponsored by NASA. Lewis Research Center

(RTOP 505-90-21)

(NASA-RP-1255; E-3758; NAS 1.61:1255) Avail: CASI HC

A99/MF A06

The aim is to coordinate the topics of design, engineering dynamics, and fluid dynamics in order to aid researchers in the area of fluid film lubrication. The lubrication principles that are covered can serve as a basis for the engineering design of machine elements. The fundamentals of fluid film lubrication are presented clearly so that students that use the book will have confidence in their ability to apply these principles to a wide range of lubrication

situations. Some guidance on applying these fundamentals to the solution of engineering problems is also provided. Author

N91-30540*# National Aeronautics and Space Administration. Goddard Space Flight Center, Greenbelt, MD.

THE EFFECT OF BANDWIDTH ON TELEROBOT SYSTEM PERFORMANCE

MARK UEBEL (Maryland Univ., College Park.), MICHAEL S. ALI (National Aeronautics and Space Administration. Goddard Space Flight Center, Greenbelt, MD.), and IOANNIS MINIS (Maryland Univ., College Park.) Sep. 1991 44 p

(NASA-TP-3152; REPT-91E02561; NAS 1.60:3152) Avail: CASI HC A03/MF A01

BANDWIDTH, FEEDBACK CONTROL, ROBOT CONTROL, TELEROBOTICS

N92-10195*# National Aeronautics and Space Administration. Lewis Research Center, Cleveland, OH.

A METHOD FOR DETERMINING SPIRAL-BEVEL GEAR TOOTH GEOMETRY FOR FINITE ELEMENT ANALYSIS

ROBERT F. HANDSCHUH and FAYDOR L. LITVIN (Illinois Univ., Chicago.) Aug. 1991 16 p Original contains color illustrations (DA PROJ. 1L1-62211-A-47-A; RTOP 505-63-51)

(NASA-TP-3096; E-5837; NAS 1.60:3096; AVSCOM-TR-91-C-020; AD-A242332) Avail: CASI HC A03/MF A01; 1 functional color page

APPLICATIONS PROGRAMS (COMPUTERS), COMPUTER AIDED DESIGN, FINITE ELEMENT METHOD, GEAR TEETH, MATHEMATICAL MODELS, SURFACE GEOMETRY, THREE DIMENSIONAL MODELS

N92-14346*# National Aeronautics and Space Administration. Lewis Research Center, Cleveland, OH.

ROTORDYNAMIC INSTABILITY PROBLEMS IN HIGH-PERFORMANCE TURBOMACHINERY, 1990

Washington Oct. 1991 458 p Workshop held in College Station, TX, 21-23 May 1990; sponsored by Texas A and M Univ. and NASA. Lewis Research Center

(RTOP 553-13-00)

(NASA-CP-3122; E-5628; NAS 1.55:3122) Avail: CASI HC A20/MF A04

CONFERENCES, ROTOR DYNAMICS, STRUCTURAL VIBRATION, TURBOMACHINERY, VIBRATION DAMPING

N92-30396*# National Aeronautics and Space Administration. Lewis Research Center, Cleveland, OH.

DEVELOPMENT OF A FULL-SCALE TRANSMISSION TESTING PROCEDURE TO EVALUATE ADVANCED LUBRICANTS

DAVID G. LEWICKI, HARRY J. DECKER, and JOHN T. SHIMSKI (Naval Air Propulsion Test Center, Trenton, NJ.) Aug. 1992 25 p

(DA PROJ. 1L1-62211-A-47-A; RTOP 505-63-36)

(NASA-TP-3265; E-6531; NAS 1.60:3265; AVSCOM-TR-91-C-026)

Avail: CASI HC A03/MF A01

GEARS, HELICOPTER PROPELLER DRIVE, LUBRICANT TESTS, LUBRICATING OILS, LUBRICATION, ROTARY WINGS, TEST STANDS, TRANSMISSIONS (MACHINE ELEMENTS), WEAR TESTS

38

QUALITY ASSURANCE AND RELIABILITY

Includes product sampling procedures and techniques; and quality control.

N91-14618*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

AXISYMMETRIC SHELL ANALYSIS OF THE SPACE SHUTTLE SOLID ROCKET BOOSTER FIELD JOINT

MICHAEL P. NEMETH (National Aeronautics and Space Administration, Langley Research Center, Hampton, VA.) and MELVIN S. ANDERSON (Old Dominion Univ., Norfolk, VA.) Washington Jan. 1991 55 p
(RTOP 505-63-01-08)
(NASA-TP-3033; L-16746; NAS 1.60:3033) Avail: CASI HC A04/MF A01

DYNAMIC STRUCTURAL ANALYSIS, JOINTS (JUNCTIONS), O RING SEALS, SOLID PROPELLANT ROCKET ENGINES, SPACE SHUTTLE BOOSTERS

39

STRUCTURAL MECHANICS

Includes structural element design and weight analysis; fatigue; and thermal stress.

N91-10301*# National Aeronautics and Space Administration, Langley Research Center, Hampton, VA.

RESEARCH IN STRUCTURES, STRUCTURAL DYNAMICS AND MATERIALS, 1990

JEAN-FRANCOIS M. BARTHELEMY, comp. and AHMED K. NOOR, comp. (George Washington Univ., Hampton, VA.) Washington Mar. 1990 283 p The 31st conference was held in Long Beach, CA, 2-4 Apr. 1990; sponsored by AIAA, ASME, ASCE, AHS, and ASC
(RTOP 505-63-01-07)
(NASA-CP-3064; L-16735; NAS 1.55:3064) Avail: CASI HC A13/MF A03

BEAMS (SUPPORTS), BUCKLING, COMPOSITE STRUCTURES, CONFERENCES, CONTROL SYSTEMS DESIGN, DYNAMIC RESPONSE, DYNAMIC STRUCTURAL ANALYSIS, LOADS (FORCES)

N91-10328*# National Aeronautics and Space Administration, Hugh L. Dryden Flight Research Facility, Edwards, CA.

DESIGN OF CONTROL LAWS FOR FLUTTER SUPPRESSION BASED ON THE AERODYNAMIC ENERGY CONCEPT AND COMPARISONS WITH OTHER DESIGN METHODS

ELI NISSIM (Technion - Israel Inst. of Tech., Haifa.) Oct. 1990 59 p Previously announced in IAA as A89-31100
(RTOP 505-66-71)
(NASA-TP-3056; H-1549; NAS 1.60:3056; AIAA PAPER 89-1212) Avail: CASI HC A04/MF A01

AEROELASTIC RESEARCH WINGS, CONTROL SYSTEMS DESIGN, CONTROL THEORY, ENERGY METHODS, FLUTTER ANALYSIS, VIBRATION DAMPING

N91-13750*# National Aeronautics and Space Administration, Langley Research Center, Hampton, VA.

FREE VIBRATIONS OF THIN-WALLED SEMICIRCULAR GRAPHITE-EPOXY COMPOSITE FRAMES

AHMED K. NOOR (National Aeronautics and Space Administration, Langley Research Center, Hampton, VA.), HUEY D. CARDEN (National Aeronautics and Space Administration, Langley Research Center, Hampton, VA.), and JEANNE M. PETERS (Joint Inst. for Advancement of Flight Sciences, Hampton, VA.) Washington Nov. 1990 43 p Original contains color illustrations
(NAG1-730; RTOP 505-63-01-11)
(NASA-TP-3010; L-16726; NAS 1.60:3010) Avail: CASI HC A03/MF A01; 4 functional color pages

COMPOSITE STRUCTURES, FRAMES, GRAPHITE-EPOXY COMPOSITES, LAMINATES, STRUCTURAL ANALYSIS, STRUCTURAL VIBRATION, VIBRATION EFFECTS

N91-13751*# National Aeronautics and Space Administration, Langley Research Center, Hampton, VA.

FAILURE BEHAVIOR OF GENERIC METALLIC AND COMPOSITE AIRCRAFT STRUCTURAL COMPONENTS UNDER CRASH LOADS

HUEY D. CARDEN and MARTHA P. ROBINSON Washington Nov. 1990 48 p
(RTOP 505-63-01-11)
(NASA-RP-1239; L-16744; NAS 1.61:1239) Avail: CASI HC A03/MF A01

Failure behavior results are presented from crash dynamics research using concepts of aircraft elements and substructure not necessarily designed or optimized for energy absorption or crash loading considerations. To achieve desired new designs incorporating improved energy absorption capabilities often requires an understanding of how more conventional designs behave under crash loadings. Experimental and analytical data are presented which indicate some general trends in the failure behavior of a class of composite structures including individual fuselage frames, skeleton subfloors with stringers and floor beams without skin covering, and subfloors with skin added to the frame-stringer arrangement. Although the behavior is complex, a strong similarity in the static/dynamic failure behavior among these structures is illustrated through photographs of the experimental results and through analytical data of generic composite structural models.

Author

N91-16413*# National Aeronautics and Space Administration, Marshall Space Flight Center, Huntsville, AL.

PLATE AND BUTT-WELD STRESSES BEYOND ELASTIC LIMIT, MATERIAL AND STRUCTURAL MODELING

V. VERDERAIME Washington Jan. 1991 63 p
(NASA-TP-3075; M-654; NAS 1.60:3075) Avail: CASI HC A04/MF A01

AXIAL LOADS, BENDING, SAFETY FACTORS, STRESS ANALYSIS, STRESS-STRAIN RELATIONSHIPS, STRUCTURAL ANALYSIS, WELDED JOINTS

N91-20503*# National Aeronautics and Space Administration, Langley Research Center, Hampton, VA.

BUCKLING AND VIBRATION ANALYSIS OF A SIMPLY SUPPORTED COLUMN WITH A PIECEWISE CONSTANT CROSS SECTION

MARK S. LAKE and MARTIN M. MIKULAS, JR. Washington Mar. 1991 13 p
(RTOP 506-43-41-02)
(NASA-TP-3090; L-16854; NAS 1.60:3090) Avail: CASI HC A03/MF A01

BUCKLING, COLUMNS (SUPPORTS), DYNAMIC STRUCTURAL ANALYSIS, STRUCTURAL STABILITY, STRUCTURAL VIBRATION, TAPERING

N91-20506*# Computer Software Management and Information Center, Athens, GA.

NINETEENTH NASTRAN (R) USERS' COLLOQUIUM

Washington NASA Apr. 1991 194 p Colloquium held in Williamsburg, VA, 22-26 Apr. 1991 Sponsored by NASA, Washington
(NASA-CP-31111; NAS 1.55:31111) Avail: CASI HC A09/MF A03
CONFERENCES, FINITE ELEMENT METHOD, NASTRAN, STRUCTURAL ANALYSIS

N91-21556*# National Aeronautics and Space Administration, Langley Research Center, Hampton, VA.

DETERMINATION OF THE FLIGHT HARDWARE CONFIGURATION OF AN ENERGY ABSORBING ATTENUATOR FOR THE PROPOSED SPACE STATION CREW AND EQUIPMENT TRANSLATION AID CART

EDWIN L. FASANELLA (Lockheed Engineering and Sciences Co., Hampton, VA.), KAREN E. JACKSON (Army Aviation Research and Development Command, Hampton, VA.), LISA E. JONES (National Aeronautics and Space Administration, Langley Research Center, Hampton, VA.), and JOHN E. TETER, JR. 1991 58 p

39 STRUCTURAL MECHANICS

(RTOP 505-63-01-11)

(NASA-TP-3084; L-16852; NAS 1.60:3084; AD-A235901) Avail: CASI HC A04/MF A01

ATTENUATORS, BRAKES (FOR ARRESTING MOTION), CARTS, COLUMNS (SUPPORTS), HONEYCOMB STRUCTURES, RAIL TRANSPORTATION, SHOCK ABSORBERS, SPACE STATIONS

N91-22576*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

COMPUTATIONAL METHODS FOR FRICTIONLESS CONTACT WITH APPLICATION TO SPACE SHUTTLE ORBITER NOSE-GEAR TIRES

KYUN O. KIM (George Washington Univ., Hampton, VA.), JOHN A. TANNER (National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.), AHMED K. NOOR (Virginia Univ., Charlottesville.), and MARTHA P. ROBINSON Washington May 1991 36 p Original contains color illustrations

(RTOP 505-63-41-02)

(NASA-TP-3073; L-16750; NAS 1.60:3073) Avail: CASI HC A03/MF A01; 2 functional color pages

AIRCRAFT TIRES, COMPUTATION, FINITE ELEMENT METHOD, FRICTIONLESS ENVIRONMENTS, LANDING GEAR, ROCKET NOSE CONES, ROLLING CONTACT LOADS, SPACE SHUTTLE ORBITERS, VARIATIONAL PRINCIPLES

N91-24603*# Jet Propulsion Lab., California Inst. of Tech., Pasadena.

THE 25TH AEROSPACE MECHANISMS SYMPOSIUM

May 1991 346 p Symposium held in Pasadena, CA, 8-10 May 1991; sponsored by NASA, Washington, California Inst. of Tech., and LMSC

(NAS7-918)

(NASA-CP-3113; NAS 1.55:3113) Avail: CASI HC A15/MF A03

ACTUATORS, AEROSPACE ENGINEERING, CONFERENCES, CRYOGENICS, GROUND SUPPORT EQUIPMENT, LATCHES, ROBOTICS, TRIBOLOGY, VACUUM

N92-18053*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

EFFECT OF CRASH PULSE SHAPE ON SEAT STROKE REQUIREMENTS FOR LIMITING LOADS ON OCCUPANTS OF AIRCRAFT

HUEY D. CARDEN Washington Feb. 1992 23 p

(RTOP 505-63-50-09)

(NASA-TP-3126; L-16941; NAS 1.60:3126) Avail: CASI HC A03/MF A01

CRASHES, CRASHWORTHINESS, DYNAMIC TESTS, GENERAL AVIATION AIRCRAFT, LOADS (FORCES), SEATS, SHAPES

N92-19355*# National Aeronautics and Space Administration. Marshall Space Flight Center, Huntsville, AL.

STRUCTURAL DETERMINISTIC SAFETY FACTORS SELECTION CRITERIA AND VERIFICATION

V. VERDERAIME Feb. 1992 50 p

(NASA-TP-3203; M-683; NAS 1.60:3203) Avail: CASI HC A03/MF A01

METALS, PROBABILITY THEORY, RELIABILITY ANALYSIS, SAFETY FACTORS, STANDARD DEVIATION, STRESS ANALYSIS, STRUCTURAL FAILURE, STRUCTURAL RELIABILITY

N92-21457*# National Aeronautics and Space Administration. Marshall Space Flight Center, Huntsville, AL.

THE EFFECT OF ACCELERATION VERSUS DISPLACEMENT METHODS ON STEADY-STATE BOUNDARY FORCES

D. S. MCGHEE Washington NASA. Marshall Space Flight Center Apr. 1992 31 p

(NASA-TP-3218; M-686; NAS 1.60:3218) Avail: CASI HC A03/MF A01

CONSTRAINTS, COUPLED MODES, DYNAMIC STRUCTURAL ANALYSIS, LOADS (FORCES), MODAL RESPONSE, STEADY STATE, TRUNCATION ERRORS

N92-22227*# National Aeronautics and Space Administration. Lewis Research Center, Cleveland, OH.

IMPROVED ACCURACY FOR FINITE ELEMENT STRUCTURAL ANALYSIS VIA A NEW INTEGRATED FORCE METHOD

SURYA N. PATNAIK (Ohio Aerospace Inst., Brook Park.), DALE A. HOPKINS, ROBERT A. AIELLO, and LASZLO BERKE Apr. 1992 28 p

(RTOP 505-63-5B)

(NASA-TP-3204; E-5638; NAS 1.60:3204) Avail: CASI HC A03/MF A01

COMPUTER PROGRAMS, FINITE ELEMENT METHOD, MATHEMATICAL MODELS, MEASURE AND INTEGRATION, SOLID MECHANICS, STRESS-STRAIN RELATIONSHIPS, STRUCTURAL ANALYSIS

N92-23115*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

EXPERIMENTAL BEHAVIOR OF GRAPHITE-EPOXY Y-STIFFENED SPECIMENS LOADED IN COMPRESSION

P. DANIEL SYDOW and MARK J. SHUART May 1992 20 p

(RTOP 505-63-50-08)

(NASA-TP-3171; L-16918; NAS 1.60:3171) Avail: CASI HC A03/MF A01

COMPRESSION TESTS, GRAPHITE-EPOXY COMPOSITES, REINFORCED PLATES, STIFFENING, WEBS (SUPPORTS)

N92-24205*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

THERMAL AND STRUCTURAL TESTS OF RENE 41 HONEYCOMB INTEGRAL-TANK CONCEPT FOR FUTURE SPACE TRANSPORTATION SYSTEMS

JOHN L. SHIDELER, ROGER A. FIELDS, LAWRENCE F. REARDON, and LESLIE GONG (National Aeronautics and Space Administration. Hugh L. Dryden Flight Research Facility, Edwards, CA.) May 1992 77 p

(RTOP 506-43-71-05)

(NASA-TP-3145; L-16752; NAS 1.60:3145) Avail: CASI HC A05/MF A01

HIGH TEMPERATURE TESTS, HONEYCOMB STRUCTURES, RENE 41, SANDWICH STRUCTURES, STRAIN MEASUREMENT, STRESS ANALYSIS, THERMAL ANALYSIS

N92-24324*# Computer Software Management and Information Center, Athens, GA.

TWENTIETH NASTRAN (R) USERS' COLLOQUIUM

Washington NASA Apr. 1992 188 p Colloquium held in Colorado Springs, CO, 27 Apr. - 1 May 1992 Sponsored by NASA, Washington

(NASA-CP-3145; NAS 1.55:3145) Avail: CASI HC A09/MF A02

FINITE ELEMENT METHOD, NASTRAN, STRUCTURAL ANALYSIS

N92-24546*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

STIFFNESS AND STRENGTH TAILORING IN UNIFORM SPACE-FILLING TRUSS STRUCTURES

MARK S. LAKE Apr. 1992 30 p Presented at the Ninth DOD/NASA/FAA Conference on Fibrous Composites in Structural Design, Lake Tahoe, NV, 4-7 Nov. 1991

(RTOP 506-43-41-02)

(NASA-TP-3210; L-17001; NAS 1.60:3210) Avail: CASI HC A03/MF A01

CRYSTALLOGRAPHY, LOADS (FORCES), SPACECRAFT STRUCTURES, STIFFNESS, STRUCTURAL DESIGN, STRUCTURAL DESIGN CRITERIA, TRUSSES

N92-25067*# National Aeronautics and Space Administration. Goddard Space Flight Center, Greenbelt, MD.

THE 26TH AEROSPACE MECHANISMS SYMPOSIUM

Washington May 1992 386 p Symposium held in Greenbelt,

MD, 13-15 May 1992; sponsored by NASA, Washington, California Inst. of Tech., and LMSC
(NASA-CP-3147; REPT-92B00052; NAS 1.55:3147) Avail: CASI HC A17/MF A04

ACTUATORS, AEROSPACE ENGINEERING, CONFERENCES, CONNECTORS, LARGE SPACE STRUCTURES, LATCHES

N92-25911*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

COMPUTATIONAL STRUCTURES TECHNOLOGY FOR AIRFRAMES AND PROPULSION SYSTEMS

AHMED K. NOOR, comp. (Virginia Univ., Hampton.), JERROLD M. HOUSNER, comp., JAMES H. STARNES, JR., comp., DALE A. HOPKINS, comp., and CHRISTOS C. CHAMIS, comp. (National Aeronautics and Space Administration. Lewis Research Center, Cleveland, OH.) Washington May 1992 516 p Workshops held in Cleveland, OH, 26-27 Jun. 1991 and in Hampton, VA, 4-5 Sep. 1991; sponsored by NASA, Washington and Virginia Univ., Hampton

(RTOP 505-63-53-01)

(NASA-CP-3142; L-17049; NAS 1.55:3142) Avail: CASI HC A22/MF A04

AIRCRAFT DESIGN, AIRCRAFT STRUCTURES, AIRFRAMES, CIVIL AVIATION, COMPUTER AIDED DESIGN, CONFERENCES, PROPULSION SYSTEM CONFIGURATIONS, SPACECRAFT DESIGN, SPACECRAFT STRUCTURES, STRUCTURAL ANALYSIS, STRUCTURAL DESIGN, SUPERSONIC TRANSPORTS

N92-25997*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

STRESS CONCENTRATIONS FOR STRAIGHT-SHANK AND COUNTERSUNK HOLES IN PLATES SUBJECTED TO TENSION, BENDING, AND PIN LOADING

K. N. SHIVAKUMAR (Analytical Services and Materials, Inc., Hampton, VA.) and J. C. NEWMAN, JR. Jun. 1992 36 p (RTOP 505-63-50-04)

(NASA-TP-3192; L-17027; NAS 1.60:3192) Avail: CASI HC A03/MF A01

BEND TESTS, FINITE ELEMENT METHOD, HOLES (MECHANICS), STRESS CONCENTRATION, TENSILE TESTS, THREE DIMENSIONAL MODELS

N92-26537*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

IDENTIFICATION OF LINEAR SYSTEMS BY AN ASYMPTOTICALLY STABLE OBSERVER

MINH Q. PHAN, LUCAS G. HORTA, JER-NAN JUANG, and RICHARD W. LONGMAN (Columbia Univ., New York, NY.) Jun. 1992 69 p

(RTOP 590-14-61-01)

(NASA-TP-3164; L-16940; NAS 1.60:3164) Avail: CASI HC A04/MF A01

EIGENVALUES, LINEAR SYSTEMS, MARKOV PROCESSES, NUMERICAL STABILITY, SYSTEM IDENTIFICATION

N92-26669*# National Aeronautics and Space Administration. Marshall Space Flight Center, Huntsville, AL.

EFFECT OF TYPE OF LOAD ON STRESS ANALYSIS OF THIN-WALLED DUCTS

J. B. MIN and P. K. AGGARWAL Jun. 1992 18 p (NASA-TP-3248; M-688; NAS 1.60:3248) Avail: CASI HC A03/MF A01

DUCTS, LOADS (FORCES), PIPES (TUBES), SPACE SHUTTLE MAIN ENGINE, STRESS ANALYSIS, THIN WALLS

N92-27974*# National Aeronautics and Space Administration. Lyndon B. Johnson Space Center, Houston, TX.

DEVELOPMENT OF A TRUSS JOINT FOR ROBOTIC ASSEMBLY OF SPACE STRUCTURES

GEORGE F. PARMA Jul. 1992 31 p (RTOP 472-46-07-17)

(NASA-TP-3214; S-763; NAS 1.60:3214) Avail: CASI HC A03/MF A01

FASTENERS, LARGE SPACE STRUCTURES, ORBITAL ASSEMBLY, ROBOTS, SPACE COMMERCIALIZATION, SPACE ERECTABLE STRUCTURES, TRUSSES

N92-28620*# National Aeronautics and Space Administration. Goddard Space Flight Center, Greenbelt, MD.

TYPES AND CHARACTERISTICS OF DATA FOR GEOMAGNETIC FIELD MODELING

R. A. LANGEL, ed. and R. T. BALDWIN, ed. (Hughes STX, Inc., Lanham, MD.) Washington Jun. 1992 353 p Symposium held in Vienna, Austria, 23 Aug. 1991

(NASA-CP-3153; REPT-92B00061; NAS 1.55:3153) Avail: CASI HC A16/MF A03

CONFERENCES, DATA REDUCTION, GEODESY, GEOMAGNETISM, GEOPHYSICS

N92-30106*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

THE 1991 INTERNATIONAL CONFERENCE ON AGING AIRCRAFT AND STRUCTURAL AIRWORTHINESS

CHARLES E. HARRIS, ed. Washington Jul. 1992 470 p Conference held in Washington, DC, 19-21 Nov. 1991; sponsored by NASA, Washington and FAA

(RTOP 538-02-10-01)

(NASA-CP-3160; L-17094; NAS 1.55:3160) Avail: CASI HC A20/MF A04

AGING (MATERIALS), AIRCRAFT INDUSTRY, AIRCRAFT MAINTENANCE, AIRCRAFT PERFORMANCE, AIRCRAFT RELIABILITY, AIRCRAFT STRUCTURES, CONFERENCES, NONDESTRUCTIVE TESTS

N92-31279*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

ANALYSIS AND PREDICTION OF MULTIPLE-SITE DAMAGE (MSD) FATIGUE CRACK GROWTH

D. S. DAWICKE (Analytical Mechanics Associates, Inc., Hampton, VA.) and J. C. NEWMAN, JR. Aug. 1992 18 p (RTOP 505-63-50-04)

(NASA-TP-3231; L-17006; NAS 1.60:3231) Avail: CASI HC A03/MF A01

BOUNDARY ELEMENT METHOD, CRACK PROPAGATION, CRACKING (FRACTURING), DAMAGE, FATIGUE (MATERIALS), STRESS INTENSITY FACTORS

N92-31280*# National Aeronautics and Space Administration. Marshall Space Flight Center, Huntsville, AL.

APPLICATIONS OF FEM AND BEM IN TWO-DIMENSIONAL FRACTURE MECHANICS PROBLEMS

J. B. MIN, B. E. STEEVE, and G. R. SWANSON Aug. 1992 23 p

(NASA-TP-3277; M-695; NAS 1.60:3277) Avail: CASI HC A03/MF A01

BOUNDARIES, BOUNDARY ELEMENT METHOD, CRACK TIPS, ELASTIC PLATES, FINITE ELEMENT METHOD, FRACTURE MECHANICS, PLANE STRAIN, STRESS INTENSITY FACTORS

N92-33476*# National Aeronautics and Space Administration. Lewis Research Center, Cleveland, OH.

INFLUENCE OF MASS MOMENT OF INERTIA ON NORMAL MODES OF PRELOADED SOLAR ARRAY MAST

SASAN C. ARMAND and PAUL LIN (Cleveland State Univ., OH.) Aug. 1992 12 p

(RTOP 474-46-10)

(NASA-TP-3273; E-6847; NAS 1.60:3273) Avail: CASI HC A03/MF A01

BEAMS (SUPPORTS), BENDING, DYNAMIC CHARACTERISTICS, DYNAMIC STRUCTURAL ANALYSIS, MOMENTS OF INERTIA, SOLAR ARRAYS, SPACECRAFT ANTENNAS, SPACECRAFT STRUCTURES, VIBRATION MODE

GEOSCIENCES (GENERAL)

N91-20541*# National Aeronautics and Space Administration. Goddard Space Flight Center, Greenbelt, MD.

WEST ANTARCTIC ICE SHEET INITIATIVE. VOLUME 1: SCIENCE AND IMPLEMENTATION PLAN

ROBERT A. BINDSCHADLER, ed. Washington Apr. 1990 61 p Conference held in Greenbelt, MD, 16-18 Oct. 1990 (NSF DPP-90-17562)

(NASA-CP-3115-VOL-1; REPT-91A01040-VOL-1; NAS 1.55:3115-VOL-1) Avail: CASI HC A04/MF A01

ANTARCTIC REGIONS, CLIMATE CHANGE, ICE, ICE ENVIRONMENTS, METEOROLOGICAL PARAMETERS, PREDICTION ANALYSIS TECHNIQUES

N91-26573*# National Aeronautics and Space Administration. Goddard Space Flight Center, Greenbelt, MD.

WEST ANTARCTIC ICE SHEET INITIATIVE. VOLUME 2: DISCIPLINE REVIEWS

ROBERT A. BINDSCHADLER, ed. Washington May 1991 147 p Workshop held in Greenbelt, MD, 16-18 Oct. 1990; sponsored in part by NASA, Washington, and NSF, Washington, DC

(NASA-CP-3115-VOL-2; REPT-91A01040-VOL-2; NAS 1.55:3115-VOL-2) Avail: CASI HC A07/MF A02

ANTARCTIC REGIONS, CLIMATOLOGY, ICE, SEA LEVEL

EARTH RESOURCES AND REMOTE SENSING

Includes remote sensing of earth resources by aircraft and spacecraft; photogrammetry; and aerial photography.

N91-15615*# National Aeronautics and Space Administration. Goddard Space Flight Center, Greenbelt, MD.

MULTISOURCE DATA INTEGRATION IN REMOTE SENSING

JAMES C. TILTON, ed. Washington Jan. 1991 155 p Workshop held in College Park, MD, 14-15 Jun. 1990; sponsored by NASA. Goddard Space Flight Center and IEEE

(NASA-CP-3099; REPT-90B00122; NAS 1.55:3099) Avail: CASI HC A08/MF A02

DATA ACQUISITION, DATA INTEGRATION, IMAGE ANALYSIS, IMAGE PROCESSING, MULTISENSOR APPLICATIONS, REMOTE SENSING, REMOTE SENSORS

N91-30588*# National Aeronautics and Space Administration, Washington, DC.

EARTH OBSERVATIONS AND GLOBAL CHANGE DECISION MAKING: A SPECIAL BIBLIOGRAPHY, 1991

Jun. 1991 99 p

(NASA-SP-7092; NAS 1.21:7092) Avail: CASI HC A05/MF A02

The first section of the bibliography contains 294 bibliographic citations and abstracts of relevant reports, articles, and documents announced in 'Scientific and Technical Aerospace Reports (STAR)' and 'International Aerospace Abstracts (IAA)'. These abstracts are categorized by the following major subject divisions: aeronautics, astronautics, chemistry and materials, engineering, geosciences, life sciences, mathematical and computer sciences, physics, social sciences, space sciences and general. Following the abstract section, seven indexes are provided for further assistance.

Author

N91-32528*# National Aeronautics and Space Administration. Ames Research Center, Moffett Field, CA.

INTERNATIONAL WORKSHOP ON STRATOSPHERIC

AEROSOLS: MEASUREMENTS, PROPERTIES, AND EFFECTS

RUDOLF F. PUESCHEL, ed. Feb. 1991 76 p Workshop held at Moffett Field, CA, 27-30 Mar. 1990; sponsored in part by IAMAP Radiation Commission and the NASA Upper Atmosphere Research Program

(RTOP 573-01-21-04)

(NASA-CP-3114; A-90293; NAS 1.55:3114) Avail: CASI HC A05/MF A01

AEROSOLS, CLIMATOLOGY, ICE CLOUDS, POLAR METEOROLOGY, SOOT, STRATOSPHERE, VOLCANOES

N92-10208*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

MISSION DESCRIPTION AND IN-FLIGHT OPERATIONS OF ERBE INSTRUMENTS ON ERBS AND NOAA 9 SPACECRAFT, NOVEMBER 1984 - JANUARY 1986

WILLIAM L. WEAVER (ST Systems Corp., Hampton, VA.), KATHRYN A. BUSH (ST Systems Corp., Hampton, VA.), CHRIS J. HARRIS (ST Systems Corp., Hampton, VA.), CLAYTON E. HOWERTON, and CAROL J. TOLSON (STX Corp., Hampton, VA.) Washington Aug. 1991 282 p

(RTOP 665-45-20)

(NASA-RP-1256; L-16895; NAS 1.61:1256) Avail: CASI HC A13/MF A03

Instruments of the Earth Radiation Budget Experiment (ERBE) are operating on three different Earth orbiting spacecrafts: the Earth Radiation Budget Satellite (ERBS), NOAA-9, and NOAA-10. An overview is presented of the ERBE mission, in-orbit environments, and instrument design and operational features. An overview of science data processing and validation procedures is also presented. In-flight operations are described for the ERBE instruments aboard the ERBS and NOAA-9. Calibration and other operational procedures are described, and operational and instrument housekeeping data are presented and discussed.

Author

N92-32127*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

MISSION DESCRIPTION AND IN-FLIGHT OPERATIONS OF ERBE INSTRUMENTS ON ERBS, NOAA 9, AND NOAA 10 SPACECRAFT Report, Feb. 1986 - Jan. 1987

WILLIAM L. WEAVER, KATHRYN A. BUSH (ST Systems Corp., Hampton, VA.), KEITH T. DEGNAN (ST Systems Corp., Hampton, VA.), CLAYTON E. HOWERTON (ST Systems Corp., Hampton, VA.), and CAROL J. TOLSON (ST Systems Corp., Hampton, VA.) Aug. 1992 217 p

(RTOP 665-45-20)

(NASA-RP-1279; L-17069; NAS 1.61:1279) Avail: CASI HC A10/MF A03

Instruments of the Earth Radiation Budget Experiment (ERBE) are operating on three different Earth-orbiting spacecraft. The Earth Radiation Budget Satellite (ERBS) is operated by NASA, and NOAA 9 and NOAA 10 weather satellites are operated by the National Oceanic and Atmospheric Administration (NOAA). This paper is the second in a series that describes the ERBE mission, and data processing and validation procedures. This paper describes the spacecraft and instrument operations for the second full year of in-orbit operations, which extend from February 1986 through January 1987. Validation and archival of radiation measurements made by ERBE instruments during this second year of operation were completed in July 1991. This period includes the only time, November 1986 through January 1987, during which all ERBE instruments aboard the ERBE, NOAA 9, and NOAA 10 spacecraft were simultaneously operational. This paper covers normal and special operations of the spacecraft and instruments, operational anomalies, and the responses of the instruments to in-orbit and seasonal variations in the solar environment.

Author

44

ENERGY PRODUCTION AND CONVERSION

Includes specific energy conversion systems, e.g., fuel cells; global sources of energy; geophysical conversion; and windpower.

N91-32549*# National Aeronautics and Space Administration. Lewis Research Center, Cleveland, OH.

SPACE ELECTROCHEMICAL RESEARCH AND TECHNOLOGY
Sep. 1991 244 p Third Conference held in Cleveland, OH,
9-10 Apr. 1991

(RTOP 506-41-21)
(NASA-CP-3125; E-6089; NAS 1.55:3125) Avail: CASI HC
A11/MF A03

ELECTRIC BATTERIES, ELECTROCHEMISTRY, FUEL CELLS

N92-22740*# National Aeronautics and Space Administration. Marshall Space Flight Center, Huntsville, AL.

THE 1991 NASA AEROSPACE BATTERY WORKSHOP
JEFFREY C. BREWER, comp. Washington Feb. 1992 855 p
Workshop held in Huntsville, AL, 29-31 Oct. 1991

(NASA-CP-3140; M-682; NAS 1.55:3140) Avail: CASI HC
A99/MF A10

CONFERENCES, ELECTRIC BATTERIES, METAL AIR
BATTERIES, NICKEL CADMIUM BATTERIES, NICKEL
HYDROGEN BATTERIES, SILVER ZINC BATTERIES, SODIUM
SULFUR BATTERIES, SPACECRAFT POWER SUPPLIES,
ZINC-OXYGEN BATTERIES

N92-26895*# Lockheed Missiles and Space Co., Sunnyvale, CA.

**MILSTAR'S FLEXIBLE SUBSTRATE SOLAR ARRAY: LESSONS
LEARNED, ADDENDUM**

JOHN GIBB 1990 17 p Presented at the 26th Aerospace
Mechanisms Symposium
(NASA-CP-3147-ADD; NAS 1.55:3147-ADD) Avail: CASI HC
A03/MF A01

SOLAR ARRAYS, SPACE STATION FREEDOM

45

ENVIRONMENT POLLUTION

Includes atmospheric, noise, thermal, and water pollution.

N91-16466*# National Aeronautics and Space Administration, Washington, DC.

**THE ATMOSPHERIC EFFECTS OF STRATOSPHERIC
AIRCRAFT: A TOPICAL REVIEW**

HAROLD S. JOHNSTON (California Univ., Berkeley.), M. J.
PRATHER, and R. T. WATSON Jan. 1991 32 p
(NASA-RP-1250; NAS 1.61:1250) Avail: CASI HC A03/MF A01

In the late 1960s the aircraft industry became interested in developing a fleet of supersonic transports (SSTs). Between 1972 and 1975, the Climatic Impact Assessment Program (CIAP) studied the possible environmental impact of SSTs. For environmental and economic reasons, the fleet of SSTs was not developed. The Upper Atmosphere Research Program (UARP) has recently undertaken the responsibility of directing scientific research needed to assess the atmospheric impact of supersonic transports. The UARP and the High-Speed Research Program asked Harold Johnston to review the current understanding of aircraft emissions and their effect on the stratosphere. Johnston and his colleagues have recently re-examined the SST problem using current models for stratospheric ozone chemistry. A unique view is given here of the current scientific issues and the lessons learned since the beginning of CIAP, and it links the current research program with the assessment process that began two years ago. Author

N91-16467*# National Aeronautics and Space Administration. Goddard Space Flight Center, Greenbelt, MD.

**THE ATMOSPHERIC EFFECTS OF STRATOSPHERIC
AIRCRAFT: A CURRENT CONSENSUS**

A. R. DOUGLASS (National Aeronautics and Space Administration. Goddard Space Flight Center, Greenbelt, MD.), M. A. CARROLL (National Oceanic and Atmospheric Administration, Boulder, CO.), W. B. DEMORE (Jet Propulsion Lab., California Inst. of Tech., Pasadena.), J. R. HOLTON (Washington Univ., Seattle.), I. S. A. ISAKSEN (Oslo Univ. (Norway).), H. S. JOHNSTON (California Univ., Berkeley.), and M. K. W. KO (Atmospheric and Environmental Research, Inc., Cambridge, MA.) Jan. 1991 46 p
(NASA-RP-1251; NAS 1.61:1251) Avail: CASI HC A03/MF A01

In the early 1970's, a fleet of supersonic aircraft flying in the lower stratosphere was proposed. A large fleet was never built for economic, political, and environmental reasons. Technological improvements may make it economically feasible to develop supersonic aircraft for current markets. Some key results of earlier scientific programs designed to assess the impact of aircraft emissions on stratospheric ozone are reviewed, and factors that must be considered to assess the environmental impact of aircraft exhaust are discussed. These include the amount of nitrogen oxides injected in the stratosphere, horizontal transport, and stratosphere/troposphere assessment models are presented. Areas in which improvements in scientific understanding and model representation must be made to reduce the uncertainty in model calculations are identified. Author

N92-19121*# National Aeronautics and Space Administration, Washington, DC.

**THE ATMOSPHERIC EFFECTS OF STRATOSPHERIC
AIRCRAFT: A FIRST PROGRAM REPORT**

MICHAEL J. PRATHER, HOWARD L. WESOKY, RICHARD C.
MIAKE-LYE, ANNE R. DOUGLASS, RICHARD P. TURCO, DONALD
J. WUEBBLES, MALCOLM K. W. KO, and ARTHUR L.
SCHMELTEKOPF (National Oceanic and Atmospheric
Administration, Washington, DC.) Jan. 1992 227 p
(NASA-RP-1272; NAS 1.61:1272) Avail: CASI HC A11/MF A03

Studies have indicated that, with sufficient technology development, high speed civil transport aircraft could be economically competitive with long haul subsonic aircraft. However, uncertainty about atmospheric pollution, along with community noise and sonic boom, continues to be a major concern; and this is addressed in the planned 6 yr HSRP begun in 1990. Building on NASA's research in atmospheric science and emissions reduction, the AESA studies particularly emphasizing stratospheric ozone effects. Because it will not be possible to directly measure the impact of an HSCT aircraft fleet on the atmosphere, the only means of assessment will be prediction. The process of establishing credibility for the predicted effects will likely be complex and involve continued model development and testing against climatological patterns. Lab simulation of heterogeneous chemistry and other effects will continue to be used to improve the current models. For individual titles, see N92-19122 through N92-19127.

46

GEOPHYSICS

Includes aeronomy; upper and lower atmosphere studies; ionospheric and magnetospheric physics; and geomagnetism.

N91-18505*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

**SAM 2 MEASUREMENTS OF THE POLAR STRATOSPHERIC
AEROSOL. VOLUME 9: OCTOBER 1982 - APRIL 1983**

L. R. MCMASTER (National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.) and K. A. POWELL (ST Systems Corp., Hampton, VA.) Washington Feb. 1991 77 p

(RTOP 665-10-40-04)

(NASA-RP-1244; L-16802-VOL-9; NAS 1.61:1244) Avail: CASI HC A05/MF A01

The Stratospheric Aerosol Measurement (SAM) II sensor aboard Nimbus 7 is providing 1.0 micron extinction measurements of Antarctic and Arctic stratospheric aerosols with a vertical resolution of 1 km. Representative examples and weekly averages including corresponding temperature profiles provided by NOAA for the time and place of each SAM II measurement are presented. Contours of aerosol extinction as a function of altitude and longitude or time are plotted, and aerosol optical depths are calculated for each week. Typical values of aerosol extinction and stratospheric optical depth in the Arctic are unusually large due to the presence of material from the El Chichon volcano eruption in the Spring of 1982. For example, the optical depth peaked at 0.068, more than 50 times background values. Typical values of aerosol extinction and stratospheric optical depth in the Antarctic varied considerably during this period due to the transport and arrival of the material from the El Chichon eruption. For example, the stratospheric optical depth varied from 0.002 in October 1982, to 0.021 in January 1983. Polar stratospheric clouds were observed during the Arctic winter, as expected. A representative sample is provided of the ninth 6-month period of data to be used in atmospheric and climatic studies.

Author

N91-21641*# National Aeronautics and Space Administration. Goddard Space Flight Center, Greenbelt, MD.

VOLCANISM-CLIMATE INTERACTIONS

LOUIS S. WALTER, ed. and SHANAKA DESILVA, ed. (Lunar and Planetary Inst., Houston, TX.) Washington Feb. 1991 145 p Workshop held in College Park, MD, 18-19 Jun. 1990 (RTOP 465-44-11)

(NASA-CP-10062; REPT-91B00055; NAS 1.55:10062) Avail: CASI HC A07/MF A02

AEROSOLS, ATMOSPHERIC CHEMISTRY, ATMOSPHERIC MODELS, CLIMATE, CLOUD PHYSICS, CONFERENCES, GEOLOGY, PARTICLE SIZE DISTRIBUTION, VOLCANOLOGY

N92-32655*# National Aeronautics and Space Administration. Goddard Space Flight Center, Greenbelt, MD.

STEADY INDUCTION EFFECTS IN GEOMAGNETISM. PART 1A: STEADY MOTIONAL INDUCTION OF GEOMAGNETIC CHAOS

COERTE V. VOORHIES Sep. 1992 31 p (NASA-TP-3272-PT-1A; NAS 1.60:3272-PT-1A; REPT-92B00100) Avail: CASI HC A03/MF A01

CHAOS, CORE FLOW, GEOMAGNETISM, KINEMATICS, MAGNETIC EFFECTS, MAGNETIC FLUX, MAGNETIC INDUCTION, PALEOMAGNETISM

N92-33097*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

SAGE 1 DATA USER'S GUIDE

LEONARD R. MCMASTER, WILLIAM P. CHU, and MICHAEL W. ROWLAND (ST Systems Corp., Hampton, VA.) Aug. 1992 26 p

(RTOP 665-45-30-21)

(NASA-RP-1275; L-16879; NAS 1.61:1275) Avail: CASI HC A03/MF A01

A guide for using the data products from the Stratospheric Aerosol and Gas Experiment 1 (SAGE 1) for scientific investigations of stratospheric chemistry related to aerosol, ozone, nitrogen dioxide, dynamics, and climate change is presented. A detailed description of the aerosol profile tape, the ozone profile tape, and the nitrogen dioxide profile tape is included. These tapes are the SAGE 1 data products containing aerosol extinction data and ozone and nitrogen dioxide concentration data for use in the different scientific investigations. Brief descriptions of the instrument operation, data collection, processing, and validation, and some of the scientific analyses that were conducted are also included.

Author

METEOROLOGY AND CLIMATOLOGY

Includes weather forecasting and modification.

N91-10448*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

FIRE SCIENCE RESULTS 1988

DAVID S. MCDOUGAL, ed. and H. SCOTT WAGNER, ed. Washington Jul. 1990 394 p Workshop held in Vail, CO, 11-15 Jul. 1988; sponsored in cooperation with NASA, NSF, ONR, DOE, AFGL, and NOAA

(RTOP 672-22-10-70)

(NASA-CP-3083; L-16814; NAS 1.55:3083) Avail: CASI HC A17/MF A04

CIRRUS CLOUDS, CLIMATOLOGY, CONFERENCES, FIRE (CLIMATOLOGY), MARINE METEOROLOGY, PARAMETERIZATION, SATELLITE OBSERVATION, STRATOCUMULUS CLOUDS

N91-13043*# National Aeronautics and Space Administration. Goddard Space Flight Center, Greenbelt, MD.

USER'S GUIDE: NIMBUS-7 EARTH RADIATION BUDGET NARROW-FIELD-OF-VIEW PRODUCTS. SCENE RADIANCE TAPE PRODUCTS, SORTING INTO ANGULAR BINS PRODUCTS, AND MAXIMUM LIKELIHOOD CLOUD ESTIMATION PRODUCTS

H. LEE KYLE (National Aeronautics and Space Administration. Goddard Space Flight Center, Greenbelt, MD.), RICHARD R. HUCEK (Research and Data Systems, Inc., Greenbelt, MD.), BRIAN GROVEMAN (Research and Data Systems, Inc., Greenbelt, MD.), and RICHARD FREY (Research and Data Systems, Inc., Greenbelt, MD.) Nov. 1990 77 p

(NAS5-29373)

(NASA-RP-1246; REPT-90B00143; NAS 1.61:1246) Avail: CASI HC A05/MF A01

The archived Earth radiation budget (ERB) products produced from the Nimbus-7 ERB narrow field-of-view scanner are described. The principal products are broadband outgoing longwave radiation (4.5 to 50 microns), reflected solar radiation (0.2 to 4.8 microns), and the net radiation. Daily and monthly averages are presented on a fixed global equal area (500 sq km), grid for the period May 1979 to May 1980. Two independent algorithms are used to estimate the outgoing fluxes from the observed radiances. The algorithms are described and the results compared. The products are divided into three subsets: the Scene Radiance Tapes (SRT) contain the calibrated radiances; the Sorting into Angular Bins (SAB) tape contains the SAB produced shortwave, longwave, and net radiation products; and the Maximum Likelihood Cloud Estimation (MLCE) tapes contain the MLCE products. The tape formats are described in detail.

Author

N91-14683*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

LIMB-DARKENING FUNCTIONS AS DERIVED FROM ALONG-TRACK OPERATION OF THE ERBE SCANNING RADIOMETERS FOR AUGUST 1985

G. LOUIS SMITH (National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.), NATIVIDAD D. MANALO (Lockheed Engineering and Sciences Co., Hampton, VA.), and LEE M. AVIS Washington Dec. 1990 41 p

(RTOP 672-40-05-70)

(NASA-RP-1243; L-16779; NAS 1.61:1243) Avail: CASI HC A03/MF A01

During August 1985, the scanning radiometers of the Earth Radiation Budget Experiment aboard the Earth Radiation Budget Satellite (ERBS) and the NOAA-9 satellite were operated in along-track scanning modes. These data were analyzed to produce limb darkening functions for Earth-emitted radiation, which relates the radiance in any given direction to the radiant exitance. Limb

darkening functions are presented and shown as figures for day and night for each spacecraft. The scene types were computed using measurements within 10 deg of zenith. The models have values near zenith of 1.02 to 1.09, with values near 1.06 being typical. The typical value of the model is 1.06 for both day and night for ERBS, and for NOAA-9, the typical value at zenith is 1.06 for day and 1.05 for night. Mean models are formed for the ERBS and for the NOAA-9 results and are found to differ less than 1 percent, the ERBS results being the higher. The models vary about 1 percent with latitude near zenith. Author

N91-16500*# National Aeronautics and Space Administration. Marshall Space Flight Center, Huntsville, AL.
NASA/MSFC FY90 GLOBAL SCALE ATMOSPHERIC PROCESSES RESEARCH PROGRAM REVIEW
 FRED W. LESLIE, ed. Washington Oct. 1990 58 p Conference held in Huntsville, AL, 20-21 Aug. 1990
 (NASA-CP-3093; M-651; NAS 1.55:3093) Avail: CASI HC A04/MF A01

ATMOSPHERIC CIRCULATION, ATMOSPHERIC MODELS, ATMOSPHERIC PHYSICS, ATMOSPHERIC SOUNDING, EARTH ATMOSPHERE, GLOBAL ATMOSPHERIC RESEARCH PROGRAM, METEOROLOGY, NUMERICAL WEATHER FORECASTING, REMOTE SENSING, WEATHER

N91-24719*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.
ATLAS OF WIDE-FIELD-OF-VIEW OUTGOING LONGWAVE RADIATION DERIVED FROM NIMBUS 7 EARTH RADIATION BUDGET DATA SET, NOVEMBER 1985 TO OCTOBER 1987
 T. DALE BESS and G. LOUIS SMITH Washington Jun. 1991 53 p
 (RTOP 665-45-30-01)
 (NASA-RP-1261; L-16934; NAS 1.61:1261) Avail: CASI HC A04/MF A01

An atlas of monthly outgoing longwave radiation global contour maps and associated spherical harmonic coefficients is presented. The atlas contains 23 months of data from November 1985 to October 1987. The data were derived from the second Earth Radiation Budget (ERB) package, which was flown on the Nimbus 7 Sun-synchronous satellite in 1987. This data set is a companion set and extension to similar atlases that documented 10 years of outgoing longwave radiation results from Nimbus 6 and Nimbus 7 satellites. This atlas and the companion atlases give a data set covering a 12-year time period and will be very useful in studying different aspects of our changing climate. The data set also provides a 3-year overlap with the current Earth Radiation Budget Experiment (ERBE). Author

N91-24720*# National Aeronautics and Space Administration. Goddard Space Flight Center, Greenbelt, MD.
ATLAS OF THE EARTH'S RADIATION BUDGET AS MEASURED BY NIMBUS-7: MAY 1979 TO MAY 1980
 H. LEE KYLE (National Aeronautics and Space Administration, Goddard Space Flight Center, Greenbelt, MD.), RICHARD R. HUCEK (Research and Data Systems, Inc., Greenbelt, MD.), and BRENDA J. VALLETTE (Research and Data Systems, Inc., Greenbelt, MD.) Washington May 1991 137 p
 (NAS5-29373)
 (NASA-RP-1263; NAS 1.61:1263; REPT-91B00081) Avail: CASI HC A07/MF A02

This atlas describes the seasonal changes in the Earth's radiation budget for the 13-month period, May 1979 to May 1980. It helps to illustrate the strong feedback mechanisms by which the Earth's climate interacts with the top-of-the-atmosphere insolation to modify the energy that various regions absorb from the Sun. Cloud type and cloud amount, which are linked to the surface temperature and the regional climate, are key elements in this interaction. Annual, seasonal, and monthly maps of the albedo, outgoing longwave and net radiation, noontime cloud cover, and mean diurnal surface temperatures are presented. Annual and seasonal net cloud forcing maps are also given. All of the quantities were derived from Nimbus-7 satellite measurements except for

the temperatures, which were used in the cloud detection algorithm and came originally from the Air Force 3-dimensional nephanalysis dataset. The seasonal changes are described. The interaction of clouds and the radiation budget is briefly discussed. Author

N91-25556*# National Aeronautics and Space Administration. Goddard Space Flight Center, Greenbelt, MD.
THE ROLE OF WATER VAPOR IN CLIMATE. A STRATEGIC RESEARCH PLAN FOR THE PROPOSED GEWEX WATER VAPOR PROJECT (GVAP)
 D. OC. STARR, ed. and S. HARVEY MELFI, ed. Washington Jul. 1991 54 p Workshop held in Easton, MD, 30 Oct. - 1 Nov. 1990; sponsored by NASA and the GEWEX Science Steering Group
 (NASA-CP-3120; REPT-91B00108; NAS 1.55:3120) Avail: CASI HC A04/MF A01

ATMOSPHERIC MOISTURE, CLIMATE, CLIMATE CHANGE, ENERGY BUDGETS, PRECIPITATION (METEOROLOGY), WATER VAPOR

N91-26651*# National Aeronautics and Space Administration. Goddard Space Flight Center, Greenbelt, MD.
NIMBUS-7 TOMS ANTARCTIC OZONE ATLAS: AUGUST - DECEMBER 1990
 ARLIN J. KRUEGER (National Aeronautics and Space Administration, Goddard Space Flight Center, Greenbelt, MD.), LANNING M. PENN (Research and Data Systems, Inc., Greenbelt, MD.), PATRICIA T. GUIMARAES (ST Systems Corp., Vienna, VA.), COURTNEY J. SCOTT (ST Systems Corp., Vienna, VA.), DAVID E. LARKO (ST Systems Corp., Vienna, VA.), and SCOTT D. DOIRON (ST Systems Corp., Vienna, VA.) Washington Jun. 1991 216 p
 (NAS5-29373)
 (NASA-RP-1264; REPT-91B00103; NAS 1.61:1264) Avail: CASI HC A10/MF A03

Because of the great environmental significance of ozone and to support continuing research at the Antarctic and other Southern Hemisphere stations, the development of the 1990 ozone hole was monitored using data from the Nimbus-7 Total Ozone Mapping Spectrometer (TOMS) instrument, produced in near-real-time. This Atlas provides a complete set of daily polar orthographic projections of the TOMS total ozone measurements over the Southern Hemisphere for the period 1 Aug. through 31 Dec. 1990. The 1990 ozone hole developed in a manner similar to that of 1987 and 1989, reaching a comparable depth in early October. This was in sharp contrast to the much weaker hold of 1988. The 1990 ozone hole remained at polar latitudes as it filled in Nov., in contrast to other recent years when the hold drifted to mid-latitudes before disappearing. Daily ozone values above selected Southern Hemisphere stations are presented, along with comparisons of the 1990 ozone distribution to that of other years. A new calibration scheme (Version 6) was used to process 1990 ozone values, as well as to reprocess those of previous years. Author

N91-32599*# National Aeronautics and Space Administration. John F. Kennedy Space Center, Cocoa Beach, FL.
THE 1991 INTERNATIONAL AEROSPACE AND GROUND CONFERENCE ON LIGHTNING AND STATIC ELECTRICITY, VOLUME 1
 Aug. 1991 626 p Conference held in Cocoa Beach, FL, 16-19 Apr. 1991; sponsored in part by NASA, the National Interagency Coordination Group, and Florida Inst. of Tech.
 (NASA-CP-3106-VOL-1; NAS 1.55:3106-VOL-1) Avail: CASI HC A99/MF A06

AEROSPACE VEHICLES, AIRCRAFT HAZARDS, AVIATION METEOROLOGY, CONFERENCES, ELECTROSTATICS, FLIGHT HAZARDS, LIGHTNING, LIGHTNING SUPPRESSION, STATIC ELECTRICITY

N91-32660*# National Aeronautics and Space Administration. Marshall Space Flight Center, Huntsville, AL.
NASA/MSFC FY91 GLOBAL SCALE ATMOSPHERIC PROCESSES RESEARCH PROGRAM REVIEW

47 METEOROLOGY AND CLIMATOLOGY

FRED W. LESLIE, ed. Washington Sep. 1991 94 p Conference held in Huntsville, AL, 28-31 May 1991 (NASA-CP-3126; M-669; NAS 1.55:3126) Avail: CASI HC A05/MF A01

ATMOSPHERIC PHYSICS, DATA PROCESSING, EARTH ATMOSPHERE, EARTH OBSERVATIONS (FROM SPACE), METEOROLOGICAL PARAMETERS, METEOROLOGY, SATELLITE OBSERVATION, WEATHER FORECASTING

N91-32693*# National Aeronautics and Space Administration. John F. Kennedy Space Center, Cocoa Beach, FL.
THE 1991 INTERNATIONAL AEROSPACE AND GROUND CONFERENCE ON LIGHTNING AND STATIC ELECTRICITY, VOLUME 2

Aug. 1991 459 p Conference held in Cocoa Beach, FL, 16-19 Apr. 1991; sponsored in part by NASA, the National Interagency Coordination Group, and Florida Inst. of Tech. (NASA-CP-3106-VOL-2; NAS 1.55:3106-VOL-2) Avail: CASI HC A20/MF A04

ELECTROMAGNETIC COUPLING, ELECTROMAGNETIC PULSES, LIGHTNING, STATIC ELECTRICITY, WEATHER FORECASTING

N92-33482*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

INERTIAL OSCILLATION OF A VERTICAL ROTATING DRAFT WITH APPLICATION TO A SUPERCELL STORM

ROBERT C. COSTEN and LARRY V. STOCK (Hampton Univ., VA.) Sep. 1992 47 p A video recording supplement L-0592-97 N92-24346 is available from CASI \$12 Original contains color illustrations (RTOP 506-41-41-01)

(NASA-TP-3230; L-16987; NAS 1.60:3230) Avail: CASI HC A03/MF A01; 1 functional color page

ANTICYCLONES, ATMOSPHERIC CIRCULATION, ATMOSPHERIC PHYSICS, CORIOLIS EFFECT, INERTIA, MATHEMATICAL MODELS, OSCILLATIONS, THUNDERSTORMS, WIND SHEAR

N92-34246* National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

INERTIAL OSCILLATION OF A VERTICAL ROTATING DRAFT WITH APPLICATION TO A SUPERCELL STORM: VIDEO SUPPLEMENT TO NASA TECHNICAL PAPER 3230 (Video Recording)

ROBERT C. COSTEN and LARRY V. STOCK (Hampton Univ., VA.) 15 Sep. 1992 This supplements NASA-TP-3230; N92-33482 Video Recording: 8 min., color, sound, VHS (RTOP 506-41-41-01)

(NASA-TP-3230-VIDEO-SUPPL; L-0592-97; NAS 1.60:3230-VIDEO-SUPPL) Avail: Issuing Activity (Center for AeroSpace Information) Video Recording \$12

ATMOSPHERIC CIRCULATION, ATMOSPHERIC MODELS, COMPUTERIZED SIMULATION, MATHEMATICAL MODELS, OSCILLATIONS, ROTATION, THUNDERSTORMS, VERTICAL AIR CURRENTS

48

OCEANOGRAPHY

Includes biological, dynamic, and physical oceanography; and marine resources.

N92-25981*# National Aeronautics and Space Administration. Wallops Flight Facility, Wallops Island, VA.

NASA WALLOPS FLIGHT FACILITY AIR-SEA INTERACTION RESEARCH FACILITY

STEVEN R. LONG Jun. 1992 34 p

(NASA-RP-1277; REPT-92B00059; NAS 1.61:1277) Avail: CASI HC A03/MF A01

This publication serves as an introduction to the Air-Sea Interaction Research Facility at NASA/GSFC/Wallops Flight Facility. The purpose of this publication is to provide background information on the research facility itself, including capabilities, available instrumentation, the types of experiments already done, ongoing experiments, and future plans. Author

N92-27930*# National Aeronautics and Space Administration. Wallops Flight Facility, Wallops Island, VA.

A SELF-ZEROING CAPACITANCE PROBE FOR WATER WAVE MEASUREMENTS

STEVEN R. LONG Jun. 1992 45 p (NASA-RP-1278; REPT-92B00058; NAS 1.61:1278) Avail: CASI HC A03/MF A01

The wave probe developed at the Air-Sea Interaction Research Facility was designed to measure the surface elevation fluctuations of water waves. Design criteria included being linear in response, self-zeroing to the mean water level, having multiple operating ranges so that the instrument's maximum output could be matched to the maximum surface elevation over varying conditions, and be as noise-free as possible. The purpose of this publication is to provide a detailed description of the design and construction of this probe. Author

51

LIFE SCIENCES (GENERAL)

N91-13842*# National Aeronautics and Space Administration, Washington, DC.

BIOLOGICAL LIFE SUPPORT TECHNOLOGIES: COMMERCIAL OPPORTUNITIES

MARK NELSON, ed. (Space Biospheres Ventures, Oracle, AZ.) and GERALD SOFFEN, ed. (Space Biospheres Ventures, Oracle, AZ.) Nov. 1990 117 p Workshop held in Tucson, AZ, 30 Oct. - 1 Nov. 1989

(NASA-CP-3094; NAS 1.55:3094) Avail: CASI HC A06/MF A02
BIOSPHERE, CLOSED ECOLOGICAL SYSTEMS, ENVIRONMENTAL ENGINEERING, REGENERATION (PHYSIOLOGY), SPACE COMMERCIALIZATION

52

AEROSPACE MEDICINE

Includes physiological factors; biological effects of radiation; and effects of weightlessness on man and animals.

N91-10574*# National Aeronautics and Space Administration. Lyndon B. Johnson Space Center, Houston, TX.

WORKSHOP ON EXERCISE PRESCRIPTION FOR LONG-DURATION SPACE FLIGHT

BERNARD A. HARRIS, JR., ed. and DONALD F. STEWART, ed. Washington Oct. 1989 125 p Workshop held in Houston, TX, 1986

(RTOP 073-36-00-00-72)

(NASA-CP-3051; S-597; NAS 1.55:3051) Avail: CASI HC A06/MF A02

BONE DEMINERALIZATION, CARDIOVASCULAR SYSTEM, DECONDITIONING, EXERCISE PHYSIOLOGY, LONG DURATION SPACE FLIGHT, MUSCULOSKELETAL SYSTEM, PHYSICAL EXERCISE, WEIGHTLESSNESS

N91-10594* National Aeronautics and Space Administration, Washington, DC.

AEROSPACE MEDICINE AND BIOLOGY: A CONTINUING BIBLIOGRAPHY WITH INDEXES (SUPPLEMENT 341)

Oct. 1990 50 p

(NASA-SP-7011(341); NAS 1.21:7011(341)) Avail: CASI HC A03

This bibliography lists 133 reports, articles and other documents introduced into the NASA Scientific and Technical Information System during September 1990. Subject coverage includes: aerospace medicine and psychology, life support systems and controlled environments, safety equipment, exobiology and extraterrestrial life, and flight crew behavior and performance.

Author

N91-13063* National Aeronautics and Space Administration, Washington, DC.

AEROSPACE MEDICINE AND BIOLOGY: A CONTINUING BIBLIOGRAPHY WITH INDEXES (SUPPLEMENT 342)

Nov. 1990 81 p

(NASA-SP-7011(342); NAS 1.21:7011(342)) Avail: CASI HC A05

This bibliography lists 208 reports, articles and other documents introduced into the NASA Scientific and Technical Information System during October 1990. Subject coverage includes: aerospace medicine and psychology, life support systems and controlled environments, safety equipment, exobiology and extraterrestrial life, and flight crew behavior and performance.

Author

N91-14711* National Aeronautics and Space Administration, Washington, DC.

AEROSPACE MEDICINE AND BIOLOGY: A CONTINUING BIBLIOGRAPHY WITH INDEXES (SUPPLEMENT 343)

Dec. 1990 82 p

(NASA-SP-7011(343); NAS 1.21:7011(343)) Avail: CASI HC A05

This bibliography lists 125 reports, articles and other documents introduced into the NASA Scientific and Technical Information System during January, 1989. Subject coverage includes: aerospace medicine and psychology, life support systems and controlled environments, safety equipment, exobiology and extraterrestrial life, and flight crew behavior and performance.

Author

N91-14712* National Aeronautics and Space Administration, Washington, DC.

AEROSPACE MEDICINE AND BIOLOGY: A CONTINUING BIBLIOGRAPHY WITH INDEXES (SUPPLEMENT 344)

Jan. 1991 92 p

(NASA-SP-7011(344); NAS 1.21:7011(344)) Avail: CASI HC A05

This bibliography lists 125 reports, articles and other documents introduced into the NASA Scientific and Technical Information System during January, 1989. Subject coverage includes: aerospace medicine and psychology, life support systems and controlled environments, safety equipment, exobiology and extraterrestrial life, and flight crew behavior and performance.

Author

N91-16547* National Aeronautics and Space Administration, Washington, DC.

AEROSPACE MEDICINE AND BIOLOGY: A CUMULATIVE INDEX TO A CONTINUING BIBLIOGRAPHY (SUPPLEMENT 345)

Jan. 1991 233 p

(NASA-SP-7011(345); NAS 1.21:7011(345)) Avail: CASI HC A11

This publication is a cumulative index to the abstracts contained in Supplements 333 through 344 of Aerospace Medicine and Biology: A Continuing Bibliography. Seven indexes are included -- subject, personal author, corporate source, foreign technology, contract number, report number, and accession number. Author

N91-18573*# National Aeronautics and Space Administration, Lyndon B. Johnson Space Center, Houston, TX.

MICROBIOLOGY ON SPACE STATION FREEDOM

DUANE L. PIERSON, ed. (National Aeronautics and Space Administration, Lyndon B. Johnson Space Center, Houston, TX.),

MICHAEL R. MCGINNIS, ed. (Texas Univ., Galveston.), S. K. MISHRA, ed. (Krug Life Sciences, Inc., Houston, TX.), and CHRISTINE F. WOGAN, ed. (Krug International, Houston, TX.) Washington Feb. 1991 40 p Conference held in Houston, TX, 6-8 Nov. 1989

(NASA-CP-3108; S-619; NAS 1.55:3108) Avail: CASI HC A03/MF A01

EXOBIOLGY, HEALTH, MICROBIOLOGY, MICROORGANISMS, RESEARCH AND DEVELOPMENT, SPACE STATION FREEDOM, SPACE STATIONS, SPACECREWS

N91-19711*# National Aeronautics and Space Administration, John F. Kennedy Space Center, Cocoa Beach, FL.

RESPONSES OF WOMEN TO ORTHOSTATIC AND EXERCISE STRESSES Technical Report, 1976 - 1977

G. W. HOFFLER (National Aeronautics and Space Administration, John F. Kennedy Space Center, Lompoc, CA.), M. M. JACKSON (National Aeronautics and Space Administration, Lyndon B. Johnson Space Center, Houston, TX.), R. L. JOHNSON (National Aeronautics and Space Administration, Lyndon B. Johnson Space Center, Houston, TX.), J. T. BAKER (Krug International, San Antonio, TX.), and D. TATRO (Bionetics Corp., Cocoa Beach, FL.) Washington Oct. 1990 77 p (NAS9-14880; NAS10-11624)

(NASA-TP-3043; NAS 1.60:3043) Avail: CASI HC A05/MF A01

ANTHROPOMETRY, DATA BASES, FEMALES, HISTORIES, PHYSICAL EXERCISE, PHYSIOLOGY, REDUCED GRAVITY, STATISTICAL CORRELATION

N91-23700* National Aeronautics and Space Administration, Washington, DC.

AEROSPACE MEDICINE AND BIOLOGY: A CONTINUING BIBLIOGRAPHY WITH INDEXES (SUPPLEMENT 346)

Feb. 1989 50 p

(NASA-SP-7011(346); NAS 1.21:7011(346)) Avail: CASI HC A03

This bibliography lists 134 reports, articles and other documents introduced into the NASA Scientific and Technical Information System during Jan. 1991. Subject coverage includes: aerospace medicine and psychology, life support systems and controlled environments, safety equipment, exobiology and extraterrestrial life, and flight crew behavior and performance.

Author

N91-23701* National Aeronautics and Space Administration, Washington, DC.

AEROSPACE MEDICINE AND BIOLOGY: A CONTINUING BIBLIOGRAPHY WITH INDEXES (SUPPLEMENT 347)

Feb. 1989 64 p

(NASA-SP-7011(347); NAS 1.21:7011(347)) Avail: CASI HC A04

This bibliography lists 166 reports, articles and other documents introduced into the NASA Scientific and Technical Information System during Feb. 1991. Subject coverage includes: aerospace medicine and psychology, life support systems and controlled environments, safety equipment, exobiology and extraterrestrial life, and flight crew behavior and performance.

Author

N91-23702* National Aeronautics and Space Administration, Washington, DC.

AEROSPACE MEDICINE AND BIOLOGY: A CONTINUING BIBLIOGRAPHY WITH INDEXES (SUPPLEMENT 348)

Apr. 1991 60 p

(NASA-SP-7011(348); NAS 1.21:7011(348)) Avail: CASI HC A04

This bibliography lists 154 reports, articles and other documents introduced into the NASA Scientific and Technical Information System during Mar. 1991. Subject coverage includes: aerospace medicine and psychology, life support systems and controlled environments, safety equipment, exobiology and extraterrestrial life, and flight crew behavior and performance.

Author

N91-24731* National Aeronautics and Space Administration, Washington, DC.

AEROSPACE MEDICINE AND BIOLOGY: A CONTINUING BIBLIOGRAPHY WITH INDEXES (SUPPLEMENT 349)

52 AEROSPACE MEDICINE

May 1991 50 p

(NASA-SP-7011(349); NAS 1.21:7011(349)) Avail: CASI HC A03

This bibliography lists 149 reports, articles and other documents introduced into the NASA Scientific and Technical Information System during April, 1991. Subject coverage includes: aerospace medicine and psychology, life support systems and controlled environments, safety equipment, exobiology and extraterrestrial life, and flight crew behavior and performance. Author

N91-25600* National Aeronautics and Space Administration, Washington, DC.

AEROSPACE MEDICINE AND BIOLOGY: A CONTINUING BIBLIOGRAPHY WITH INDEXES (SUPPLEMENT 350)

Jun. 1991 56 p

(NASA-SP-7011(350); NAS 1.21:7011(350)) Avail: CASI HC A04

This bibliography lists 152 reports, articles and other documents introduced into the NASA Scientific and Technical Information System during May 1991. Subject coverage includes: aerospace medicine and psychology, life support systems and controlled environments, safety equipment, exobiology and extraterrestrial life, and flight crew behavior and performance. Author

N91-27756* National Aeronautics and Space Administration, Washington, DC.

AEROSPACE MEDICINE AND BIOLOGY: A CONTINUING BIBLIOGRAPHY WITH INDEXES (SUPPLEMENT 351)

Jul. 1991 92 p

(NASA-SP-7011(351); NAS 1.21:7011(351)) Avail: CASI HC A05

This bibliography lists 255 reports, articles and other documents introduced into the NASA Scientific and Technical Information System during Jun. 1991. Subject coverage includes: aerospace medicine and psychology, life support systems and controlled environments, safety equipment, exobiology and extraterrestrial life, and flight crew behavior and performance. Author

N91-28729* National Aeronautics and Space Administration, Washington, DC.

AEROSPACE MEDICINE AND BIOLOGY: A CONTINUING BIBLIOGRAPHY WITH INDEXES (SUPPLEMENT 352)

Aug. 1991 61 p

(NASA-SP-7011(352); NAS 1.21:7011(352)) Avail: CASI HC A04

This bibliography lists 147 reports, articles and other documents introduced into the NASA Scientific and Technical Information System during July 1991. Subject coverage includes: aerospace medicine and psychology, life support systems and controlled environments, safety equipment, exobiology and extraterrestrial life, and flight crew behavior and performance. Author

N91-31760* National Aeronautics and Space Administration, Washington, DC.

AEROSPACE MEDICINE AND BIOLOGY: A CONTINUING BIBLIOGRAPHY WITH INDEXES (SUPPLEMENT 353)

Feb. 1989 84 p

(NASA-SP-7011(353); NAS 1.21:7011(353)) Avail: CASI HC A05

This bibliography lists 238 reports, articles, and other documents introduced into the NASA Scientific and Technical Information System in August 1991. Subject coverage includes: aerospace medicine and psychology, life support systems and controlled environments, safety equipment, exobiology and extraterrestrial life, biotechnology, human factors engineering, and flight crew behavior and performance. Author

N92-12404* National Aeronautics and Space Administration, Washington, DC.

AEROSPACE MEDICINE AND BIOLOGY: A CONTINUING BIBLIOGRAPHY WITH INDEXES (SUPPLEMENT 354)

Oct. 1991 86 p

(NASA-SP-7011(354); NAS 1.21:7011(354)) Avail: CASI HC A05

This bibliography lists 225 reports, articles and other documents introduced into the NASA Scientific and Technical Information System during September, 1991. Subject coverage includes aerospace medicine and psychology, life support systems and

controlled environments, safety equipment, exobiology and extraterrestrial life, and flight crew behavior and performance. Author

N92-12412* National Aeronautics and Space Administration, Washington, DC.

AEROSPACE MEDICINE AND BIOLOGY: A CONTINUING BIBLIOGRAPHY WITH INDEXES (SUPPLEMENT 355)

Nov. 1991 59 p

(NASA-SP-7011(355); NAS 1.21:7011(355)) Avail: CASI HC A04

This bibliography lists 147 reports, articles and other documents introduced into the NASA Scientific and Technical Information System during October, 1991. Subject coverage includes: aerospace medicine and psychology, life support systems and controlled environments, safety equipment, exobiology and extraterrestrial life, and flight crew behavior and performance. Author

N92-15538* National Aeronautics and Space Administration, Washington, DC.

AEROSPACE MEDICINE AND BIOLOGY: A CONTINUING BIBLIOGRAPHY WITH INDEXES (SUPPLEMENT 356)

Dec. 1991 71 p

(NASA-SP-7011(356); NAS 1.21:7011(356)) Avail: CASI HC A04

This bibliography lists 192 reports, articles and other documents introduced into the NASA Scientific and Technical Information System during November 1991. Subject coverage includes: aerospace medicine and psychology, life support systems and controlled environments, safety equipment, exobiology and extraterrestrial life, and flight crew behavior and performance. Author

N92-16553*# National Aeronautics and Space Administration, Lyndon B. Johnson Space Center, Houston, TX.

EVALUATION OF NONINVASIVE CARDIAC OUTPUT METHODS DURING EXERCISE

ALAN D. MOORE (Krug Life Sciences, Inc., Houston, TX.), LINDA H. BARROWS (Krug Life Sciences, Inc., Houston, TX.), MICHAEL RASHID, and STEVEN F. SICONOLFI Jan. 1992 10 p (NASA-TP-3174; S-657; NAS 1.60:3174) Avail: CASI HC A02/MF A01

BIOMEDICAL DATA, CARBON DIOXIDE, CARDIAC OUTPUT, REBREATHING

N92-16554*# National Aeronautics and Space Administration, Lyndon B. Johnson Space Center, Houston, TX.

FUEL UTILIZATION DURING EXERCISE AFTER 7 DAYS OF BED REST

LINDA H. BARROWS (Krug Life Sciences, Inc., Houston, TX.), BERNARD A. HARRIS (Krug Life Sciences, Inc., Houston, TX.), ALAN D. MOORE (Krug Life Sciences, Inc., Houston, TX.), and STEVEN F. SICONOLFI Washington Jan. 1992 11 p (NASA-TP-3175; S-658; NAS 1.60:3175) Avail: CASI HC A03/MF A01

BED REST, CALORIC REQUIREMENTS, CARBOHYDRATE METABOLISM, GRAVITATIONAL EFFECTS, PHYSICAL EXERCISE, PHYSICAL FITNESS, PROTEINS

N92-17022*# National Aeronautics and Space Administration, Lyndon B. Johnson Space Center, Houston, TX.

TECHNIQUES FOR DETERMINATION OF IMPACT FORCES DURING WALKING AND RUNNING IN A ZERO-G ENVIRONMENT

MICHAEL GREENISEN (Krug Life Sciences, Inc., Houston, TX.), MARLEI WALTON (Alabama Univ., Tuscaloosa.), PHILLIP BISHOP, and WILLIAM SQUIRES (Texas Lutheran Coll., Seguin.) Washington Jan. 1992 18 p (NASA-TP-3159; S-651; NAS 1.60:3159) Avail: CASI HC A03/MF A01

BONE DEMINERALIZATION, GRAVITATIONAL PHYSIOLOGY, IMPACT LOADS, MUSCULOSKELETAL SYSTEM, REDUCED GRAVITY, WALKING, WEIGHTLESSNESS SIMULATION

N92-17645*# National Aeronautics and Space Administration, Lyndon B. Johnson Space Center, Houston, TX.

ECCENTRIC AND CONCENTRIC MUSCLE PERFORMANCE FOLLOWING 7 DAYS OF SIMULATED WEIGHTLESSNESS

JUDITH C. HAYES (Krug Life Sciences, Inc., Houston, TX.), MARY L. ROPER (Krug Life Sciences, Inc., Houston, TX.), AUGUSTUS D. MAZZOCCA (Krug Life Sciences, Inc., Houston, TX.), JOHN J. MCBRINE (Krug Life Sciences, Inc., Houston, TX.), LINDA H. BARROWS (Krug Life Sciences, Inc., Houston, TX.), BERNARD A. HARRIS, and STEVEN F. SICONOLFI Washington Feb. 1992 13 p
(NASA-TP-3182; S-665; NAS 1.60:3182) Avail: CASI HC A03/MF A01

BED REST, HUMAN PERFORMANCE, MUSCLES, MUSCULAR FUNCTION, MUSCULOSKELETAL SYSTEM, WEIGHTLESSNESS SIMULATION

N92-21714* National Aeronautics and Space Administration, Washington, DC.

AEROSPACE MEDICINE AND BIOLOGY: A CONTINUING BIBLIOGRAPHY WITH INDEXES (SUPPLEMENT 357)

Jan. 1992 69 p
(NASA-SP-7011(357); NAS 1.21:7011(357)) Avail: CASI HC A04

This bibliography lists 186 reports, articles and other documents introduced into the NASA Scientific and Technical Information System during Dec. 1991. Subject coverage includes: aerospace medicine and physiology, life support systems and man/system technology, protective clothing, exobiology and extraterrestrial life, planetary biology, and flight crew behavior and performance.

Author

N92-21715* National Aeronautics and Space Administration, Washington, DC.

AEROSPACE MEDICINE AND BIOLOGY: A CONTINUING BIBLIOGRAPHY WITH INDEXES (SUPPLEMENT 359)

Feb. 1992 60 p
(NASA-SP-7011(359); NAS 1.21:7011(359)) Avail: CASI HC A04

This bibliography lists 164 reports, articles and other documents introduced into the NASA Scientific and Technical Information System during Jan. 1992. Subject coverage includes: aerospace medicine and physiology, life support systems and man/system technology, protective clothing, exobiology and extraterrestrial life, planetary biology, and flight crew behavior and performance.

Author

N92-22026* National Aeronautics and Space Administration, Washington, DC.

AEROSPACE MEDICINE AND BIOLOGY: A CUMULATIVE INDEX TO A CONTINUING BIBLIOGRAPHY (SUPPLEMENT 358)

Jan. 1992 229 p
(NASA-SP-7011(358); NAS 1.21:7011(358)) Avail: CASI HC A11

This publication is a cumulative index to the abstracts contained in Supplements 346 through 357 of Aerospace Medicine and Biology: A Continuing Bibliography. It includes seven indexes: subject, personal author, corporate source, foreign technology, contract number, report number and accession number. Author

N92-22186*# National Aeronautics and Space Administration, Langley Research Center, Hampton, VA.

MULTIPLE LESION TRACK STRUCTURE MODEL

JOHN W. WILSON, FRANCIS A. CUCINOTTA, and JUDY L. SHINN Mar. 1992 14 p Sponsored in part by the Armed Forces Radiobiology Research Institute (RTOP 199-04-16-11)

(NASA-TP-3185; L-16988; NAS 1.60:3185) Avail: CASI HC A03/MF A01

CELL DIVISION, CELLS (BIOLOGY), HEAVY IONS, LESIONS, MATHEMATICAL MODELS, RADIATION DAMAGE, RADIATION EFFECTS, X RAYS

N92-27068* National Aeronautics and Space Administration, Washington, DC.

AEROSPACE MEDICINE AND BIOLOGY: A CONTINUING BIBLIOGRAPHY WITH INDEXES (SUPPLEMENT 362)

May 1992 118 p
(NASA-SP-7011(362); NAS 1.21:7011(362)) Avail: CASI HC A06

This bibliography lists 357 reports, articles and other documents introduced into the NASA Scientific and Technical Information System during May 1992. Subject coverage includes: aerospace medicine and physiology, life support systems and man/system technology, protective clothing, exobiology and extraterrestrial life, planetary biology, and flight crew behavior and performance.

Author

N92-27433* National Aeronautics and Space Administration, Washington, DC.

AEROSPACE MEDICINE AND BIOLOGY: A CONTINUING BIBLIOGRAPHY WITH INDEXES (SUPPLEMENT 361)

Apr. 1992 56 p
(NASA-SP-7011(361); NAS 1.21:7011(361)) Avail: CASI HC A04

This bibliography lists 141 reports, articles and other documents introduced into the NASA Scientific and Technical Information System during Mar. 1992. Subject coverage includes: aerospace medicine and physiology, life support systems and man/system technology, protective clothing, exobiology and extraterrestrial life, planetary biology, and flight crew behavior and performance.

Author

N92-30987* National Aeronautics and Space Administration, Washington, DC.

AEROSPACE MEDICINE AND BIOLOGY: A CONTINUING BIBLIOGRAPHY WITH INDEXES (SUPPLEMENT 363)

Jun. 1992 69 p
(NASA-SP-7011(363); NAS 1.21:7011(363)) Avail: CASI HC A04/MF A01

This bibliography lists 164 reports, articles and other documents introduced into the NASA Scientific and Technical Information System during Jan. 1992. Subject coverage includes aerospace medicine and physiology, life support systems and man/system technology, protective clothing, exobiology and extraterrestrial life, planetary biology, and flight crew behavior and performance.

Author

N92-34154*# National Aeronautics and Space Administration, Langley Research Center, Hampton, VA.

TRACK STRUCTURE MODEL OF CELL DAMAGE IN SPACE FLIGHT

ROBERT KATZ (Nebraska Univ., Lincoln.), FRANCIS A. CUCINOTTA, JOHN W. WILSON, JUDY L. SHINN, and DUC M. NGO (Old Dominion Univ., Norfolk, VA.) Oct. 1992 32 p (RTOP 199-04-16-11)

(NASA-TP-3235; L-17058; NAS 1.60:3235) Avail: CASI HC A03/MF A01

BIOLOGICAL EFFECTS, CELLS (BIOLOGY), EXPOSURE, EXTRATERRESTRIAL RADIATION, LINEAR ENERGY TRANSFER (LET), RADIATION DAMAGE, RELATIVE BIOLOGICAL EFFECTIVENESS (RBE), SURVIVAL

BEHAVIORAL SCIENCES

Includes psychological factors; individual and group behavior; crew training and evaluation; and psychiatric research.

N92-21467*# National Aeronautics and Space Administration, Ames Research Center, Moffett Field, CA.

VISUALLY GUIDED CONTROL OF MOVEMENT

WALTER W. JOHNSON, ed. and MARY K. KAISER, ed. Apr. 1991 236 p Workshop held at Moffett Field, CA, 26 Jun. - 14

Jul. 1989
 (RTOP 505-67-51)
 (NASA-CP-3118; A-90200; NAS 1.55:3118) Avail: CASI HC
 A11/MF A03
 AIRCRAFT CONTROL, CONFERENCES, CONTROL THEORY,
 SPACE PERCEPTION, VISUAL CONTROL, VISUAL
 PERCEPTION

54

**MAN/SYSTEM TECHNOLOGY AND LIFE
 SUPPORT**

Includes human engineering; biotechnology; and space suits and protective clothing.

N91-24744*# National Aeronautics and Space Administration. Ames Research Center, Moffett Field, CA.

**CONTROLLED ECOLOGICAL LIFE SUPPORT SYSTEMS:
 NATURAL AND ARTIFICIAL ECOSYSTEMS**

ROBERT D. MACELROY, ed. (National Aeronautics and Space Administration. Ames Research Center, Moffett Field, CA.), BRAD G. THOMPSON, ed. (Alberta Research Council, Edmonton (Canada).), THEODORE W. TIBBITTS, ed. (Wisconsin Univ., Madison.), and TYLER VOLK, ed. (New York Univ., New York.) Dec. 1989 185 p The 27th COSPAR Meeting was held in Espoo, Finland, 18-29 Jul. 1988; sponsored by Subcommittee F.4

(RTOP 199-61-12)
 (NASA-CP-10040; A-89105; NAS 1.55:10040) Avail: CASI HC
 A09/MF A02

ALGAE, CLOSED ECOLOGICAL SYSTEMS, ECOSYSTEMS,
 REGENERATION (PHYSIOLOGY), WASTE TREATMENT

N92-11638*# National Aeronautics and Space Administration. Ames Research Center, Moffett Field, CA.

**HUMAN MACHINE INTERFACES FOR TELEOPERATORS AND
 VIRTUAL ENVIRONMENTS CONFERENCE**

Mar. 1990 175 p Conference held in Santa Barbara, CA, 4-9 Mar. 1990

(NASA-CP-10071; NAS 1.55:10071; AD-A240716) Avail: CASI
 HC A08/MF A02

COMPUTERIZED SIMULATION, FLIGHT SIMULATION,
 MAN-COMPUTER INTERFACE, OPERATORS (PERSONNEL),
 SENSORY PERCEPTION, TELEOPERATORS

N92-16562*# National Aeronautics and Space Administration. Lyndon B. Johnson Space Center, Houston, TX.

RELIABILITY OF A SHUTTLE REACTION TIMER

RUSSELL D. HAYS (Krug Life Sciences, Inc., Houston, TX.), AUGUSTUS D. MAZZOCCA (Krug Life Sciences, Inc., Houston, TX.), MICHAEL RASHID, and STEVEN F. SICONOLFI Washington Jan. 1992 9 p

(NASA-TP-3176; S-659; NAS 1.60:3176) Avail: CASI HC
 A02/MF A01

ASTRONAUT PERFORMANCE, AUDITORY STIMULI,
 BIOASTRONAUTICS, COMPONENT RELIABILITY, REACTION
 TIME, SPACE SHUTTLES, SWITCHES, TIMING DEVICES, VISUAL
 STIMULI

N92-19772*# National Aeronautics and Space Administration. Lyndon B. Johnson Space Center, Houston, TX.

**A METHOD OF EVALUATING EFFICIENCY DURING
 SPACE-SUITED WORK IN A NEUTRAL BUOYANCY
 ENVIRONMENT**

MICHAEL C. GREENISEN (Krug International, Houston, TX.), PHILLIP WEST, FREDERICK K. NEWTON, JOHN H. GILBERT, and WILLIAM G. SQUIRES (Texas Lutheran Coll., Seguin.) Oct. 1991 11 p

(NASA-TP-3153; S-648; NAS 1.60:3153) Avail: CASI HC
 A03/MF A01

EXTRAVEHICULAR ACTIVITY, FATIGUE TESTS, NEUTRAL
 BUOYANCY SIMULATION, PHYSICAL EXERCISE, SPACE SUITS,
 WORK CAPACITY

N92-25961*# National Aeronautics and Space Administration. Lyndon B. Johnson Space Center, Houston, TX.

**NUTRITIONAL REQUIREMENTS FOR SPACE STATION
 FREEDOM CREWS**

HELEN W. LANE (Krug Life Sciences, Inc., Houston, TX.), BARBARA L. RICE, and CHRISTINE F. WOGAN, ed. (Krug Life Sciences, Inc., Houston, TX.) Washington Jun. 1992 15 p Panel held in Houston, TX, 4-5 Feb. 1991

(NASA-CP-3146; S-672; NAS 1.55:3146) Avail: CASI HC
 A03/MF A01

ASTRONAUTS, BIOLOGICAL EFFECTS, NUTRITIONAL
 REQUIREMENTS, SPACE FLIGHT FEEDING, SPACE STATION
 FREEDOM

N92-26538*# National Aeronautics and Space Administration. Lyndon B. Johnson Space Center, Houston, TX.

**THE VALIDATION OF A HUMAN FORCE MODEL TO PREDICT
 DYNAMIC FORCES RESULTING FROM MULTI-JOINT
 MOTIONS**

ABHILASH K. PANDYA (Lockheed Engineering and Sciences Co., Houston, TX.), JAMES C. MAIDA (Lockheed Engineering and Sciences Co., Houston, TX.), ANN M. ALDRIDGE (Texas Woman's Univ., Houston.), SCOTT M. HASSON (Texas Womens Univ. Research Inst., Denton.), and BARBARA J. WOOLFORD Jun. 1992 33 p

(NAS9-17900)
 (NASA-TP-3206; S-670; NAS 1.60:3206) Avail: CASI HC
 A03/MF A01

HUMAN PERFORMANCE, INVERSE KINEMATICS,
 MUSCULAR STRENGTH, SHOULDERS, TORQUE, WRIST

N92-26682*# National Aeronautics and Space Administration. Lyndon B. Johnson Space Center, Houston, TX.

**CORRELATION AND PREDICTION OF DYNAMIC HUMAN
 ISOLATED JOINT STRENGTH FROM LEAN BODY MASS**

ABHILASH K. PANDYA, SCOTT M. HASSON, ANN M. ALDRIDGE (Lockheed Engineering and Sciences Co., Houston, TX.), JAMES C. MAIDA, and BARBARA J. WOOLFORD Jun. 1992 64 p

(NAS9-17900)
 (NASA-TP-3207; S-671; NAS 1.60:3207) Avail: CASI HC
 A04/MF A01

BIODYNAMICS, DYNAMIC MODELS, HUMAN BEINGS,
 JOINTS (ANATOMY), LEAST SQUARES METHOD, PREDICTION
 ANALYSIS TECHNIQUES, REGRESSION ANALYSIS,
 STATISTICAL CORRELATION, TORQUE

N92-28897*# National Aeronautics and Space Administration. Lyndon B. Johnson Space Center, Houston, TX.

**EXPERIMENTAL MEASUREMENT OF THE ORBITAL PATHS
 OF PARTICLES SEDIMENTING WITHIN A ROTATING
 VISCOUS FLUID AS INFLUENCED BY GRAVITY**

DAVID A. WOLF and RAY P. SCHWARZ (Krug Life Sciences, Inc., Houston, TX.) Jun. 1992 19 p

(RTOP 694-01-23-05)
 (NASA-TP-3200; S-668; NAS 1.60:3200) Avail: CASI HC
 A03/MF A01

BIOREACTORS, CELLS (BIOLOGY), CULTURE TECHNIQUES,
 REDUCED GRAVITY, ROTATING FLUIDS, SEDIMENTS, TISSUES
 (BIOLOGY), VISCOUS FLUIDS

55

SPACE BIOLOGY

Includes exobiology; planetary biology; and extraterrestrial life.

N91-14725*# National Aeronautics and Space Administration. Ames Research Center, Moffett Field, CA.

EXO BIOLOGY IN EARTH ORBIT: THE RESULTS OF SCIENCE WORKSHOPS HELD AT NASA, AMES RESEARCH CENTER

D. DEFREES, ed., D. BROWNLEE, ed., J. TARTER, ed., D. USHER, ed., W. IRVINE, ed., and H. KLEIN, ed. 1989 142 p Original contains color illustrations (RTOP 199-52-12-01)

(NASA-SP-500; NAS 1.21:500) Avail: CASI HC A07/MF A02; also available SOD HC \$6.50 as 033-000-01057-5; 5 functional color pages

The Workshops on Exobiology in Earth Orbit were held to explore concepts for orbital experiments of exobiological interest and make recommendations on which classes of experiments should be carried out. Various observational and experimental opportunities in Earth orbit are described including those associated with the Space Shuttle laboratories, spacecraft deployed from the Space Shuttle and expendable launch vehicles, the Space Station, and lunar bases. Specific science issues and technology needs are summarized. Finally, a list of recommended experiments in the areas of observational exobiology, cosmic dust collection, and in situ experiments is presented. M.G.

N91-15691*# National Aeronautics and Space Administration. Ames Research Center, Moffett Field, CA.

EXO BIOLOGY ON MARS

D. L. DEVINCENZI, ed., J. R. MARSHALL, ed., and D. ANDERSEN, ed. Dec. 1990 35 p Proceedings held at Moffett Field, CA, 27-28 Feb. 1989

(RTOP 199-59-12-05)

(NASA-CP-10055; A-90320; NAS 1.55:10055) Avail: CASI HC A03/MF A01

EQUIPMENT SPECIFICATIONS, EXO BIOLOGY, EXPERIMENT DESIGN, MARS (PLANET), MISSION PLANNING, NASA SPACE PROGRAMS, SPACE EXPLORATION, U.S.S.R. SPACE PROGRAM

N92-13588*# National Aeronautics and Space Administration, Washington, DC.

FOURTH SYMPOSIUM ON CHEMICAL EVOLUTION AND THE ORIGIN AND EVOLUTION OF LIFE Abstracts Only

ROBERT A. WHARTON, JR., ed., DALE T. ANDERSEN, ed., SARA E. BZIK, ed. (National Aeronautics and Space Administration. Ames Research Center, Moffett Field, CA.), and JOHN D. RUMMEL, ed. Oct. 1991 129 p Symposium held at Moffett Field, CA, 24-27 Jul. 1990

(RTOP 199-52-00)

(NASA-CP-3129; NAS 1.55:3129) Avail: CASI HC A07/MF A02
BIOLOGICAL EVOLUTION, CHEMICAL EVOLUTION, CONFERENCES, COSMIC DUST, EXO BIOLOGY, GEOCHEMISTRY

59

MATHEMATICAL AND COMPUTER SCIENCES (GENERAL)

N91-20641*# National Aeronautics and Space Administration. Lyndon B. Johnson Space Center, Houston, TX.

FOURTH ANNUAL WORKSHOP ON SPACE OPERATIONS APPLICATIONS AND RESEARCH (SOAR 90)

ROBERT T. SAVELY, ed. Washington Jan. 1991 495 p Workshop held in Albuquerque, NM, 26-28 Jun. 1990; sponsored by NASA, Washington, AF, and New Mexico Univ.

(NASA-CP-3103-VOL-1; S-618-VOL-1; NAS 1.55:3103-VOL-1) Avail: CASI HC A21/MF A04

CONFERENCES, HUMAN FACTORS ENGINEERING, LIFE SCIENCES, OPERATIONS RESEARCH, ROBOTICS

N91-20702*# National Aeronautics and Space Administration. Lyndon B. Johnson Space Center, Houston, TX.

FOURTH ANNUAL WORKSHOP ON SPACE OPERATIONS APPLICATIONS AND RESEARCH (SOAR 90)

ROBERT T. SAVELY, ed. Washington Jan. 1991 316 p Workshop held in Albuquerque, NM, 26-28 Jun. 1990; sponsored by NASA, Washington, AF, and New Mexico Univ.

(NASA-CP-3103-VOL-2; S-618-VOL-2; NAS 1.55:3103-VOL-2) Avail: CASI HC A14/MF A03

CONFERENCES, EXPERT SYSTEMS, HUMAN FACTORS ENGINEERING, MAN-COMPUTER INTERFACE, OXIDATION, SPACE SHUTTLE ORBITERS, SPACE STATIONS, SPACECRAFT CONSTRUCTION MATERIALS

N92-12425*# National Aeronautics and Space Administration. Goddard Space Flight Center, Greenbelt, MD.

SPACE AND EARTH SCIENCE DATA COMPRESSION WORKSHOP

JAMES C. TILTON, ed. Washington Nov. 1991 85 p Workshop held in Snowbird, UT, 11 Apr. 1991; sponsored by NASA and IEEE

(RTOP 590-32-14-01)

(NASA-CP-3130; REPT-91B00149; NAS 1.55:3130) Avail: CASI HC A05/MF A01

DATA COMPRESSION, EARTH OBSERVATIONS (FROM SPACE), IMAGE PROCESSING, INFORMATION SYSTEMS, SIGNAL PROCESSING, SPACE OBSERVATIONS (FROM EARTH)

N92-22324*# National Aeronautics and Space Administration. Lyndon B. Johnson Space Center, Houston, TX.

FIFTH ANNUAL WORKSHOP ON SPACE OPERATIONS APPLICATIONS AND RESEARCH (SOAR 1991), VOLUME 2

KUMAR KRISHNAN, ed. Feb. 1992 391 p Workshop held in Houston, TX, 9-11 Jul. 1991; sponsored in cooperation with NASA, Washington, AF, and Houston Univ., Clear Lake, TX

(NASA-CP-3127-VOL-2; S-650-VOL-2; NAS 1.55:3127-VOL-2) Avail: CASI HC A17/MF A04

AEROSPACE MEDICINE, CONFERENCES, EXPERT SYSTEMS, HUMAN FACTORS ENGINEERING, LIFE SCIENCES, ROBOTICS, SPACE DEBRIS, SPACE PLASMAS, SPACE SHUTTLES, SPACE STATIONS, SPACECRAFT CONTROL

COMPUTER PROGRAMMING AND SOFTWARE

Includes computer programs, routines, and algorithms, and specific applications, e.g., CAD/CAM.

N91-17559*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

NASA FORMAL METHODS WORKSHOP, 1990

RICKY W. BUTLER, comp. Nov. 1990 504 p Workshop held in Hampton, VA, 20-23 Aug. 1990; sponsored by NASA, Washington

(RTOP 505-66-21-01)

(NASA-CP-10052; NAS 1.55:10052) Avail: CASI HC A22/MF A04

AVIONICS, CONFERENCES, CONTROL SYSTEMS DESIGN, DIGITAL SYSTEMS, FAULT TOLERANCE, FLIGHT CONTROL, LOGIC DESIGN

N91-25624*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

GUIDANCE, NAVIGATION, AND CONTROL SUBSYSTEM EQUIPMENT SELECTION ALGORITHM USING EXPERT SYSTEM METHODS

CHERYL L. ALLEN Washington May 1991 12 p

(RTOP 506-49-21-02)

(NASA-TP-3082; L-16896; NAS 1.60:3082) Avail: CASI HC A03/MF A01

ALGORITHMS, ARCHITECTURE (COMPUTERS), COMPUTER AIDED DESIGN, CONTROL SYSTEMS DESIGN, EXPERT SYSTEMS, SPACECRAFT DESIGN, SPACECRAFT INSTRUMENTS

N91-25629*# National Aeronautics and Space Administration. Marshall Space Flight Center, Huntsville, AL.

A SCHEME FOR BANDPASS FILTERING MAGNETOMETER MEASUREMENTS TO RECONSTRUCT TETHERED SATELLITE SKIPROPE MOTION

M. E. POLITES Washington Jun. 1991 25 p

(NASA-TP-3123; M-663; NAS 1.60:3123) Avail: CASI HC

A03/MF A01

BANDPASS FILTERS, COMPUTERIZED SIMULATION, DYNAMIC STABILITY, MAGNETIC MEASUREMENT, SATELLITE CONTROL, SPACECRAFT MOTION, VIBRATION DAMPING

N92-11685*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

CELLULAR REPAIR/MISREPAIR TRACK MODEL

JOHN W. WILSON and FRANCIS A. CUCINOTTA Washington Nov. 1991 11 p

(RTOP 199-04-16-11)

(NASA-TP-3124; L-16949; NAS 1.60:3124) Avail: CASI HC

A03/MF A01

BIOLOGICAL EFFECTS, CELLS (BIOLOGY), KINETICS, LETHALITY, RADIATION EFFECTS, RELATIVE BIOLOGICAL EFFECTIVENESS (RBE)

N92-16568*# National Aeronautics and Space Administration. Lyndon B. Johnson Space Center, Houston, TX.

SECOND CLIPS CONFERENCE PROCEEDINGS, VOLUME 1

JOSEPH GIARRATANO, ed. (Houston Univ., Clear Lake, TX.) and CHRISTOPHER J. CULBERT, ed. Sep. 1991 232 p Conference held in Houston, TX, 23-25 Sep. 1991

(NASA-CP-10085-VOL-1; S-662-VOL-1; NAS 1.55:10085-VOL-1)

Avail: CASI HC A11/MF A03

COMPUTER AIDED DESIGN, CONFERENCES, EXPERT SYSTEMS, KNOWLEDGE REPRESENTATION

N92-16590*# National Aeronautics and Space Administration. Lyndon B. Johnson Space Center, Houston, TX.

SECOND CLIPS CONFERENCE PROCEEDINGS, VOLUME 2

JOSEPH GIARRATANO, ed. (Houston Univ., Clear Lake, TX.) and CHRISTOPHER J. CULBERT, ed. Sep. 1991 280 p Conference held in Houston, TX, 23-25 Sep. 1991

(NASA-CP-10085-VOL-2; S-662-VOL-2; NAS 1.55:10085-VOL-2)

Avail: CASI HC A13/MF A03

CONFERENCES, EXPERT SYSTEMS, KNOWLEDGE BASES (ARTIFICIAL INTELLIGENCE), SOFTWARE TOOLS

N92-23432*# National Aeronautics and Space Administration. Marshall Space Flight Center, Huntsville, AL.

TECHNIQUE TO ELIMINATE COMPUTATIONAL INSTABILITY IN MULTIBODY SIMULATIONS EMPLOYING THE LAGRANGE MULTIPLIER

G. WATTS Apr. 1992 30 p

(NASA-TP-3220; M-687; NAS 1.60:3220) Avail: CASI HC

A03/MF A01

COMPUTER TECHNIQUES, COMPUTERIZED SIMULATION, DYNAMICAL SYSTEMS, FLEXIBLE BODIES, LAGRANGE MULTIPLIERS

N92-24397*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

SOFTWARE SURFACE MODELING AND GRID GENERATION STEERING COMMITTEE

ROBERT E. SMITH, ed. Washington Apr. 1992 510 p Workshop held in Hampton, VA, 28-30 Apr. 1992; sponsored by

NASA, Washington

(RTOP 505-90-53-02)

(NASA-CP-3143; L-17093; NAS 1.55:3143) Avail: CASI HC

A22/MF A04

COMPUTATIONAL FLUID DYNAMICS, COMPUTER AIDED DESIGN, CONFERENCES, GRID GENERATION (MATHEMATICS), MATHEMATICAL MODELS, SOFTWARE ENGINEERING, SURFACE PROPERTIES

COMPUTER SYSTEMS

Includes computer networks and special application computer systems.

N92-22285*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

FAULT TOLERANCE OF ARTIFICIAL NEURAL NETWORKS WITH APPLICATIONS IN CRITICAL SYSTEMS

PETER W. PROTZEL, DANIEL L. PALUMBO, and MICHAEL K. ARRAS (Institute for Computer Applications in Science and

Engineering, Hampton, VA.) Apr. 1992 50 p

(RTOP 307-50-10-12)

(NASA-TP-3187; L-16969; NAS 1.60:3187) Avail: CASI HC

A03/MF A01

COMPUTERIZED SIMULATION, DISTRIBUTED PROCESSING, FAULT TOLERANCE, NEURAL NETS, PERFORMANCE TESTS, REAL TIME OPERATION, RELIABILITY ENGINEERING

N92-27589*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

EXPERIMENTAL VALIDATION OF CLOCK SYNCHRONIZATION ALGORITHMS

DANIEL L. PALUMBO and R. LYNN GRAHAM (PRC Kentron, Inc., Hampton, VA.) Jul. 1992 24 p

(RTOP 505-64-10-07)

(NASA-TP-3209; L-17015; NAS 1.60:3209) Avail: CASI HC

A03/MF A01

ALGORITHMS, CLOCKS, FAILURE MODES, SYNCHRONISM, TIME MEASUREMENT

63

CYBERNETICS

Includes feedback and control theory, artificial intelligence, robotics and expert systems.

N91-20811*# National Aeronautics and Space Administration. Lyndon B. Johnson Space Center, Houston, TX.

PROCEEDINGS OF THE SECOND JOINT TECHNOLOGY WORKSHOP ON NEURAL NETWORKS AND FUZZY LOGIC, VOLUME 2

ROBERT N. LEA, ed. and JAMES A. VILLARREAL, ed. Feb. 1991 278 p Workshop held in Houston, TX, 10-13 Apr. 1990; sponsored by NASA, Washington, NASA. Johnson Space Center, and Houston Univ.

(NASA-CP-10061-VOL-2; S-624-VOL-2; NAS 1.55:10061-VOL-2)

Avail: CASI HC A13/MF A03

AUTOMATIC CONTROL, CONFERENCES, CONTROLLERS, DECISION MAKING, FUZZY SETS, IMAGE PROCESSING, NEURAL NETS, PATTERN RECOGNITION, SET THEORY, SPEECH RECOGNITION

N91-21778*# National Aeronautics and Space Administration. Lyndon B. Johnson Space Center, Houston, TX.

PROCEEDINGS OF THE SECOND JOINT TECHNOLOGY WORKSHOP ON NEURAL NETWORKS AND FUZZY LOGIC, VOLUME 1

ROBERT N. LEA, ed. and JAMES VILLARREAL, ed. Feb. 1991 240 p Workshop held in Houston, TX, 10-13 Apr. 1990; sponsored by NASA, Washington, NASA. Johnson Space Center, and Houston Univ.

(NASA-CP-10061-VOL-1; S-624-VOL-1; NAS 1.55:10061-VOL-1)

Avail: CASI HC A11/MF A03

CONFERENCES, DECISION MAKING, EXPERT SYSTEMS, FUZZY SETS, FUZZY SYSTEMS, LOGIC CIRCUITS, NEURAL NETS, SIGNAL PROCESSING

N91-22769*# National Aeronautics and Space Administration. Goddard Space Flight Center, Greenbelt, MD.

THE 1991 GODDARD CONFERENCE ON SPACE APPLICATIONS OF ARTIFICIAL INTELLIGENCE

JAMES L. RASH, ed. Washington May 1991 361 p Conference held in Greenbelt, MD, 13-15 May 1991

(NASA-CP-3110; REPT-91B00064; NAS 1.55:3110) Avail: CASI HC A16/MF A03

ARTIFICIAL INTELLIGENCE, COMPUTER VISION, CONFERENCES, CONTROL THEORY, INFORMATION MANAGEMENT, KNOWLEDGE REPRESENTATION, NEURAL NETS, ROBOTICS, SYSTEMS ENGINEERING

N92-23356*# National Aeronautics and Space Administration. Goddard Space Flight Center, Greenbelt, MD.

THE 1992 GODDARD CONFERENCE ON SPACE APPLICATIONS OF ARTIFICIAL INTELLIGENCE

JAMES L. RASH, ed. Washington 1992 251 p Conference held in Greenbelt, MD, 5-6 May 1992

(RTOP 030-09-01-25)

(NASA-CP-3141; REPT-92B00045; NAS 1.55:3141) Avail: CASI HC A12/MF A03

AEROSPACE ENGINEERING, ARTIFICIAL INTELLIGENCE, FAULT TOLERANCE, NEURAL NETS

N92-27763*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

AUTOMATION AND ROBOTICS FOR SPACE-BASED SYSTEMS, 1991

ROBERT L. WILLIAMS, II, ed. May 1992 254 p Workshop was held in Hampton, VA, 10 Dec. 1991

(RTOP 595-11-22)

(NASA-CP-10098; NAS 1.55:10098) Avail: CASI HC A12/MF A03

LARGE SPACE STRUCTURES, ORBITAL ASSEMBLY, REMOTE MANIPULATOR SYSTEM, ROBOT ARMS, ROBOT CONTROL, ROBOTICS, ROBOTS, TELEROBOTICS

N92-28375*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

SOFTWARE DESIGN FOR AUTOMATED ASSEMBLY OF TRUSS STRUCTURES

CATHERINE L. HERSTROM, CAROLYN GRANTHAM, CHERYL L. ALLEN, WILLIAM R. DOGGETT, and RALPH W. WILL Jun. 1992 47 p

(RTOP 506-43-41-02)

(NASA-TP-3198; L-16983; NAS 1.60:3198) Avail: CASI HC A03/MF A01

AUTOMATIC CONTROL, CONSTRUCTION, ORBITAL ASSEMBLY, SOFTWARE ENGINEERING, SPACE ERECTABLE STRUCTURES, TRUSSES

65

STATISTICS AND PROBABILITY

Includes data sampling and smoothing; Monte Carlo method; and stochastic processes.

N91-25741*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

MODEL REDUCTION BY TRIMMING FOR A CLASS OF SEMI-MARKOV RELIABILITY MODELS AND THE CORRESPONDING ERROR BOUND

ALLAN L. WHITE and DANIEL L. PALUMBO May 1991 11 p Presented at the Annual Reliability and Maintainability Symposium, 1990

(RTOP 505-66-21)

(NASA-TP-3089; L-16862; NAS 1.60:3089) Avail: CASI HC A03/MF A01

COMPLEX SYSTEMS, ERROR ANALYSIS, MARKOV PROCESSES, MATHEMATICAL MODELS, RELIABILITY ANALYSIS

66

SYSTEMS ANALYSIS

Includes mathematical modeling; network analysis; and operations research.

N91-18753*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

STRUCTURAL FACTORING APPROACH FOR ANALYZING STOCHASTIC NETWORKS

KELLY J. HAYHURST (National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.) and DOUGLAS R. SHIER (College of William and Mary, Williamsburg, VA.) Washington Mar. 1991 24 p

(RTOP 505-66-21-01)

(NASA-TP-3069; L-16794; NAS 1.60:3069) Avail: CASI HC A03/MF A01

COMMUNICATION NETWORKS, CRITICAL PATH METHOD, DATA LINKS, STOCHASTIC PROCESSES

N92-33483*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

ADVANCED TECHNIQUES IN RELIABILITY MODEL REPRESENTATION AND SOLUTION

DANIEL L. PALUMBO and DAVID M. NICOL (College of William and Mary, Williamsburg, VA.) Oct. 1992 18 p

70 PHYSICS (GENERAL)

(RTOP 505-64-10-07)

(NASA-TP-3242; L-17048; NAS 1.60:3242) Avail: CASI HC A03/MF A01

COMPUTER SYSTEMS PERFORMANCE, COMPUTERIZED SIMULATION, DISTRIBUTED PROCESSING, FAILURE ANALYSIS, FAILURE MODES, FAULT TOLERANCE, FLIGHT CONTROL, MATHEMATICAL MODELS, PARALLEL PROCESSING (COMPUTERS), RELIABILITY ANALYSIS, SOFTWARE TOOLS

70

PHYSICS (GENERAL)

N91-25755*# Jet Propulsion Lab., California Inst. of Tech., Pasadena.

THE 22ND ANNUAL PRECISE TIME AND TIME INTERVAL (PTTI) APPLICATIONS AND PLANNING MEETING

RICHARD L. SYDNOR, ed. May 1990 618 p Meeting held in Vienna, VA, 4-6 Dec. 1990

(NASA-CP-3116; NAS 1.55:3116; REPT-91B00084; AD-A239372) Avail: CASI HC A99/MF A06

ATOMIC CLOCKS, FREQUENCY STANDARDS, HYDROGEN MASERS, METEOROLOGY, SATELLITE INSTRUMENTS, TELECOMMUNICATION, TIME, TIME MEASUREMENT

N92-13756*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

BENCHMARK SOLUTIONS FOR THE GALACTIC HEAVY-ION TRANSPORT EQUATIONS WITH ENERGY AND SPATIAL COUPLING

BARRY D. GANAPOL (Arizona Univ., Tucson.), LAWRENCE W. TOWNSEND (Old Dominion Univ., Norfolk, VA.), STANLEY L. LAMKIN (Old Dominion Univ., Norfolk, VA.), and JOHN W. WILSON Washington Oct. 1991 58 p (RTOP 199-04-16-11)

(NASA-TP-3112; L-16909; NAS 1.60:3112) Avail: CASI HC A04/MF A01

GALACTIC COSMIC RAYS, HEAVY IONS, NEUTRONS, NUCLEAR INTERACTIONS, RADIATION DOSAGE, RADIATION SHIELDING, TRANSPORT THEORY

N92-33350*# National Aeronautics and Space Administration. Goddard Space Flight Center, Greenbelt, MD.

PROCEEDINGS OF THE 23RD ANNUAL PRECISE TIME AND TIME INTERVAL (PTTI) APPLICATIONS AND PLANNING MEETING

RICHARD L. SYDNOR, ed. (Jet Propulsion Lab., California Inst. of Tech., Pasadena.) et al Washington Jul. 1992 440 p Meeting held in Pasadena, CA, 3-5 Dec. 1991; sponsored by NASA. Goddard Space Flight Center, JPL, Naval Observatory, Space and Naval Warfare Systems Command, NRL, Army Electronics Technology and Devices Lab., and AFOSR

(NAS5-31000) (NASA-CP-3159; REPT-92B00083; NAS 1.55:3159) Avail: CASI HC A19/MF A04

CONFERENCES, FREQUENCY STANDARDS, NAVIGATION SATELLITES, OPTICAL TRACKING, SATELLITE INSTRUMENTS, TIME MEASUREMENT, TRACKING NETWORKS, TRAPPED PARTICLES

71

ACOUSTICS

Includes sound generation, transmission, and attenuation.

N91-12315*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

WAKE GEOMETRY EFFECTS ON ROTOR BLADE-VORTEX INTERACTION NOISE DIRECTIVITY

R. M. MARTIN (National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.), MICHAEL A. MARCOLINI (National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.), W. R. SPLETTSTOESSER (Flugwissenschaftliche Forschungsanstalt, Munich (Germany, F.R.)), and K.-J. SCHULTZ (Deutsche Forschungsanstalt fuer Luft- und Raumfahrt, Brunswick, Germany, F.R.) Nov. 1990 23 p Original contains color illustrations (RTOP 505-63-51-06)

(NASA-TP-3015; L-16723; NAS 1.60:3015) Avail: CASI HC A03/MF A01; 6 functional color pages

BLADE TIPS, BLADE-VORTEX INTERACTION, INTERACTIONAL AERODYNAMICS, WAKES, WIND TUNNEL TESTS

N91-15848*# National Aeronautics and Space Administration. Lewis Research Center, Cleveland, OH.

MONOGRAPH ON PROPAGATION OF SOUND WAVES IN CURVED DUCTS

WOJCIECH ROSTAFINSKI Jan. 1991 97 p (RTOP 505-69-61)

(NASA-RP-1248; E-5480; NAS 1.61:1248) Avail: CASI HC A05/MF A02

After reviewing and evaluating the existing material on sound propagation in curved ducts without flow, it seems strange that, except for Lord Rayleigh in 1878, no book on acoustics has treated the case of wave motion in bends. This monograph reviews the available analytical and experimental material, nearly 30 papers published on this subject so far, and concisely summarizes what has been learned about the motion of sound in hard-wall and acoustically lined cylindrical bends. Author

N91-16679*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

WIND TURBINE ACOUSTICS

HARVEY H. HUBBARD and KEVIN P. SHEPHERD Dec. 1990 49 p Submitted for publication Prepared in cooperation with NASA, Lewis Research Center and American Society of Mechanical Engineers

(DE-AI01-76ET-20320; RTOP 776-33-41)

(NASA-TP-3057; E-5663; DOE/NASA/20320-77; NAS 1.60:3057)

Avail: CASI HC A03/MF A01

ACOUSTICS, DYNAMIC STRUCTURAL ANALYSIS, HARMONICS, NOISE MEASUREMENT, PREDICTION ANALYSIS TECHNIQUES, SOUND WAVES, SPECTRA, WIND SHEAR, WIND TURBINES

N91-16682*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

FOURTH INTERNATIONAL SYMPOSIUM ON LONG-RANGE SOUND PROPAGATION

WILLIAM L. WILLSHIRE, JR., comp. Washington Dec. 1990 274 p Symposium held in Hampton, VA, 16-17 May 1990; sponsored by NASA, Langley Research Center, Mississippi Univ., and Open Univ. of England (RTOP 505-61-11-02)

(NASA-CP-3101; L-16875; NAS 1.55:3101) Avail: CASI HC A12/MF A03

ACOUSTIC MEASUREMENT, ACOUSTIC PROPAGATION, AIRCRAFT NOISE, CONFERENCES, NOISE INTENSITY, SOUND PROPAGATION

N91-19823*# National Aeronautics and Space Administration. Ames Research Center, Moffett Field, CA.

J-85 JET ENGINE NOISE MEASURED IN THE ONERA S1 WIND TUNNEL AND EXTRAPOLATED TO FAR FIELD

PAUL T. SODERMAN (National Aeronautics and Space Administration. Ames Research Center, Moffett Field, CA.), ALAIN JULIENNE (Office National d'Etudes et de Recherches Aérospatiales, Paris, France), and ADOLPH ATENCIO, JR. Washington Jan. 1991 181 p

(RTOP 307-50-81)

(NASA-TP-3053; A-89265; NAS 1.60:3053) Avail: CASI HC A09/MF A02

ANOMALIES, ENGINE NOISE, FAR FIELDS, J-85 ENGINE, SOUND FIELDS, SUBSONIC FLOW, WIND TUNNEL TESTS

N91-19824*# National Aeronautics and Space Administration. Ames Research Center, Moffett Field, CA.

LARGE-SCALE AEROACOUSTIC RESEARCH FEASIBILITY AND CONCEPTUAL DESIGN OF TEST-SECTION INSERTS FOR THE AMES 80- BY 120-FOOT WIND TUNNEL

PAUL T. SODERMAN and LARRY E. OLSEN Dec. 1990 50 p

(RTOP 307-50-62-11)

(NASA-TP-3020; A-88007; NAS 1.60:3020) Avail: CASI HC A03/MF A01

ACOUSTIC MEASUREMENT, ACOUSTIC PROPERTIES, AEROACOUSTICS, AERODYNAMIC CHARACTERISTICS, INSERTS, INSTALLING, LININGS, WALLS, WEDGES, WIND TUNNEL APPARATUS, WIND TUNNEL TESTS

N91-21828*# National Aeronautics and Space Administration. Ames Research Center, Moffett Field, CA.

ACOUSTIC AND AERODYNAMIC STUDY OF A PUSHER-PROPELLER AIRCRAFT MODEL

PAUL T. SODERMAN and W. CLIFTON HORNE Washington Sep. 1990 67 p

(RTOP 505-61-11)

(NASA-TP-3040; A-89038; NAS 1.60:3040) Avail: CASI HC A04/MF A01

AEROACOUSTICS, AIRCRAFT MODELS, AIRCRAFT WAKES, INTERACTIONAL AERODYNAMICS, PROPELLER BLADES, PROPELLER NOISE

N92-10598*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

AEROACOUSTICS OF FLIGHT VEHICLES: THEORY AND PRACTICE. VOLUME 1: NOISE SOURCES

HARVEY H. HUBBARD, ed. Washington Aug. 1991 601 p

Sponsored in cooperation with Wright Research and Development Center and Army Aviation Systems Command

(F33615-84-C-3202; RTOP 535-03-11-03)

(NASA-RP-1258-VOL-1; L-16926-VOL-1; NAS 1.61:1258-VOL-1; WRDC-TR-90-3052-VOL-1; AD-A241141) Avail: CASI HC A99/MF A06

Methodology recommended to evaluate aeroacoustic related problems is provided, and approaches to their solutions are suggested without extensive tables, nomographs, and derivations. Orientation is toward flight vehicles and emphasis is on underlying physical concepts. Theoretical, experimental, and applied aspects are covered, including the main formulations and comparisons of theory and experiment. The topics covered include: propeller and propfan noise, rotor noise, turbomachinery noise, jet noise classical theory and experiments, noise from turbulent shear flows, jet noise generated by large-scale coherent motion, airframe noise, propulsive lift noise, combustion and core noise, and sonic booms. For individual titles, see N92-10599 through N92-10608.

N92-11758*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

ANNOYANCE CAUSED BY ADVANCED TURBOPROP AIRCRAFT FLYOVER NOISE: COMPARISON OF DIFFERENT PROPELLER CONFIGURATIONS

DAVID A. MCCURDY Washington Oct. 1991 69 p

(RTOP 505-63-51-09)

(NASA-TP-3104; L-16850; NAS 1.60:3104) Avail: CASI HC A04/MF A01

AERODYNAMIC NOISE, AIRCRAFT NOISE, PROPELLER NOISE, PROPELLERS, PSYCHOACOUSTICS, TURBOFAN AIRCRAFT, TURBOPROP AIRCRAFT

N92-11765*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

A LOUDNESS CALCULATION PROCEDURE APPLIED TO SHAPED SONIC BOOMS

KEVIN P. SHEPHERD and BRENDA M. SULLIVAN (Lockheed Engineering and Sciences Co., Hampton, VA.) Washington Nov. 1991 13 p

(RTOP 537-03-21-03)

(NASA-TP-3134; L-16913; NAS 1.60:3134) Avail: CASI HC A03/MF A01

LOUDNESS, SONIC BOOMS, SUPERSONIC TRANSPORTS

N92-14779*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

AEROACOUSTICS OF FLIGHT VEHICLES: THEORY AND PRACTICE. VOLUME 2: NOISE CONTROL

HARVEY H. HUBBARD, ed. Washington Aug. 1991 443 p

Sponsored in cooperation with the Army Aviation Systems Command

(F33615-84-C-3202; RTOP 535-03-11-03)

(NASA-RP-1258-VOL-2; L-16926-VOL-2; NAS 1.61:1258-VOL-2;

WRDC-TR-90-3052-VOL-2) Avail: CASI HC A19/MF A04

Flight vehicles and the underlying concepts of noise generation, noise propagation, noise prediction, and noise control are studied. This volume includes those chapters that relate to flight vehicle noise control and operations: human response to aircraft noise; atmospheric propagation; theoretical models for duct acoustic propagation and radiation; design and performance of duct acoustic treatment; jet noise suppression; interior noise; flyover noise measurement and prediction; and quiet aircraft design and operational characteristics. For individual titles, see N92-14780 through N92-14787.

N92-20479*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

ANNOYANCE CAUSED BY AIRCRAFT EN ROUTE NOISE

DAVID A. MCCURDY Mar. 1992 40 p

(RTOP 535-03-11-03)

(NASA-TP-3165; L-16975; NAS 1.60:3165) Avail: CASI HC A03/MF A01

AIRCRAFT NOISE, ANECHOIC CHAMBERS, COMMERCIAL AIRCRAFT, JUDGMENTS, PROP-FAN TECHNOLOGY, TAKEOFF, TURBOFAN AIRCRAFT, TURBOPROP AIRCRAFT

N92-32948*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

FOURTH AIRCRAFT INTERIOR NOISE WORKSHOP

DAVID G. STEPHENS, comp. Jul. 1992 335 p Workshop held in Friedrichshafen, Fed. Republic of Germany, 19-20 May 1992; sponsored by NASA, Society of Automotive Engineers, and the German Aerospace Research Establishment

(RTOP 535-03-11-03)

(NASA-CP-10103; NAS 1.55:10103) Avail: CASI HC A15/MF A03

AEROACOUSTICS, AERODYNAMIC NOISE, AIRCRAFT NOISE, CONFERENCES, NOISE MEASUREMENT, NOISE PREDICTION, NOISE REDUCTION

NUCLEAR AND HIGH-ENERGY PHYSICS

Includes elementary and nuclear particles; and reactor theory.

N91-13985*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

INCLUSIVE INELASTIC SCATTERING OF HEAVY IONS AND NUCLEAR CORRELATIONS

FRANCIS A. CUCINOTTA (Rockwell International Corp., Houston, TX.), LAWRENCE W. TOWNSEND (National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.), JOHN W. WILSON (National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.), and GOVIND S. KHANDELWAL (Old Dominion Univ., Norfolk, VA.) Washington Nov. 1990 22 p (RTOP 199-04-16-11)

(NASA-TP-3026; L-16793; NAS 1.60:3026) Avail: CASI HC A03/MF A01

ANGULAR DISTRIBUTION, HEAVY IONS, INELASTIC SCATTERING, ION SCATTERING, IONIC COLLISIONS, MOMENTUM TRANSFER, RELATIVISTIC PARTICLES

OPTICS

Includes light phenomena; and optical devices.

N92-22045*# National Aeronautics and Space Administration. Goddard Space Flight Center, Greenbelt, MD.

WORKSHOP ON SQUEEZED STATES AND UNCERTAINTY RELATIONS

DAESOO HAN, ed. (Maryland Univ., College Park.), Y. S. KIM, ed., and W. W. ZACHARY, ed. (Howard Univ., Washington, DC.) Washington Feb. 1992 385 p Workshop held in College Park, MD, 28-30 Mar. 1991

(NASA-CP-3135; REPT-92B00024; NAS 1.15:3135) Avail: CASI HC A17/MF A04

CONFERENCES, FIELD THEORY (PHYSICS), GROUP THEORY, HEISENBERG THEORY, LASERS, POINCARÉ PROBLEM, QUANTUM MECHANICS, QUANTUM OPTICS, QUANTUM THEORY, SQUEEZED STATES (QUANTUM THEORY)

PLASMA PHYSICS

Includes magnetohydrodynamics and plasma fusion.

N91-17713*# National Aeronautics and Space Administration. Marshall Space Flight Center, Huntsville, AL.

CURRENT COLLECTION FROM SPACE PLASMAS

NAGENDRA SINGH, ed. (Alabama Univ., Huntsville.), K. H. WRIGHT, JR., ed. (Alabama Univ., Huntsville.), and NOBIE H. STONE, ed. Washington Dec. 1990 368 p Workshop held in Huntsville, AL, 24-25 Apr. 1989; sponsored by NASA. Marshall Space Flight Center and Alabama Univ.

(NASA-CP-3089; M-644; NAS 1.55:3089) Avail: CASI HC A16/MF A03

CONFERENCES, EARTH ORBITS, PLASMA PHYSICS, PLASMA PROBES, SPACE CHARGE, SPACE PLASMAS, SPACECRAFT CHARGING

SOLID-STATE PHYSICS

Includes superconductivity.

N92-10677*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

POSITRON LIFETIME MEASUREMENTS IN CHIRAL NEMATIC LIQUID CRYSTALS

JAG J. SINGH (Hampton Univ., VA.), ABE EFTEKHARI (Hampton Inst., VA.), and DEVENDRA S. PARMAR Oct. 1991 14 p (NASA-TP-3122; L-16948; NAS 1.60:3122) Avail: CASI HC A03/MF A01

LIQUID CRYSTALS, OPTICAL ACTIVITY, POSITRON ANNIHILATION, POSITRONS, TIME MEASUREMENT

ADMINISTRATION AND MANAGEMENT

Includes management planning and research.

N91-11591*# National Aeronautics and Space Administration. John F. Kennedy Space Center, Cocoa Beach, FL.

TWENTY-SECOND ANNUAL NASA SUPPLY AND EQUIPMENT MANAGEMENT CONFERENCE

1989 384 p Conference held in Cocoa Beach, FL, 5-7 Dec. 1989

(NASA-CP-10042; NAS 1.55:10042) Avail: CASI HC A17/MF A03

CONFERENCES, INVENTORIES, LOGISTICS, MANAGEMENT METHODS, PROJECT MANAGEMENT, REGULATIONS, SAFETY

N91-13347*# National Aeronautics and Space Administration, Washington, DC.

ISSUES IN NASA PROGRAM AND PROJECT MANAGEMENT

FRANCIS T. HOBAN, ed. Jul. 1990 57 p (NASA-SP-6101(03); NAS 1.21:6101(03)) Avail: CASI HC A04/MF A01

This volume is the third in an ongoing series on aerospace project management at NASA. Articles in this volume cover the attitude of the program manager, program control and performance measurement, risk management, cost plus award fee contracting, lessons learned from the development of the Far Infrared Absolute Spectrometer (FIRAS), small projects management, and age distribution of NASA scientists and engineers. A section on resources for NASA managers rounds out the publication.

Author

N91-24936*# National Aeronautics and Space Administration, Washington, DC.

MANAGEMENT: A BIBLIOGRAPHY FOR NASA MANAGERS

Mar. 1991 195 p (NASA-SP-7500(25); NAS 1.21:7500(25)) Avail: CASI HC A09

This bibliography lists 731 reports, articles and other documents introduced into the NASA Scientific and Technical Information System in 1990. Items are selected and grouped according to their usefulness to the manager as manager. Citations are grouped into ten subject categories: human factors and personnel issues; management theory and techniques; industrial management and manufacturing; robotics and expert systems; computers and information management; research and development; economics, costs and markets; logistics and operations management; reliability and quality control; and legality, legislation, and policy. Author

N91-28026*# National Aeronautics and Space Administration, Washington, DC.

ISSUES IN NASA PROGRAM AND PROJECT MANAGEMENT

FRANCIS T. HOBAN, ed. 1991 62 p
(NASA-SP-6101(04); NAS 1.21:6101(04)) Avail: CASI HC
A04/MF A01

This volume is the third in an ongoing series on aerospace project management at NASA. Articles in this volume cover the attitude of the program manager, program control and performance measurement, risk management, cost plus award fee contracting, lessons learned from the development of the Far Infrared Absolute Spectrometer (FIRAS), small projects management, and age distribution of NASA scientists and engineers. A section on resources for NASA managers rounds out the publication.

Author

N92-22665* National Aeronautics and Space Administration, Washington, DC.

CONTINUOUS IMPROVEMENT: A BIBLIOGRAPHY WITH INDEXES, 1989-1991

Feb. 1992 59 p
(NASA-SP-7097; NAS 1.21:7097) Avail: CASI HC A04

This bibliography contains 198 annotated references to reports and journal articles entered into the NASA Scientific and Technical Information Data base during 1989 to 1991.

Author

N92-27080* National Aeronautics and Space Administration, Washington, DC.

MANAGEMENT: A BIBLIOGRAPHY FOR NASA MANAGERS

Mar. 1992 168 p
(NASA-SP-7500(26); NAS 1.21:7500(26)) Avail: CASI HC A08

This bibliography lists 630 reports, articles and other documents introduced into the NASA Scientific and Technical Information System in 1991. Items are selected and grouped according to their usefulness to the manager as manager. Citations are grouped into ten subject categories: human factors and personnel issues; management theory and techniques; industrial management and manufacturing; robotics and expert systems; computers and information management; research and development; economics, costs and markets; logistics and operations management; reliability and quality control; and legality, legislation, and policy.

Author

N92-27609*# National Aeronautics and Space Administration, Washington, DC.

ISSUES IN NASA PROGRAM AND PROJECT MANAGEMENT

FRANCIS T. HOBAN, ed. 1992 58 p
(NASA-SP-6101(05); NAS 1.21:6101(05)) Avail: CASI HC
A04/MF A01

This volume is the fifth in an ongoing series on aerospace project management at NASA. Articles in this volume cover: an overview of the project cycle; SE&I management for manned space flight programs; shared experiences from NASA Programs and Projects - 1975; cost control for Mariner Venus/Mercury 1973; and the Space Shuttle - a balancing of design and politics. A section on resources for NASA managers rounds out the publication.

Author

82

DOCUMENTATION AND INFORMATION SCIENCE

Includes information management; information storage and retrieval technology; technical writing; graphic arts; and micrography.

N91-10804*# National Aeronautics and Space Administration, Washington, DC.

NASA THESAURUS SUPPLEMENT: A FOUR PART CUMULATIVE SUPPLEMENT TO THE 1988 EDITION OF THE NASA THESAURUS (SUPPLEMENT 4) Semiannual Report

Sep. 1990 26 p
(NASA-SP-7064-SUPPL-4; NAS 1.21:7064-SUPPL-4) Avail: CASI
HC A03/MF A01

The four-part cumulative supplement to the 1988 edition of

the NASA Thesaurus includes the Hierarchical Listing (Part 1), Access Vocabulary (Part 2), Definitions (Part 3), and Changes (Part 4). The semiannual supplement gives complete hierarchies and accepted upper/lowercase forms for new terms. Author

N91-13374*# National Aeronautics and Space Administration, Washington, DC.

NASA SCIENTIFIC AND TECHNICAL PUBLICATIONS: A CATALOG OF SPECIAL PUBLICATIONS, REFERENCE PUBLICATIONS, CONFERENCE PUBLICATIONS, AND TECHNICAL PAPERS, 1989

Feb. 1990 61 p
(NASA-SP-7063(04); NAS 1.21:7063(04)) Avail: NTIS HC free as
PR-869; NASA Scientific and Technical Information Facility, BWI
Airport, MD free

This catalog lists 190 citations of all NASA Special Publications, NASA Reference Publications, NASA Conference Publications, and NASA Technical Papers that were entered into the NASA scientific and technical information database during accession year 1989. The entries are grouped by subject category. Indexes of subject terms, personal authors, and NASA report numbers are provided.

Author

N91-17833* National Aeronautics and Space Administration, Washington, DC.

NASA PATENT ABSTRACTS BIBLIOGRAPHY: A CONTINUING BIBLIOGRAPHY. SECTION 1: ABSTRACTS (SUPPLEMENT 38)

Jan. 1991 64 p
(NASA-SP-7039(38)-SECT-1; NAS 1.21:7039(38)-SECT-1) Avail:
CASI HC A04

Abstracts are provided for 132 patents and patent applications entered into the NASA scientific and technical information system during the period July 1990 through December 1990. Each entry consists of a citation, an abstract, and in most cases, a key illustration selected from the patent or patent application. Author

N91-17834* National Aeronautics and Space Administration, Washington, DC.

NASA PATENT ABSTRACTS BIBLIOGRAPHY: A CONTINUING BIBLIOGRAPHY. SECTION 2: INDEXES (SUPPLEMENT 38)

Jan. 1991 537 p
(NASA-SP-7039(38)-SECT-2; NAS 1.21:7039(38)-SECT-2) Avail:
CASI HC A23

A subject index is provided for over 4900 patents and patent applications for the period May 1969 through December 1990. Additional indexes list personal authors, corporate authors, contract numbers, NASA case numbers, U.S. patent class numbers, U.S. patent numbers, and NASA accession numbers. Author

N91-19962*# National Aeronautics and Space Administration, Washington, DC.

NASA THESAURUS SUPPLEMENT: A FOUR PART CUMULATIVE SUPPLEMENT TO THE 1988 EDITION OF THE NASA THESAURUS (SUPPLEMENT 5) Semiannual Report

Mar. 1991 49 p
(NASA-SP-7064-SUPPL-5; NAS 1.21:7064-SUPPL-5) Avail: CASI
HC A03/MF A01

The four-part cumulative supplement to the 1988 edition of the NASA Thesaurus includes the Hierarchical Listing (Part 1), Access Vocabulary (Part 2), Definitions (Part 3), and Changes (Part 4). The semiannual supplement gives complete hierarchies and accepted upper/lowercase forms for new terms. Author

N91-24939*# National Aeronautics and Space Administration, Washington, DC.

NASA SCIENTIFIC AND TECHNICAL PUBLICATIONS: A CATALOG OF SPECIAL PUBLICATIONS, REFERENCE PUBLICATIONS, CONFERENCE PUBLICATIONS, AND TECHNICAL PAPERS, 1987-1990

Feb. 1991 174 p
(NASA-SP-7063(05); NAS 1.21:7063(05); AD-A235956) Avail:
NTIS HC free as PR-890; NASA Center for AeroSpace
Information, BWI Airport, MD free

This catalog lists 783 citations of all NASA Special Publications, NASA Reference Publications, NASA Conference Publications, and NASA Technical Papers that were entered into NASA Scientific and Technical Information Database during the year's 1987 through 1990. The entries are grouped by subject category. Indexes of subject terms, personal authors, and NASA report numbers are provided. Author

N91-27009*# National Aeronautics and Space Administration. Goddard Space Flight Center, Greenbelt, MD.

PROCEEDINGS OF THE SECOND ANNUAL NASA SCIENCE INTERNET USER WORKING GROUP CONFERENCE

LENORE A. JACKSON, ed. (ST Systems Corp., Lanham, MD.) and J. PATRICK GARY, ed. Washington May 1991 429 p Conference held in San Mateo, CA, 11-14 Feb. 1991 (RTOP 656-63-00)

(NASA-CP-3117; REPT-91B00089; NAS 1.55:3117) Avail: CASI HC A19/MF A04

COMPUTER INFORMATION SECURITY, COMPUTER NETWORKS, CONFERENCES, MANAGEMENT METHODS, POLICIES, SOFTWARE ENGINEERING

N91-28042* National Aeronautics and Space Administration, Washington, DC.

NASA PATENT ABSTRACTS BIBLIOGRAPHY: A CONTINUING BIBLIOGRAPHY. SECTION 1: ABSTRACTS (SUPPLEMENT 39)

Jul. 1991 63 p (NASA-SP-7039(39)-SECT-1; NAS 1.21:7039(39)-SECT-1) Avail: CASI HC A04

Abstracts are provided for 154 patents and patent applications entered into the NASA scientific and technical information systems during the period Jan. 1991 through Jun. 1991. Each entry consists of a citation, an abstract, and in most cases, a key illustration selected from the patent or patent application. Author

N91-29088* National Aeronautics and Space Administration, Washington, DC.

NASA PATENT ABSTRACTS BIBLIOGRAPHY: A CONTINUING BIBLIOGRAPHY. SECTION 2: INDEXES (SUPPLEMENT 39)

Jul. 1991 553 p (NASA-SP-7039(39)-SECT-2; NAS 1.21:7039(39)-SECT-2) Avail: CASI HC A24

A subject index is provided for over 5000 patents and patent applications for the period May 1969 through June 1991. Additional indexes list personal authors, corporate authors, contract numbers, NASA case numbers, U.S. patent class numbers, U.S. patent numbers, and NASA accession numbers. Author

N92-22508* National Aeronautics and Space Administration, Washington, DC.

NASA PATENT ABSTRACTS BIBLIOGRAPHY: A CONTINUING BIBLIOGRAPHY. SECTION 1: ABSTRACTS (SUPPLEMENT 40)

Jan. 1992 81 p (NASA-SP-7039(40)-SECT-1; NAS 1.21:7039(40)-SECT-1) Avail: CASI HC A05

Abstracts are provided for 181 patents and patent applications entered into the NASA scientific and technical information system during the period July 1991 through December 1991. Each entry consists of a citation, an abstract, and in most cases, a key illustration selected from the patent or patent application. Author

N92-27081* National Aeronautics and Space Administration, Washington, DC.

NASA PATENT ABSTRACTS BIBLIOGRAPHY: A CONTINUING BIBLIOGRAPHY. SECTION 2: INDEXES (SUPPLEMENT 40)

Jan. 1992 564 p (NASA-SP-7039(40)-SECT-2; NAS 1.21:7039(40)-SECT-2) Avail: CASI HC A24

A subject index is provided for over 5100 patents and patent applications for the period May 1969 through December 1991. Additional indexes list personal authors, corporate authors, contract numbers, NASA case numbers, U.S. patent class numbers, U.S. patent numbers, and NASA accession numbers. Author

N92-31455* National Aeronautics and Space Administration, Washington, DC.

NASA PATENT ABSTRACTS BIBLIOGRAPHY: A CONTINUING BIBLIOGRAPHY. SECTION 2: INDEXES (SUPPLEMENT 41)

Jul. 1992 578 p (NASA-SP-7039(41)-SECT-2; NAS 1.21:7039(41)-SECT-2) Avail: CASI HC A25

A subject index is provided for over 5200 patents and patent applications for the period May 1969 through June 1992. Additional indexes list personal authors, corporate authors, contract numbers, NASA case numbers, U.S. patent class numbers, U.S. patent numbers, and NASA accession numbers. Author

88

SPACE SCIENCES (GENERAL)

N91-12401*# National Aeronautics and Space Administration. Marshall Space Flight Center, Huntsville, AL.

MEASUREMENT AND CHARACTERIZATION OF THE ACCELERATION ENVIRONMENT ON BOARD THE SPACE STATION

CHARLES R. BAUGHER, ed. Washington Aug. 1990 669 p Workshop held in Guntersville, AL, 11-14 Aug. 1986; sponsored by Teledyne Brown Engineering

(NAS8-36122) (NASA-CP-3088; M-639; NAS 1.55:3088) Avail: CASI HC A99/MF A06

ACCELERATION (PHYSICS), ACCELEROMETERS, CONFERENCES, REDUCED GRAVITY, SPACE COMMERCIALIZATION, SPACE PROCESSING, SPACE STATIONS, SPACECRAFT ENVIRONMENTS, SPACELAB, SPACELAB PAYLOADS

N91-14897*# National Aeronautics and Space Administration. Ames Research Center, Moffett Field, CA.

INTERSTELLAR DUST: CONTRIBUTED PAPERS

ALEXANDER G. G. M. TIELENS, ed. and LOUIS J. ALLAMANDOLA, ed. Dec. 1989 512 p Symposium held in Santa Clara, CA, 26-30 Jul. 1988; sponsored by NASA. Ames Research Center, NSF, and the International Astronomical Union (NASA-CP-3036; A-89050; NAS 1.55:3036) Avail: CASI HC A22/MF A04

ASTRONOMICAL MODELS, CONFERENCES, COSMIC DUST, INFRARED ASTRONOMY, INFRARED RADIATION, INTERSTELLAR EXTINCTION, INTERSTELLAR MATTER, MOLECULAR CLOUDS, STAR FORMATION

N91-15930*# National Aeronautics and Space Administration. Marshall Space Flight Center, Huntsville, AL.

SPACE STATION FREEDOM TOXIC AND REACTIVE MATERIALS HANDLING

CHARLES R. BAUGHER, ed. Washington Jul. 1990 703 p Workshop held in Huntsville, AL, 29 Nov. - 1 Dec. 1988; sponsored by Teledyne Brown Engineering

(NAS8-36122) (NASA-CP-3085; M-638; NAS 1.55:3085) Avail: CASI HC A99/MF A06

CONFERENCES, HAZARDS, MATERIALS HANDLING, MICROGRAVITY APPLICATIONS, SPACE PROCESSING, SPACE STATION FREEDOM, SPACE STATION PAYLOADS, TOXICITY

N92-11930*# National Aeronautics and Space Administration. Lyndon B. Johnson Space Center, Houston, TX.

THE MICROGRAVITY ENVIRONMENT OF THE SPACE SHUTTLE COLUMBIA MIDDECK DURING STS-32

BONNIE J. DUNBAR, DONALD A. THOMAS, and JEFF N. SCHOESS (Honeywell, Inc., Bloomington, MN.) Washington Nov.

1991 59 p
(NASA-TP-3140; S-640; NAS 1.60:3140) Avail: CASI HC
A04/MF A01

ACCELERATION (PHYSICS), ACCELEROMETERS, COLUMBIA (ORBITER), REDUCED GRAVITY, SPACE SHUTTLE PAYLOADS, SPACEBORNE EXPERIMENTS

N92-11931*# National Aeronautics and Space Administration. Lyndon B. Johnson Space Center, Houston, TX.

THE MICROGRAVITY ENVIRONMENT OF THE SPACE SHUTTLE COLUMBIA PAYLOAD BAY DURING STS-32

BONNIE J. DUNBAR, ROBERT L. GIESECKE, and DONALD A. THOMAS Washington Nov. 1991 51 p
(NASA-TP-3141; S-641; NAS 1.60:3141) Avail: CASI HC
A04/MF A01

ACCELERATION (PHYSICS), ACCELEROMETERS, BAYS (STRUCTURAL UNITS), COLUMBIA (ORBITER), GRAVITATIONAL EFFECTS, REDUCED GRAVITY, SPACE SHUTTLE MISSION 61-C, SPACE SHUTTLE PAYLOADS, SPACEBORNE EXPERIMENTS

N92-33478*# National Aeronautics and Space Administration. Lyndon B. Johnson Space Center, Houston, TX.

ORBITAL DEBRIS: TECHNICAL ISSUES AND FUTURE DIRECTIONS

ANDREW POTTER, ed. Sep. 1992 316 p Proceedings held in Baltimore, MD, 16-19 Apr. 1990; sponsored by AIAA and DOD (NASA-CP-10077; S-637; NAS 1.55:10077) Avail: CASI HC
A14/MF A03

COLLISIONS, CONFERENCES, EARTH ORBITAL ENVIRONMENTS, HYPERVELOCITY IMPACT, IMPACT DAMAGE, SPACE DEBRIS, SPACECRAFT SHIELDING

89

ASTRONOMY

Includes radio, gamma-ray, and infrared astronomy; and astrometry.

N91-32006*# National Aeronautics and Space Administration. Marshall Space Flight Center, Huntsville, AL.

DEVELOPMENT OF THE BURST AND TRANSIENT SOURCE EXPERIMENT (BATSE)

J. M. HORACK Sep. 1991 322 p
(NASA-RP-1268; M-668; NAS 1.61-1268) Avail: CASI HC
A14/MF A03

The Burst and Transient Source Experiment (BATSE), one of four instruments on the Gamma Ray Observatory, consists of eight identical detector modules mounted on the corners of the spacecraft. Developed at MSFC, BATSE is the most sensitive gamma ray burst detector flown to date. Details of the assembly and test phase of the flight hardware development are presented. Results and descriptions of calibrations performed at MSFC, TRW, and KSC are documented extensively. With the presentation of each calibration results, the reader is provided with the means to access raw calibration data for further review or analysis. Author

90

ASTROPHYSICS

Includes cosmology; celestial mechanics; space plasmas; and interstellar and interplanetary gases and dust.

N91-14100*# National Aeronautics and Space Administration. Ames Research Center, Moffett Field, CA.

THE INTERSTELLAR MEDIUM IN EXTERNAL GALAXIES: SUMMARIES OF CONTRIBUTED PAPERS

DAVID J. HOLLENBACH, ed. (National Aeronautics and Space Administration. Ames Research Center, Moffett Field, CA.) and HARLEY A. THRONSON, JR., ed. (Wyoming Univ., Laramie.) Washington Jul. 1990 431 p Second conference held in the Grand Teton National Park, WY, 3-7 Jul. 1989; sponsored by NASA, NSF, and Wyoming Univ.
(RTOP 188-44-53)

(NASA-CP-3084; A-90075; NAS 1.55:3084) Avail: CASI HC
A19/MF A04

CARBON MONOXIDE, CONFERENCES, COSMIC DUST, GALAXIES, INTERSTELLAR MATTER, RADIO ASTRONOMY, RADIO EMISSION, STAR FORMATION

N91-16858*# National Aeronautics and Space Administration. Marshall Space Flight Center, Huntsville, AL.

PAIRED AND INTERACTING GALAXIES: INTERNATIONAL ASTRONOMICAL UNION COLLOQUIUM NO. 124

JACK W. SULENTIC, ed. (Alabama Univ., Tuscaloosa.), WILLIAM C. KEEL, ed. (Alabama Univ., Tuscaloosa.), and C. M. TELESCO, ed. Nov. 1990 738 p Colloquium held in Tuscaloosa, AL, 4-7 Dec. 1989; sponsored by NASA, the International Astronomical Union, and Alabama Univ., Tuscaloosa
(NASA-CP-3098; M-652; NAS 1.55:3098) Avail: CASI HC
A99/MF A06

ACTIVE GALACTIC NUCLEI, ASTRONOMY, COLLISIONS, CONFERENCES, GALACTIC CLUSTERS, GALACTIC STRUCTURE, INTERACTING GALAXIES, RADIO ASTRONOMY, STAR FORMATION, STARBURST GALAXIES

N92-21874*# National Aeronautics and Space Administration. Goddard Space Flight Center, Greenbelt, MD.

THE COMPTON OBSERVATORY SCIENCE WORKSHOP

CHRIS R. SHRADER, ed. (Computer Sciences Corp., Beltsville, MD.), NEIL GEHRELS, ed., and BRIAN DENNIS, ed. Washington Feb. 1992 552 p Workshop held in Annapolis, MD, 23-25 Sep. 1991
(NASA-CP-3137; REPT-92B00035; NAS 1.55:3137) Avail: CASI HC
A24/MF A04

ASTRONOMICAL SPECTROSCOPY, ASTROPHYSICS, CONFERENCES, GAMMA RAY ASTRONOMY, GAMMA RAY BURSTS, GAMMA RAY OBSERVATORY, GAMMA RAY TELESCOPES

91

LUNAR AND PLANETARY EXPLORATION

Includes planetology; and manned and unmanned flights.

N91-24965* National Aeronautics and Space Administration, Washington, DC.

INTERNATIONAL EXPLORATION OF MARS. A SPECIAL BIBLIOGRAPHY

Jun. 1991 66 p
(NASA-SP-7091; NAS 1.21:7091) Avail: CASI HC A04

This bibliography lists 173 reports, articles, and other documents introduced into the NASA Scientific and Technical Information

Database on the exploration of Mars. Historical references are cited for background. The bibliography was created for the 1991 session of the International Space University. Author

N91-27057*# National Aeronautics and Space Administration. Ames Research Center, Moffett Field, CA.

SAND AND DUST ON MARS

RONALD GREELEY (Arizona State Univ., Tempe.) and ROBERT M. HABERLE May 1991 65 p Workshop held in Tempe, AZ, 4-5 Feb. 1991

(NCC2-346; RTOP 151-01-60-03)

(NASA-CP-10074; A-91130; NAS 1.55:10074) Avail: CASI HC

A04/MF A01

CHEMICAL PROPERTIES, DUST, DUST STORMS, ELECTROSTATICS, MARS SURFACE, MINERALOGY, SANDS, WIND TUNNEL TESTS

N92-28345*# National Aeronautics and Space Administration, Washington, DC.

PLANETARY GEOSCIENCES, 1989-1990

MARIA T. ZUBER, ed. (National Aeronautics and Space Administration. Goddard Space Flight Center, Greenbelt, MD.), ODETTE B. JAMES, ed. (Geological Survey, Washington, DC.), JONATHAN I. LUNINE, ed. (Arizona Univ., Tucson.), GLENN J. MACPHERSON, ed. (Smithsonian Institution, Washington, DC.), and ROGER J. PHILLIPS, ed. (Southern Methodist Univ., Dallas, TX.) 1992 81 p LIMITED REPRODUCIBILITY: More than 20% of this document may be affected by color photographs Original contains color illustrations

(NASA-SP-508; NAS 1.21:508; LC-91-33408;

ISBN-0-16-036173-7)

NASA's Planetary Geosciences Programs (the Planetary Geology and Geophysics and the Planetary Material and Geochemistry Programs) provide support and an organizational framework for scientific research on solid bodies of the solar system. These research and analysis programs support scientific research aimed at increasing our understanding of the physical, chemical, and dynamic nature of the solid bodies of the solar system: the Moon, the terrestrial planets, the satellites of the outer planets, the rings, the asteroids, and the comets. This research is conducted using a variety of methods: laboratory experiments, theoretical approaches, data analysis, and Earth analog techniques. Through research supported by these programs, we are expanding our understanding of the origin and evolution of the solar system. This document is intended to provide an overview of the more significant scientific findings and discoveries made this year by scientists supported by the Planetary Geosciences Program. To a large degree, these results and discoveries are the measure of success of the programs. Author

N92-30302*# National Aeronautics and Space Administration. Lewis Research Center, Cleveland, OH.

ELECTRICAL AND CHEMICAL INTERACTIONS AT MARS WORKSHOP, PART 1 Final Report

1992 31 p Workshop held in Cleveland, OH, 19-20 Nov. 1991

(RTOP 506-41-41)

(NASA-CP-10093; E-7016-1; NAS 1.55:10093) Avail: CASI HC

A03/MF A01

AEROSPACE ENVIRONMENTS, CHEMICAL COMPOSITION, CONFERENCES, ELECTRICAL PROPERTIES, ENVIRONMENT MODELS, INTERACTIONS, MARS SURFACE, SPACE EXPLORATION

SOLAR PHYSICS

Includes solar activity, solar flares, solar radiation and sunspots.

N91-12456*# National Aeronautics and Space Administration. Goddard Space Flight Center, Greenbelt, MD.

CLIMATE IMPACT OF SOLAR VARIABILITY

KENNETH H. SCHATTEN, ed. and ALBERT ARKING, ed. Washington Aug. 1990 367 p Conference held in Greenbelt, MD, 24-27 Apr. 1990

(NASA-CP-3086; REPT-90B00129; NAS 1.55:3086) Avail: CASI HC A16/MF A03

CLIMATE, CLIMATE CHANGE, CLIMATOLOGY, CONFERENCES, ENVIRONMENT EFFECTS, GREENHOUSE EFFECT, LUMINOSITY, MAN ENVIRONMENT INTERACTIONS, SOLAR ACTIVITY EFFECTS, SOLAR RADIATION, SUN

N91-31061*# National Aeronautics and Space Administration. Lyndon B. Johnson Space Center, Houston, TX.

ANALYSES OF RISKS ASSOCIATED WITH RADIATION

EXPOSURE FROM PAST MAJOR SOLAR PARTICLE EVENTS

MARK D. WEYLAND (Rockwell International Corp., Houston, TX.), WILLIAM ATWELL (Rockwell International Corp., Houston, TX.), FRANCIS A. CUCINOTTA (National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.), JOHN W. WILSON (National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.), and ALVA C. HARDY Aug. 1991 37 p

(NASA-TP-3137; S-639; NAS 1.60:3137) Avail: CASI HC

A03/MF A01

AEROSPACE ENVIRONMENTS, COMPUTERIZED SIMULATION, HEMATOPOIETIC SYSTEM, RADIATION DOSAGE, RADIATION HAZARDS, RADIATION SHIELDING, SOLAR CORPUSCULAR RADIATION

SPACE RADIATION

Includes cosmic radiation; and inner and outer earth's radiation belts.

N91-16981*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

CELLULAR TRACK MODEL OF BIOLOGICAL DAMAGE TO MAMMALIAN CELL CULTURES FROM GALACTIC COSMIC RAYS

FRANCIS A. CUCINOTTA (Rockwell International Corp., Houston, TX.), ROBERT KATZ (Nebraska Univ., Lincoln.), JOHN W. WILSON (National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.), LAWRENCE W. TOWNSEND (National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.), JOHN E. NEALY (National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.), and JUDY L. SHINN Washington Feb. 1991 13 p

(RTOP 199-04-16-11)

(NASA-TP-3055; L-16831; NAS 1.60:3055) Avail: CASI HC

A03/MF A01

BIOLOGICAL MODELS (MATHEMATICS), CELLS (BIOLOGY), DAMAGE ASSESSMENT, GALACTIC COSMIC RAYS, HEAVY IONS, RADIATION DAMAGE, RADIATION PROTECTION, RELATIVE BIOLOGICAL EFFECTIVENESS (RBE)

N91-17999*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

RADIATION PROTECTION FOR HUMAN MISSIONS TO THE MOON AND MARS

LISA C. SIMONSEN and JOHN E. NEALY Washington Feb. 1991 27 p
(RTOP 326-83-10-50)
(NASA-TP-3079; L-16892; NAS 1.60:3079) Avail: CASI HC
A03/MF A01

GALACTIC COSMIC RAYS, LUNAR SURFACE, MARS SURFACE, NUCLEONS, RADIATION PROTECTION, RADIATION SHIELDING, SPACE STATIONS

N91-23017*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

IMPROVEMENTS IN COMPUTATIONAL ACCURACY OF BRYNTRN (A BARYON TRANSPORT CODE)

JUDY L. SHINN (National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.), JOHN W. WILSON (National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.), MARK WEYLAND (National Aeronautics and Space Administration. Lyndon B. Johnson Space Center, Houston, TX.), and FRANCIS A. CUCINOTTA (Rockwell International Corp., Houston, TX.) Washington May 1991 37 p

(RTOP 199-04-16-11)

(NASA-TP-3093; L-16898; NAS 1.60:3093) Avail: CASI HC
A03/MF A01

ALGORITHMS, BARYONS, COMPUTER PROGRAMS, EXTRATERRESTRIAL RADIATION, RADIATION COUNTERS, RADIATION DOSAGE, RADIATION SHIELDING, RADIATION TRANSPORT

N91-26107*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

RADIATION RISK PREDICTIONS FOR SPACE STATION FREEDOM ORBITS

FRANCIS A. CUCINOTTA (Rockwell International Corp., Houston, TX.), WILLIAM ATWELL (Rockwell International Corp., Houston, TX.), MARK WEYLAND (Rockwell International Corp., Houston, TX.), ALVA C. HARDY (National Aeronautics and Space Administration. Lyndon B. Johnson Space Center, Houston, TX.), JOHN W. WILSON (National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.), LAWRENCE W. TOWNSEND (National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.), JUDY L. SHINN (National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.), and ROBERT KATZ (Nebraska Univ., Lincoln.) Washington Jun. 1991 22 p

(RTOP 199-04-16-11)

(NASA-TP-3098; L-16903; NAS 1.60:3098) Avail: CASI HC
A03/MF A01

BIOLOGICAL MODELS (MATHEMATICS), CELLS (BIOLOGY), IRRADIATION, PHYSIOLOGICAL EFFECTS, RADIATION EFFECTS, RADIATION HAZARDS, SPACE STATION FREEDOM, SPACE STATIONS

N92-15956*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

TRANSPORT METHODS AND INTERACTIONS FOR SPACE RADIATIONS

JOHN W. WILSON (California Univ., Berkeley. Lawrence Berkeley Lab.), LAWRENCE W. TOWNSEND (Old Dominion Univ., Norfolk, VA.), WALTER S. SCHIMMERLING (Old Dominion Univ., Norfolk, VA.), GOVIND S. KHANDELWAL, FERDOUS S. KHAN, JOHN E. NEALY, FRANCIS A. CUCINOTTA, LISA C. SIMONSEN, JUDY L. SHINN, and JOHN W. NORBURY (Rider Coll., Lawrenceville, NJ.) Washington Dec. 1991 615 p

(RTOP 199-04-16-11)

(NASA-RP-1257; L-16882; NAS 1.61:1257) Avail: CASI HC

A99/MF A06

A review of the program in space radiation protection at the Langley Research Center is given. The relevant Boltzmann equations are given with a discussion of approximation procedures for space applications. The interaction coefficients are related to solution of the many-body Schroedinger equation with nuclear and electromagnetic forces. Various solution techniques are discussed

to obtain relevant interaction cross sections with extensive comparison with experiments. Solution techniques for the Boltzmann equations are discussed in detail. Transport computer code validation is discussed through analytical benchmarking, comparison with other codes, comparison with laboratory experiments and measurements in space. Applications to lunar and Mars missions are discussed. Author

N92-15959*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

HZETRN: A HEAVY ION/NUCLEON TRANSPORT CODE FOR SPACE RADIATIONS

JOHN W. WILSON (Old Dominion Univ., Norfolk, VA.), SANG Y. CHUN (Old Dominion Univ., Norfolk, VA.), FOROOZ F. BADAVI, LAWRENCE W. TOWNSEND, and STANLEY L. LAMKIN (Analytical Services and Materials, Inc., Hampton, VA.) Dec. 1991 47 p
(RTOP 593-42-11-01)

(NASA-TP-3146; L-16952; NAS 1.60:3146) Avail: CASI HC
A03/MF A01

COMPUTER PROGRAMS, HEAVY IONS, NUCLEONS, PARTICLE INTERACTIONS, RADIATION SHIELDING, SPACECRAFT SHIELDING

N92-22218*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

AN EFFICIENT HZETRN (A GALACTIC COSMIC RAY TRANSPORT CODE)

JUDY L. SHINN and JOHN W. WILSON Apr. 1992 17 p
(RTOP 593-42-21)

(NASA-TP-3147; L-16954; NAS 1.60:3147) Avail: CASI HC
A03/MF A01

COMPUTER PROGRAMS, ENERGETIC PARTICLES, GALACTIC COSMIC RAYS, GRID GENERATION (MATHEMATICS), INTERPOLATION, MATHEMATICAL MODELS, RADIATION SHIELDING, SPATIAL MARCHING, TRANSPORT THEORY

N92-25100*# National Aeronautics and Space Administration. Langley Research Center, Hampton, VA.

MIRACAL: A MISSION RADIATION CALCULATION PROGRAM FOR ANALYSIS OF LUNAR AND INTERPLANETARY MISSIONS

JOHN E. NEALY, SCOTT A. STRIEPE, and LISA C. SIMONSEN Washington May 1992 16 p
(RTOP 593-42-31-01)

(NASA-TP-3211; L-17044; NAS 1.60:3211) Avail: CASI HC
A03/MF A01

COMPUTER PROGRAMS, MANNED SPACE FLIGHT, MATHEMATICAL MODELS, RADIATION DOSAGE, RADIATION TOLERANCE, SPACE EXPLORATION

N91-15975*# National Aeronautics and Space Administration. Washington, DC.

ENGINES AND INNOVATION: LEWIS LABORATORY AND AMERICAN PROPULSION TECHNOLOGY

VIRGINIA PARKER DAWSON 1991 277 p
(NASA-SP-4306; NAS 1.21:4306; LC-90-20747) Avail: CASI HC
A13/MF A03

This book is an institutional history of the NASA Lewis Research Center, located in Cleveland, Ohio, from 1940, when Congress authorized funding for a third laboratory for the National Advisory Committee for Aeronautics, through the 1980s. The history of the laboratory is discussed in relation to the development of American propulsion technology, with particular focus on the transition in

99 GENERAL

the 1940s from the use of piston engines in airplanes to jet propulsion and that from air-breathing engines to rocket technology when the National Aeronautics and Space Administration was established in 1958. The personalities and research philosophies of the people who shaped the history of the laboratory are discussed, as is the relationship of Lewis Research Center to the Case Institute of Technology. Author

N91-23021*# National Aeronautics and Space Administration, Washington, DC.

TECHNOLOGY 2000, VOLUME 1

Mar. 1991 416 p Conference held in Washington, DC, 27-28 Nov. 1990

(NASA-CP-3109-VOL-1; NAS 1.55:3109-VOL-1) Avail: CASI HC A18/MF A04

ARTIFICIAL INTELLIGENCE, COMPUTER PROGRAMS, COMPUTER SYSTEMS DESIGN, ROBOTICS, TECHNOLOGY UTILIZATION

N91-24041*# National Aeronautics and Space Administration, Washington, DC.

TECHNOLOGY 2000, VOLUME 2

1991 369 p Conference held in Washington, DC, 27-28 Nov. 1990

(NASA-CP-3109-VOL-2; NAS 1.55:3109-VOL-2) Avail: CASI HC A16/MF A03

CONFERENCES, INFORMATION DISSEMINATION, NASA PROGRAMS, PRODUCT DEVELOPMENT, TECHNOLOGY TRANSFER, TECHNOLOGY UTILIZATION

N91-24972*# National Aeronautics and Space Administration, Langley Research Center, Hampton, VA.

FIRST LDEF POST-RETRIEVAL SYMPOSIUM ABSTRACTS

ARLENE S. LEVINE, comp. Jun. 1991 145 p Symposium held in Kissimmee, FL, 2-8 Jun. 1991

(RTOP 196-88-00-03)

(NASA-CP-10072; NAS 1.55:10072) Avail: CASI HC A07/MF A02

ATMOSPHERIC EFFECTS, EXTRATERRESTRIAL RADIATION, LONG DURATION EXPOSURE FACILITY, LONG TERM EFFECTS, RADIATION DOSAGE

N91-28060*# National Aeronautics and Space Administration, Washington, DC.

FIRST AMONG EQUALS: THE SELECTION OF NASA SPACE SCIENCE EXPERIMENTS

JOHN E. NAUGLE 1990 145 p

(NASA-SP-4215; NAS 1.21:4215) Avail: CASI HC A07/MF A02

The process is recounted by which NASA and the scientific community have, since 1958, selected individual experiments for NASA space missions. It explores the scientific and organizational issues involved in the selection process and discusses the significance of the process in the character and accomplishments of U.S. space activities. Author

N92-22423*# National Aeronautics and Space Administration, Washington, DC.

TECHNOLOGY 2001: THE SECOND NATIONAL TECHNOLOGY TRANSFER CONFERENCE AND EXPOSITION, VOLUME 1

Dec. 1991 527 p Conference held in San Jose, CA, 3-5 Dec. 1991

(NASA-CP-3136-VOL-1; NAS 1.55:3136-VOL-1) Avail: CASI HC A23/MF A04

ARTIFICIAL INTELLIGENCE, BIOTECHNOLOGY, CONFERENCES, MANUFACTURING, ROBOTICS, TECHNOLOGY TRANSFER

N92-22676*# National Aeronautics and Space Administration, Washington, DC.

TECHNOLOGY 2001: THE SECOND NATIONAL TECHNOLOGY TRANSFER CONFERENCE AND EXPOSITION, VOLUME 2

Dec. 1991 518 p Conference held in San Jose, CA, 3-5 Dec. 1991

(NASA-CP-3136-VOL-2; NAS 1.55:3136-VOL-2) Avail: CASI HC A22/MF A04

GOVERNMENT/INDUSTRY RELATIONS, MANUFACTURING, ROBOTICS, TECHNOLOGY TRANSFER

N92-23280*# National Aeronautics and Space Administration, Langley Research Center, Hampton, VA.

LDEF: 69 MONTHS IN SPACE. FIRST POST-RETRIEVAL SYMPOSIUM, PART 1

ARLENE S. LEVINE, ed. Washington Jan. 1992 603 p Symposium held in Kissimmee, FL, 2-8 Jun. 1991; sponsored by NASA, Washington Original contains color illustrations (RTOP 196-88-00-03)

(NASA-CP-3134-PT-1; L-17042-PT-1; NAS 1.55:3134-PT-1)

CONFERENCES, LONG DURATION EXPOSURE FACILITY, POSTFLIGHT ANALYSIS, SPACEBORNE EXPERIMENTS

N92-24806*# National Aeronautics and Space Administration, Langley Research Center, Hampton, VA.

LDEF: 69 MONTHS IN SPACE. FIRST POST-RETRIEVAL SYMPOSIUM, PART 2

ARLENE S. LEVINE, ed. Jan. 1992 588 p Symposium held in Kissimmee, FL, 2-8 Jun. 1991; sponsored by NASA, Washington Original contains color illustrations (RTOP 196-88-00-03)

(NASA-CP-3134-PT-2; L-17042-PT-2; NAS 1.55:3134-PT-2)

LIFE SCIENCES, LONG DURATION EXPOSURE FACILITY, RADIATION EFFECTS, SPACEBORNE EXPERIMENTS

N92-24987*# National Aeronautics and Space Administration, Washington, DC.

THE FEDERAL CONFERENCE ON INTELLIGENT PROCESSING EQUIPMENT

Apr. 1992 205 p Conference held in San Jose, CA, 3-5 Dec. 1991

(NASA-CP-3138; NAS 1.55:3138) Avail: CASI HC A10/MF A03

ARTIFICIAL INTELLIGENCE, COMPUTER AIDED MANUFACTURING, CONFERENCES, CONTROL EQUIPMENT, GOVERNMENTS, MATERIALS SCIENCE, PROCESS CONTROL (INDUSTRY), RESEARCH AND DEVELOPMENT, ROBOT CONTROL, UNITED STATES

N92-27083*# National Aeronautics and Space Administration, Langley Research Center, Hampton, VA.

LDEF: 69 MONTHS IN SPACE. FIRST POST-RETRIEVAL SYMPOSIUM, PART 3

ARLENE S. LEVINE, ed. Washington Jan. 1992 485 p Symposium held in Kissimmee, FL, 2-8 Jun. 1991; sponsored by NASA, Washington Original contains color illustrations (RTOP 196-88-00-03)

(NASA-CP-3134-PT-3; L-17042-PT-3; NAS 1.55:3134-PT-3)

Avail: CASI HC A21/MF A04; 1 functional color page

CONFERENCES, LIFE SCIENCES, LONG DURATION EXPOSURE FACILITY, PROPULSION, SATELLITE TEMPERATURE, TEMPERATURE CONTROL, THERMAL CONTROL COATINGS

N92-27218*# National Aeronautics and Space Administration, Langley Research Center, Hampton, VA.

SECOND LDEF POST-RETRIEVAL SYMPOSIUM ABSTRACTS Abstracts Only

ARLENE S. LEVINE, comp. Jun. 1992 133 p Symposium held in San Diego, CA, 1-5 Jun. 1992; sponsored by NASA, Washington and AIAA

(RTOP 196-88-00-03)

(NASA-CP-10097; NAS 1.55:10097) Avail: CASI HC A07/MF A02

EXTRATERRESTRIAL ENVIRONMENTS, LONG DURATION EXPOSURE FACILITY, RADIATION EFFECTS, SPACEBORNE EXPERIMENTS

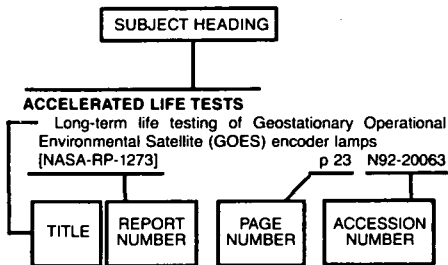
N92-28344*# National Aeronautics and Space Administration, Washington, DC.

NASA ENGINEERS AND THE AGE OF APOLLO

SYLVIA DOUGHTY FRIES 1992 232 p
(NASA-SP-4104; NAS 1.21:4104; LC-90-39761;
ISBN-0-16-036174-5) Avail: CASI HC A11/MF A03

A historical account of NASA's Apollo era engineers is presented. This book is based on interviews that were conducted with fifty-one 'typical' engineers. Author

Typical Subject Index Listing



The subject heading is a key to the subject content of the document. The title is used to provide a description of the subject matter. When the title is insufficiently descriptive of document content, a title extension is added, separated from the title by three hyphens. The accession number and the page number are included in each entry to assist the user in locating the abstract in the abstract section. If applicable, a report number is also included as an aid in identifying the document. Under any one subject heading, the accession numbers are arranged in sequence.

A

ABSORPTIVITY

Optical measurements on solid specimens of solid rocket motor exhaust and solid rocket motor slag
[NASA-TP-3177] p 20 N92-20949

ABSTRACTS

Large space structures and systems in the space station era: A bibliography with indexes
[NASA-SP-7085(01)] p 17 N91-18199

Large space structures and systems in the space station era: A bibliography with indexes
[NASA-SP-7085(02)] p 18 N91-28191

Earth observations and global change decision making: A special bibliography, 1991
[NASA-SP-7092] p 32 N91-30588

Large space structures and systems in the space station era: A bibliography with indexes (supplement 03)
[NASA-SP-7085(03)] p 18 N92-22317

ACCELERATED LIFE TESTS

Long-term life testing of Geostationary Operational Environmental Satellite (GOES) encoder lamps
[NASA-RP-1273] p 23 N92-20063

ACCELERATION (PHYSICS)

Measurement and Characterization of the Acceleration Environment on Board the Space Station
[NASA-CP-3088] p 48 N91-12401

The microgravity environment of the Space Shuttle Columbia middeck during STS-32
[NASA-TP-3140] p 48 N92-11930

The microgravity environment of the Space Shuttle Columbia payload bay during STS-32
[NASA-TP-3141] p 49 N92-11931

ACCELEROMETERS

Measurement and Characterization of the Acceleration Environment on Board the Space Station
[NASA-CP-3088] p 48 N91-12401

The microgravity environment of the Space Shuttle Columbia middeck during STS-32
[NASA-TP-3140] p 48 N92-11930

The microgravity environment of the Space Shuttle Columbia payload bay during STS-32
[NASA-TP-3141] p 49 N92-11931

The High Resolution Accelerometer Package (HiRAP) flight experiment summary for the first 10 flights
[NASA-RP-1267] p 3 N92-22505

ACCEPTABILITY

The effects of video compression on acceptability of images for monitoring life sciences experiments
[NASA-TP-3239] p 16 N92-33933

ACOUSTIC DUCTS

Monograph on propagation of sound waves in curved ducts
[NASA-RP-1248] p 44 N91-15848

ACOUSTIC EXCITATION

Flow-induced resonance of screen-covered cavities
[NASA-TP-3052] p 25 N91-15499

ACOUSTIC MEASUREMENT

Fourth International Symposium on Long-Range Sound Propagation
[NASA-CP-3101] p 44 N91-16682

Second Conference on NDE for Aerospace Requirements
[NASA-CP-3091] p 16 N91-18189

Large-scale aeroacoustic research feasibility and conceptual design of test-section inserts for the Ames 80-by 120-foot wind tunnel
[NASA-TP-3020] p 45 N91-19824

ACOUSTIC PROPAGATION

Monograph on propagation of sound waves in curved ducts
[NASA-RP-1248] p 44 N91-15848

Fourth International Symposium on Long-Range Sound Propagation
[NASA-CP-3101] p 44 N91-16682

Aeroacoustics of flight vehicles: Theory and practice. Volume 2: Noise control
[NASA-RP-1258-VOL-2] p 45 N92-14779

ACOUSTIC PROPERTIES

Large-scale aeroacoustic research feasibility and conceptual design of test-section inserts for the Ames 80-by 120-foot wind tunnel
[NASA-TP-3020] p 45 N91-19824

ACOUSTICS

Wind turbine acoustics
[NASA-TP-3057] p 44 N91-16679

Two-dimensional stability of laminar flames
[NASA-TP-3131] p 7 N92-17131

ACTIVE GALACTIC NUCLEI

Paired and Interacting Galaxies: International Astronomical Union Colloquium No. 124
[NASA-CP-3098] p 49 N91-16858

ACTUATORS

The 25th Aerospace Mechanisms Symposium
[NASA-CP-3113] p 30 N91-24603

The 26th Aerospace Mechanisms Symposium
[NASA-CP-3147] p 30 N92-25067

ADAPTERS

Graphite/epoxy composite adapters for the Space Shuttle/Centaur vehicle
[NASA-TP-3014] p 15 N92-31251

ADAPTIVE CONTROL

Development of an adaptive failure detection and identification system for detecting aircraft control element failures
[NASA-TP-3051] p 12 N91-25151

Ongoing Progress in Spacecraft Controls
[NASA-CP-10099] p 19 N92-28730

AEROACOUSTICS

Flow-induced resonance of screen-covered cavities
[NASA-TP-3052] p 25 N91-15499

Large-scale aeroacoustic research feasibility and conceptual design of test-section inserts for the Ames 80-by 120-foot wind tunnel
[NASA-TP-3020] p 45 N91-19824

Acoustic and aerodynamic study of a pusher-propeller aircraft model
[NASA-TP-3040] p 45 N91-21828

Aeroacoustic and aerodynamic applications of the theory of nonequilibrium thermodynamics
[NASA-TP-3118] p 26 N91-25352

Aeroacoustics of flight vehicles: Theory and practice. Volume 1: Noise sources
[NASA-RP-1258-VOL-1] p 45 N92-10598

Aeroacoustics of flight vehicles: Theory and practice. Volume 2: Noise control
[NASA-RP-1258-VOL-2] p 45 N92-14779

Fourth Aircraft Interior Noise Workshop
[NASA-CP-10103] p 45 N92-32948

AEROASSIST

Simulation of real-gas effects on pressure distributions for aeroassist flight experiment vehicle and comparison with prediction
[NASA-TP-3157] p 27 N92-20677

Stagnation-point heat-transfer rate predictions at aeroassist flight conditions
[NASA-TP-3208] p 27 N92-31281

AERODYNAMIC CHARACTERISTICS

Large-scale aeroacoustic research feasibility and conceptual design of test-section inserts for the Ames 80-by 120-foot wind tunnel
[NASA-TP-3020] p 45 N91-19824

Transonic Symposium: Theory, Application and Experiment, volume 2
[NASA-CP-3020-VOL-2] p 5 N91-24132

Low-speed, powered ground effects of a generic, hypersonic configuration
[NASA-CP-3092] p 5 N91-25103

Aeroacoustic and aerodynamic applications of the theory of nonequilibrium thermodynamics
[NASA-TP-3118] p 26 N91-25352

Wind tunnel investigation of the interaction and breakdown characteristics of slender wing vortices at subsonic, transonic, and supersonic speeds
[NASA-TP-3114] p 6 N92-12994

The High Resolution Accelerometer Package (HiRAP) flight experiment summary for the first 10 flights
[NASA-RP-1267] p 3 N92-22505

The natural flow wing-design concept
[NASA-TP-3193] p 7 N92-25202

Two-dimensional aerodynamic characteristics of several polygon-shaped cross-sectional models applicable to helicopter fuselages
[NASA-TP-3233] p 8 N92-30394

Lewis icing research tunnel test of the aerodynamic effects of aircraft ground deicing/anti-icing fluids
[NASA-TP-3238] p 10 N92-30395

Wind tunnel aerodynamic characteristics of a transport-type airfoil in a simulated heavy rain environment
[NASA-TP-3184] p 8 N92-31532

Effect of afterbody geometry on aerodynamic characteristics of isolated nonaxisymmetric afterbodies at transonic Mach numbers
[NASA-TP-3236] p 9 N92-33706

AERODYNAMIC COEFFICIENTS

Parametric study of afterbody/nozzle drag on twin two-dimensional convergent-divergent nozzles at Mach numbers from 0.60 to 1.20
[NASA-TP-2640] p 4 N91-14316

Physically weighted approximations of unsteady aerodynamic forces using the minimum-state method
[NASA-TP-3025] p 4 N91-18031

Parametric investigation of single-expansion-ramp nozzles at Mach numbers from 0.60 to 1.20
[NASA-TP-3240] p 9 N92-34193

AERODYNAMIC CONFIGURATIONS

A method for designing blended wing-body configurations for low wave drag
[NASA-TP-3261] p 8 N92-32480

AERODYNAMIC DRAG

Applications of a direct/iterative design method to complex transonic configurations
[NASA-TP-3234] p 8 N92-33484

Parametric investigation of single-expansion-ramp nozzles at Mach numbers from 0.60 to 1.20
[NASA-TP-3240] p 9 N92-34193

AERODYNAMIC FORCES

Payload bay doors and radiator panels familiarization handbook
[NASA-TM-107793] p 15 N92-20676

SUBJECT

AERODYNAMIC HEATING

A simplified method for thermal analysis of a cowl leading edge subject to intense local shock-wave-interference heating
[NASA-TP-3167] p 27 N92-24797

AERODYNAMIC INTERFERENCE

Effect of location of aft-mounted nacelles on the longitudinal aerodynamic characteristics of a high-wing transport airplane
[NASA-TP-3047] p 4 N91-13402

Wall-interference assessment and corrections for transonic NACA 0012 airfoil data from various wind tunnels
[NASA-TP-3070] p 5 N91-20043

Installation effects of wing-mounted turbofan nacelle-pylons on a 1/17-scale, twin-engine, low-wing transport model
[NASA-TP-3168] p 7 N92-19002

Comparison of a two-dimensional adaptive-wall technique with analytical wall interference correction techniques
[NASA-TP-3132] p 7 N92-20494

A simplified method for thermal analysis of a cowl leading edge subject to intense local shock-wave-interference heating
[NASA-TP-3167] p 27 N92-24797

AERODYNAMIC LOADS

A method for the design of transonic flexible wings
[NASA-TP-3045] p 10 N91-14323

AERODYNAMIC NOISE

Aeracoustics of flight vehicles: Theory and practice.

Volume 1: Noise sources
[NASA-RP-1258-VOL-1] p 45 N92-10598

Annoyance caused by advanced turboprop aircraft flyover noise: Comparison of different propeller configurations
[NASA-TP-3104] p 45 N92-11758

Fourth Aircraft Interior Noise Workshop
[NASA-CP-10103] p 45 N92-32948

AERODYNAMIC STABILITY

Flight characteristics of a modified Schweizer SGS1-36 sailplane at low and very high angles of attack
[NASA-TP-3022] p 12 N91-10079

Wind-tunnel static and free-flight investigation of high-angle-of-attack stability and control characteristics of a model of the EA-6B airplane
[NASA-TP-3194] p 7 N92-25276

AERODYNAMICS

Aeronautical engineering: A continuing bibliography with indexes (supplement 256)
[NASA-SP-7037(256)] p 1 N91-10002

Aeronautical engineering: A continuing bibliography with indexes (supplement 257)
[NASA-SP-7037(257)] p 1 N91-12589

Aeronautical engineering: A continuing bibliography with indexes (supplement 258)
[NASA-SP-7037(258)] p 1 N91-13399

Aeronautical engineering: A continuing bibliography with indexes (supplement 260)
[NASA-SP-7037(260)] p 1 N91-15978

Aeronautical engineering: A continuing bibliography with indexes (supplement 259)
[NASA-SP-7037(259)] p 1 N91-15979

Flight Mechanics/Estimation Theory Symposium, 1990
[NASA-CP-3102] p 14 N91-17073

Aeronautical engineering: A cumulative index to a continuing bibliography (supplement 261)
[NASA-SP-7037(261)] p 1 N91-23073

Aeronautical engineering: A continuing bibliography with indexes (supplement 262)
[NASA-SP-7037(262)] p 1 N91-23074

Aeronautical engineering: A continuing bibliography with indexes (supplement 265)
[NASA-SP-7037(265)] p 2 N91-24095

Aeronautical engineering: A continuing bibliography with indexes (supplement 263)
[NASA-SP-7037(263)] p 2 N91-24096

Aeronautical engineering: A continuing bibliography with indexes (supplement 264)
[NASA-SP-7037(264)] p 2 N91-24097

Airborne Wind Shear Detection and Warning Systems: Third Combined Manufacturers' and Technologists' Conference, part 1
[NASA-CP-10060-PT-1] p 9 N91-24166

Aeronautical engineering: A continuing bibliography with indexes (supplement 266)
[NASA-SP-7037(266)] p 2 N91-27122

Aeronautical engineering: A continuing bibliography with indexes (supplement 268)
[NASA-SP-7037(268)] p 2 N91-30077

Aeronautical engineering: A continuing bibliography with indexes (supplement 267)
[NASA-SP-7037(267)] p 2 N92-10001

Aeronautical engineering: A continuing bibliography with indexes (supplement 270)
[NASA-SP-7037(270)] p 2 N92-10973

Aeronautical engineering: A continuing bibliography with indexes (supplement 269)
[NASA-SP-7037(269)] p 2 N92-10974

Aeronautical engineering: A continuing bibliography with indexes (supplement 271)
[NASA-SP-7037(271)] p 2 N92-14967

Aeronautical engineering: A continuing bibliography with indexes (supplement 273)
[NASA-SP-7037(273)] p 3 N92-21729

Aeronautical engineering: A continuing bibliography with indexes (supplement 272)
[NASA-SP-7037(272)] p 3 N92-21844

Aeronautical engineering: A continuing bibliography with indexes (supplement 277)
[NASA-SP-7037(277)] p 3 N92-27929

Aeronautical engineering: A continuing bibliography with indexes (supplement 278)
[NASA-SP-7037(278)] p 3 N92-28677

Aeronautical engineering: A continuing bibliography with indexes (supplement 275)
[NASA-SP-7037(275)] p 3 N92-28679

Aeronautical engineering: A continuing bibliography with indexes (supplement 280)
[NASA-SP-7037(280)] p 3 N92-31456

AEROELASTIC RESEARCH WINGS

Design of control laws for flutter suppression based on the aerodynamic energy concept and comparisons with other design methods
[NASA-TP-3056] p 29 N91-10328

AEROELASTICITY

A method for the design of transonic flexible wings
[NASA-TP-3045] p 10 N91-14323

Development of an integrated aeroservoelastic analysis program and correlation with test data
[NASA-TP-3120] p 2 N91-26113

Longitudinal aerodynamic characteristics of a subsonic, energy-efficient transport configuration in the National Transonic Facility
[NASA-TP-2922] p 6 N91-28143

Planform curvature effects on flutter characteristics of a wing with 56 deg leading-edge sweep and panel aspect ratio of 1.14
[NASA-TP-3116] p 11 N92-13054

AEROMANEUVERING

Hypervelocity atmospheric flight: Real gas flow fields
[NASA-RP-1249] p 26 N91-20418

AERONAUTICAL ENGINEERING

Aeronautical engineering: A continuing bibliography with indexes (supplement 256)
[NASA-SP-7037(256)] p 1 N91-10002

Aeronautical engineering: A continuing bibliography with indexes (supplement 257)
[NASA-SP-7037(257)] p 1 N91-12589

Aeronautical engineering: A continuing bibliography with indexes (supplement 258)
[NASA-SP-7037(258)] p 1 N91-13399

Aeronautical engineering: A continuing bibliography with indexes (supplement 260)
[NASA-SP-7037(260)] p 1 N91-15978

Aeronautical engineering: A continuing bibliography with indexes (supplement 259)
[NASA-SP-7037(259)] p 1 N91-15979

Aeronautical engineering: A cumulative index to a continuing bibliography (supplement 261)
[NASA-SP-7037(261)] p 1 N91-23073

Aeronautical engineering: A continuing bibliography with indexes (supplement 262)
[NASA-SP-7037(262)] p 1 N91-23074

Aeronautical engineering: A continuing bibliography with indexes (supplement 265)
[NASA-SP-7037(265)] p 2 N91-24095

Aeronautical engineering: A continuing bibliography with indexes (supplement 263)
[NASA-SP-7037(263)] p 2 N91-24096

Aeronautical engineering: A continuing bibliography with indexes (supplement 264)
[NASA-SP-7037(264)] p 2 N91-24097

Aeronautical engineering: A continuing bibliography with indexes (supplement 266)
[NASA-SP-7037(266)] p 2 N91-27122

Aeronautical engineering: A continuing bibliography with indexes (supplement 268)
[NASA-SP-7037(268)] p 2 N91-30077

Aeronautical engineering: A continuing bibliography with indexes (supplement 267)
[NASA-SP-7037(267)] p 2 N92-10001

Aeronautical engineering: A continuing bibliography with indexes (supplement 270)
[NASA-SP-7037(270)] p 2 N92-10973

Aeronautical engineering: A continuing bibliography with indexes (supplement 269)
[NASA-SP-7037(269)] p 2 N92-10974

Aeronautical engineering: A continuing bibliography with indexes (supplement 271)
[NASA-SP-7037(271)] p 2 N92-14967

Aeronautical engineering: A continuing bibliography with indexes (supplement 273)
[NASA-SP-7037(273)] p 3 N92-21729

Aeronautical engineering: A continuing bibliography with indexes (supplement 272)
[NASA-SP-7037(272)] p 3 N92-21844

Aeronautical engineering: A continuing bibliography with indexes (supplement 277)
[NASA-SP-7037(277)] p 3 N92-27929

Aeronautical engineering: A continuing bibliography with indexes (supplement 278)
[NASA-SP-7037(278)] p 3 N92-28677

Aeronautical engineering: A continuing bibliography with indexes (supplement 275)
[NASA-SP-7037(275)] p 3 N92-28679

Aeronautical engineering: A continuing bibliography with indexes (supplement 280)
[NASA-SP-7037(280)] p 3 N92-31456

AERONAUTICS

Aeronautical engineering: A continuing bibliography with indexes (supplement 278)
[NASA-SP-7037(278)] p 3 N92-28677

AEROSOLS

SAM 2 measurements of the polar stratospheric aerosol. Volume 9: October 1982 - April 1983
[NASA-RP-1244] p 33 N91-18505

Volcanism-Climate Interactions
[NASA-CP-10062] p 34 N91-21641

International Workshop on Stratospheric Aerosols: Measurements, Properties, and Effects
[NASA-CP-3114] p 32 N91-32528

SAGE 1 data user's guide
[NASA-RP-1275] p 34 N92-33097

AEROSPACE ENGINEERING

NASA patent abstracts bibliography: A continuing bibliography. Section 1: Abstracts (supplement 38)
[NASA-SP-7039(38)-SECT-1] p 47 N91-17833

NASA patent abstracts bibliography: A continuing bibliography. Section 2: Indexes (supplement 38)
[NASA-SP-7039(38)-SECT-2] p 47 N91-17834

Aerospace Applications of Magnetic Suspension Technology, part 1
[NASA-CP-10066-PT-1] p 17 N91-21188

The 25th Aerospace Mechanisms Symposium
[NASA-CP-3113] p 30 N91-24603

NASA patent abstracts bibliography: A continuing bibliography. Section 1: Abstracts (supplement 39)
[NASA-SP-7039(39)-SECT-1] p 48 N91-28042

NASA patent abstracts bibliography: A continuing bibliography. Section 2: Indexes (supplement 39)
[NASA-SP-7039(39)-SECT-2] p 48 N91-29088

Beyond the Baseline 1991: Proceedings of the Space Station Evolution Symposium. Volume 2: Space Station Freedom, part 1
[NASA-CP-10083-VOL-2-PT-1] p 18 N92-17768

NASA patent abstracts bibliography: A continuing bibliography. Section 1: Abstracts (supplement 40)
[NASA-SP-7039(40)-SECT-1] p 48 N92-22508

The 1992 Goddard Conference on Space Applications of Artificial Intelligence
[NASA-CP-3141] p 43 N92-23356

The 26th Aerospace Mechanisms Symposium
[NASA-CP-3147] p 30 N92-25067

NASA patent abstracts bibliography: A continuing bibliography. Section 2: Indexes (supplement 40)
[NASA-SP-7039(40)-SECT-2] p 48 N92-27081

The 1990 NASA Aerospace Battery Workshop
[NASA-CP-3119] p 20 N92-27130

NASA patent abstracts bibliography: A continuing bibliography. Section 2: Indexes (supplement 41)
[NASA-SP-7039(41)-SECT-2] p 48 N92-31455

AEROSPACE ENVIRONMENTS

Space Photovoltaic Research and Technology Conference
[NASA-CP-3121] p 19 N91-30203

Analyses of risks associated with radiation exposure from past major solar particle events
[NASA-TP-3137] p 50 N91-31061

Electrical and chemical interactions at Mars Workshop, part 1
[NASA-CP-10093] p 50 N92-30302

AEROSPACE MEDICINE

Aerospace medicine and biology: A continuing bibliography with indexes (supplement 341)
[NASA-SP-7011(341)] p 37 N91-10594

Aerospace medicine and biology: A continuing bibliography with indexes (supplement 342)
[NASA-SP-7011(342)] p 37 N91-13063

Aerospace medicine and biology: A continuing bibliography with indexes (supplement 343)
[NASA-SP-7011(343)] p 37 N91-14711

Aerospace medicine and biology: A continuing bibliography with indexes (supplement 344)
[NASA-SP-7011(344)] p 37 N91-14712

- Aerospace medicine and biology: A cumulative index to a continuing bibliography (supplement 345)
[NASA-SP-7011(345)] p 37 N91-16547
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 346)
[NASA-SP-7011(346)] p 37 N91-23700
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 347)
[NASA-SP-7011(347)] p 37 N91-23701
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 348)
[NASA-SP-7011(348)] p 37 N91-23702
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 349)
[NASA-SP-7011(349)] p 37 N91-24731
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 350)
[NASA-SP-7011(350)] p 38 N91-25600
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 351)
[NASA-SP-7011(351)] p 38 N91-27756
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 352)
[NASA-SP-7011(352)] p 38 N91-28729
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 353)
[NASA-SP-7011(353)] p 38 N91-31760
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 354)
[NASA-SP-7011(354)] p 38 N92-12404
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 355)
[NASA-SP-7011(355)] p 38 N92-12412
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 356)
[NASA-SP-7011(356)] p 38 N92-15538
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 357)
[NASA-SP-7011(357)] p 39 N92-21714
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 359)
[NASA-SP-7011(359)] p 39 N92-21715
- Aerospace medicine and biology: A cumulative index to a continuing bibliography (supplement 358)
[NASA-SP-7011(358)] p 39 N92-22026
- Fifth Annual Workshop on Space Operations Applications and Research (SOAR 1991), volume 2
[NASA-CP-3127-VOL-2] p 41 N92-22324
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 362)
[NASA-SP-7011(362)] p 39 N92-27068
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 361)
[NASA-SP-7011(361)] p 39 N92-27433
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 363)
[NASA-SP-7011(363)] p 39 N92-30987
- AEROSPACE PLANES**
- Rocket-Based Combined-Cycle (RBCC) Propulsion Technology Workshop. Tutorial session
[NASA-CP-10090] p 20 N92-21517
- AEROSPACE SCIENCES**
- NASA Thesaurus supplement: A four part cumulative supplement to the 1988 edition of the NASA Thesaurus (supplement 4)
[NASA-SP-7064-SUPPL-4] p 47 N91-10804
- NASA scientific and technical publications: A catalog of special publications, reference publications, conference publications, and technical papers, 1989
[NASA-SP-7063(04)] p 47 N91-13374
- NASA Thesaurus supplement: A four part cumulative supplement to the 1988 edition of the NASA Thesaurus (supplement 5)
[NASA-SP-7064-SUPPL-5] p 47 N91-19962
- NASA scientific and technical publications: A catalog of special publications, reference publications, conference publications, and technical papers, 1987-1990
[NASA-SP-7063(05)] p 47 N91-24939
- AEROSPACE SYSTEMS**
- Second Conference on NDE for Aerospace Requirements
[NASA-CP-3091] p 16 N91-18189
- Fourth NASA Workshop on Computational Control of Flexible Aerospace Systems, part 1
[NASA-CP-10065-PT-1] p 17 N91-22307
- Fourth NASA Workshop on Computational Control of Flexible Aerospace Systems, part 2
[NASA-CP-10065-PT-2] p 17 N91-22331
- Methods of applied dynamics
[NASA-PP-1262] p 24 N91-25303
- AEROSPACE VEHICLES**
- The 1991 International Aerospace and Ground Conference on Lightning and Static Electricity, volume 1
[NASA-CP-3106-VOL-1] p 35 N91-32599
- AEROTHERMODYNAMICS**
- Advanced Hypervelocity Aerophysics Facility Workshop
[NASA-CP-10031] p 13 N91-24211
- AFTERBODIES**
- Parametric study of afterbody/nozzle drag on twin two-dimensional convergent-divergent nozzles at Mach numbers from 0.60 to 1.20
[NASA-TP-2640] p 4 N91-14316
- Effect of afterbody geometry on aerodynamic characteristics of isolated nonaxisymmetric afterbodies at transonic Mach numbers
[NASA-TP-3236] p 9 N92-33706
- AGING (MATERIALS)**
- Long-term life testing of Geostationary Operational Environmental Satellite (GOES) encoder lamps
[NASA-PP-1273] p 23 N92-20063
- The 1991 International Conference on Aging Aircraft and Structural Airworthiness
[NASA-CP-3160] p 31 N92-30106
- AIR**
- Calculations and curve fits of thermodynamic and transport properties for equilibrium air to 30000 K
[NASA-PP-1260] p 26 N92-11285
- AIR BREATHING ENGINES**
- Aeropropulsion 1991
[NASA-CP-10063] p 12 N91-20086
- AIR JETS**
- Venturi air-jet vacuum ejectors for high-volume atmospheric sampling on aircraft platforms
[NASA-TP-3183] p 11 N92-20546
- AIR POLLUTION**
- The atmospheric effects of stratospheric aircraft: A first program report
[NASA-PP-1272] p 33 N92-19121
- AIR SAMPLING**
- Venturi air-jet vacuum ejectors for high-volume atmospheric sampling on aircraft platforms
[NASA-TP-3183] p 11 N92-20546
- AIR TRAFFIC CONTROL**
- Aviation Safety/Automation Program Conference
[NASA-CP-3090] p 9 N91-10936
- Report of the workshop on Aviation Safety/Automation Program
[NASA-CP-10054] p 9 N91-15141
- Flight tests with a data link used for air traffic control information exchange
[NASA-TP-3135] p 11 N91-31143
- Flight deck benefits of integrated data link communication
[NASA-TP-3219] p 10 N92-21459
- AIR TRAFFIC CONTROLLERS (PERSONNEL)**
- Report of the workshop on Aviation Safety/Automation Program
[NASA-CP-10054] p 9 N91-15141
- AIR TRANSPORTATION**
- Joint University Program for Air Transportation Research, 1989-1990
[NASA-CP-3095] p 1 N91-19024
- Joint University Program for Air Transportation Research, 1990-1991
[NASA-CP-3131] p 3 N92-17984
- AIR WATER INTERACTIONS**
- NASA Wallops Flight Facility Air-Sea Interaction Research Facility
[NASA-PP-1277] p 36 N92-25981
- AIRBORNE EQUIPMENT**
- Airborne Wind Shear Detection and Warning Systems. Second Combined Manufacturers' and Technologists' Conference, part 1
[NASA-CP-10050-PT-1] p 9 N91-11682
- Airborne Wind Shear Detection and Warning Systems: Third Combined Manufacturers' and Technologists' Conference, part 2
[NASA-CP-10060-PT-2] p 9 N91-24140
- Venturi air-jet vacuum ejectors for high-volume atmospheric sampling on aircraft platforms
[NASA-TP-3183] p 11 N92-20546
- AIRCRAFT COMMUNICATION**
- Flight deck benefits of integrated data link communication
[NASA-TP-3219] p 10 N92-21459
- AIRCRAFT CONFIGURATIONS**
- Span reduction effects on the flutter characteristics of arrow-wing supersonic transport configurations
[NASA-TP-3077] p 11 N91-21127
- Static internal performance of ventral and rear nozzle concepts for short-takeoff and vertical-landing aircraft
[NASA-TP-3103] p 6 N92-10975
- The natural flow wing-design concept
[NASA-TP-3193] p 7 N92-25202
- Applications of a direct/iterative design method to complex transonic configurations
[NASA-TP-3234] p 8 N92-33484
- Effect of afterbody geometry on aerodynamic characteristics of isolated nonaxisymmetric afterbodies at transonic Mach numbers
[NASA-TP-3236] p 9 N92-33706
- AIRCRAFT CONSTRUCTION MATERIALS**
- Eighth DOD/NASA/FAA Conference on Fibrous Composites in Structural Design, part 2
[NASA-CP-3087-PT-2] p 22 N92-32574
- AIRCRAFT CONTROL**
- A controls engineering approach for analyzing airplane input-output characteristics
[NASA-TP-3072] p 12 N91-20128
- Fourth NASA Workshop on Computational Control of Flexible Aerospace Systems, part 2
[NASA-CP-10065-PT-2] p 17 N91-22331
- Development of an adaptive failure detection and identification system for detecting aircraft control element failures
[NASA-TP-3051] p 12 N91-25151
- Application and flight test of linearizing transformations using measurement feedback to the nonlinear control problem
[NASA-TP-3154] p 12 N91-30154
- Visually Guided Control of Movement
[NASA-CP-3118] p 39 N92-21467
- Wind-tunnel static and free-flight investigation of high-angle-of-attack stability and control characteristics of a model of the EA-6B airplane
[NASA-TP-3194] p 7 N92-25276
- AIRCRAFT DESIGN**
- Effect of location of aft-mounted nacelles on the longitudinal aerodynamic characteristics of a high-wing transport airplane
[NASA-TP-3047] p 4 N91-13402
- A method for the design of transonic flexible wings
[NASA-TP-3045] p 10 N91-14323
- Proceedings of the X-15 First Flight 30th Anniversary Celebration
[NASA-CP-3105] p 10 N91-20071
- Aeropropulsion 1991
[NASA-CP-10063] p 12 N91-20086
- Transonic Symposium: Theory, Application and Experiment, volume 2
[NASA-CP-3020-VOL-2] p 5 N91-24132
- Evaluation of cloud detection instruments and performance of laminar-flow leading-edge test articles during NASA Leading-Edge Flight-Test Program
[NASA-TP-2888] p 11 N91-24199
- The natural flow wing-design concept
[NASA-TP-3193] p 7 N92-25202
- Computational Structures Technology for Airframes and Propulsion Systems
[NASA-CP-3142] p 31 N92-25911
- Aeronautical engineering: A continuing bibliography with indexes (supplement 278)
[NASA-SP-7037(278)] p 3 N92-28677
- Aeronautical engineering: A continuing bibliography with indexes (supplement 275)
[NASA-SP-7037(275)] p 3 N92-28679
- A method for designing blended wing-body configurations for low wave drag
[NASA-TP-3261] p 8 N92-32480
- Eighth DOD/NASA/FAA Conference on Fibrous Composites in Structural Design, part 1
[NASA-CP-3087-PT-1] p 22 N92-32513
- Applications of a direct/iterative design method to complex transonic configurations
[NASA-TP-3234] p 8 N92-33484
- Survey and analysis of research on supersonic drag-due-to-lift minimization with recommendations for wing design
[NASA-TP-3202] p 9 N92-33656
- AIRCRAFT ENGINES**
- Aeropropulsion 1991
[NASA-CP-10063] p 12 N91-20086
- Aeronautical engineering: A continuing bibliography with indexes (supplement 267)
[NASA-SP-7037(267)] p 2 N92-10001
- Aeropropulsion 1987
[NASA-CP-3049] p 12 N92-22510
- AIRCRAFT EQUIPMENT**
- Aeronautical engineering: A continuing bibliography with indexes (supplement 267)
[NASA-SP-7037(267)] p 2 N92-10001
- AIRCRAFT GUIDANCE**
- Airborne Wind Shear Detection and Warning Systems. Second Combined Manufacturers' and Technologists' Conference, part 2
[NASA-CP-10050-PT-2] p 9 N91-11695
- AIRCRAFT HAZARDS**
- Airborne Wind Shear Detection and Warning Systems. Second Combined Manufacturers' and Technologists' Conference, part 1
[NASA-CP-10050-PT-1] p 9 N91-11682

- The 1991 International Aerospace and Ground Conference on Lightning and Static Electricity, volume 1 [NASA-CP-3106-VOL-1] p 35 N91-32599
- AIRCRAFT INDUSTRY**
The 1991 International Conference on Aging Aircraft and Structural Airworthiness [NASA-CP-3160] p 31 N92-30106
- AIRCRAFT MAINTENANCE**
The 1991 International Conference on Aging Aircraft and Structural Airworthiness [NASA-CP-3160] p 31 N92-30106
- AIRCRAFT MANEUVERS**
Control integration concept for hypersonic cruise-turn maneuvers [NASA-TP-3136] p 13 N92-20195
- AIRCRAFT MODELS**
A controls engineering approach for analyzing airplane input-output characteristics [NASA-TP-3072] p 12 N91-20128
Acoustic and aerodynamic study of a pusher-propeller aircraft model [NASA-TP-3040] p 45 N91-21828
Low-speed, powered ground effects of a generic, hypersonic configuration [NASA-TP-3092] p 5 N91-25103
Two-dimensional aerodynamic characteristics of several polygon-shaped cross-sectional models applicable to helicopter fuselages [NASA-TP-3233] p 8 N92-30394
Effect of afterbody geometry on aerodynamic characteristics of isolated nonaxisymmetric afterbodies at transonic Mach numbers [NASA-TP-3236] p 9 N92-33706
- AIRCRAFT NOISE**
Fourth International Symposium on Long-Range Sound Propagation [NASA-CP-3101] p 44 N91-16682
Aeroacoustics of flight vehicles: Theory and practice. Volume 1: Noise sources [NASA-TP-1258-VOL-1] p 45 N92-10598
Annoyance caused by advanced turboprop aircraft flyover noise: Comparison of different propeller configurations [NASA-TP-3104] p 45 N92-11758
Annoyance caused by aircraft en route noise [NASA-TP-3165] p 45 N92-20479
Fourth Aircraft Interior Noise Workshop [NASA-CP-10103] p 45 N92-32948
- AIRCRAFT PERFORMANCE**
Joint University Program for Air Transportation Research, 1989-1990 [NASA-CP-3095] p 1 N91-19024
Airborne Wind Shear Detection and Warning Systems: Third Combined Manufacturers' and Technologists' Conference, part 1 [NASA-CP-10060-PT-1] p 9 N91-24166
Control integration concept for hypersonic cruise-turn maneuvers [NASA-TP-3136] p 13 N92-20195
The 1991 International Conference on Aging Aircraft and Structural Airworthiness [NASA-CP-3160] p 31 N92-30106
- AIRCRAFT RELIABILITY**
The 1991 International Conference on Aging Aircraft and Structural Airworthiness [NASA-CP-3160] p 31 N92-30106
- AIRCRAFT SAFETY**
Aviation Safety/Automation Program Conference [NASA-CP-3090] p 9 N91-10936
Joint University Program for Air Transportation Research, 1990-1991 [NASA-CP-3131] p 3 N92-17984
The development of the NASA aviation safety reporting system [NASA-TP-1114] p 10 N91-70436
- AIRCRAFT STABILITY**
Aeronautical engineering: A continuing bibliography with indexes (supplement 275) [NASA-SP-7037(275)] p 3 N92-28679
- AIRCRAFT STRUCTURES**
Failure behavior of generic metallic and composite aircraft structural components under crash loads [NASA-TP-1239] p 29 N91-13751
Computational Structures Technology for Airframes and Propulsion Systems [NASA-CP-3142] p 31 N92-25911
The 1991 International Conference on Aging Aircraft and Structural Airworthiness [NASA-CP-3160] p 31 N92-30106
- AIRCRAFT TIRES**
Static footprint local forces, areas, and aspect ratios for three type 7 aircraft tires [NASA-TP-2983] p 10 N91-17014
Computational methods for frictionless contact with application to Space Shuttle Orbiter nose-gear tires [NASA-TP-3073] p 30 N91-22576
- AIRCRAFT WAKES**
Acoustic and aerodynamic study of a pusher-propeller aircraft model [NASA-TP-3040] p 45 N91-21828
- AIRFOIL PROFILES**
Calibration of the 13- by 13-inch adaptive wall test section for the Langley 0.3-meter transonic cryogenic tunnel [NASA-TP-3049] p 13 N91-13461
A method for the design of transonic flexible wings [NASA-TP-3045] p 10 N91-14323
Wall-interference assessment and corrections for transonic NACA 0012 airfoil data from various wind tunnels [NASA-TP-3070] p 5 N91-20043
Full-scale semispan tests of a business-jet wing with a natural laminar flow airfoil [NASA-TP-3133] p 6 N91-30098
Influence of airfoil geometry on delta wing leading-edge vortices and vortex-induced aerodynamics at supersonic speeds [NASA-TP-3105] p 7 N92-20038
- AIRFOILS**
Numerical study of the aerodynamic effects of using sulfur hexafluoride as a test gas in wind tunnels [NASA-TP-3086] p 5 N91-22070
Comparison of a two-dimensional adaptive-wall technique with analytical wall interference correction techniques [NASA-TP-3132] p 7 N92-20494
Wind tunnel aerodynamic characteristics of a transport-type airfoil in a simulated heavy rain environment [NASA-TP-3184] p 8 N92-31532
- AIRFRAMES**
Computational Structures Technology for Airframes and Propulsion Systems [NASA-CP-3142] p 31 N92-25911
- AIRLINE OPERATIONS**
Evaluation of cloud detection instruments and performance of laminar-flow leading-edge test articles during NASA Leading-Edge Flight-Test Program [NASA-TP-2888] p 11 N91-24199
- ALBEDO**
User's guide: Nimbus-7 Earth radiation budget narrow-field-of-view products. Scene radiance tape products, sorting into angular bins products, and maximum likelihood cloud estimation products [NASA-TP-1246] p 34 N91-13043
- ALGAE**
Controlled Ecological Life Support Systems: Natural and Artificial Ecosystems [NASA-CP-10040] p 40 N91-24744
- ALGORITHMS**
NASA Computational Fluid Dynamics Conference. Volume 2: Sessions 7-12 [NASA-CP-10038-VOL-2] p 4 N91-10868
User's guide: Nimbus-7 Earth radiation budget narrow-field-of-view products. Scene radiance tape products, sorting into angular bins products, and maximum likelihood cloud estimation products [NASA-TP-1246] p 34 N91-13043
An explicit upwind algorithm for solving the parabolized Navier-Stokes equations [NASA-TP-3050] p 4 N91-18032
An upwind-biased space marching algorithm for supersonic viscous flow [NASA-TP-3068] p 26 N91-18381
Improvements in computational accuracy of BRYNTRN (a baryon transport code) [NASA-TP-3093] p 51 N91-23017
Guidance, navigation, and control subsystem equipment selection algorithm using expert system methods [NASA-TP-3082] p 42 N91-25624
A comparison of airborne wake vortex detection measurements with values predicted from potential theory [NASA-TP-3125] p 10 N92-10994
Space Network Control Conference on Resource Allocation Concepts and Approaches [NASA-CP-3124] p 16 N92-11039
A generalized method for multiple robotic manipulator programming applied to vertical-up welding [NASA-TP-3163] p 24 N92-11218
Computational Fluid Dynamics — numerical methods and algorithm development [NASA-CP-10078] p 12 N92-25808
Experimental validation of clock synchronization algorithms [NASA-TP-3209] p 42 N92-27589
The effects of video compression on acceptability of images for monitoring life sciences experiments [NASA-TP-3239] p 16 N92-33933
- ALLOYS**
The interaction of hydrogen with metal alloys [NASA-TP-3128] p 23 N91-29318
- ALUMINIDES**
Oxidation characteristics of Ti-25Al-10Nb-3V-1Mo intermetallic alloy [NASA-TP-3044] p 22 N91-13522
- ALUMINUM ALLOYS**
Surface effects on hydrogen permeation through Ti-14Al-21Nb alloy [NASA-TP-3109] p 23 N91-20266
- ANECHOIC CHAMBERS**
Annoyance caused by aircraft en route noise [NASA-TP-3165] p 45 N92-20479
- ANGLE OF ATTACK**
Flight characteristics of a modified Schweizer SGS-136 sailplane at low and very high angles of attack [NASA-TP-3022] p 12 N91-10079
Transonic and supersonic Euler computations of vortex-dominated flow fields about a generic fighter [NASA-TP-3156] p 6 N92-10011
Wind-tunnel static and free-flight investigation of high-angle-of-attack stability and control characteristics of a model of the EA-6B airplane [NASA-TP-3194] p 7 N92-25276
- ANGULAR DISTRIBUTION**
Inclusive inelastic scattering of heavy ions and nuclear correlations [NASA-TP-3026] p 46 N91-13985
- ANGULAR VELOCITY**
A nonlinear estimator for reconstructing the angular velocity of a spacecraft without rate gyros [NASA-TP-3178] p 24 N92-13343
- ANISOTROPIC PLATES**
Buckling behavior of long symmetrically laminated plates subjected to combined loadings [NASA-TP-3195] p 22 N92-25160
- ANNUAL VARIATIONS**
Atlas of the Earth's radiation budget as measured by Nimbus-7: May 1979 to May 1980 [NASA-TP-1263] p 35 N91-24720
- ANNULAR FLOW**
Three-component laser anemometer measurement systems [NASA-TP-3080] p 5 N91-19057
Laser anemometer measurements and computations in an annular cascade of high turning core turbine vanes [NASA-TP-3252] p 8 N92-28980
- ANOMALIES**
J-85 jet engine noise measured in the ONERA S1 wind tunnel and extrapolated to far field [NASA-TP-3053] p 45 N91-19823
- ANTARCTIC REGIONS**
SAM 2 measurements of the polar stratospheric aerosol. Volume 9: October 1982 - April 1983 [NASA-TP-1244] p 33 N91-18505
West Antarctic Ice Sheet Initiative. Volume 1: Science and Implementation Plan [NASA-CP-3115-VOL-1] p 32 N91-20541
West Antarctic Ice Sheet Initiative. Volume 2: Discipline Reviews [NASA-CP-3115-VOL-2] p 32 N91-26573
Nimbus-7 TOMS Antarctic ozone atlas: August - December 1990 [NASA-TP-1264] p 35 N91-26651
- ANTENNA DESIGN**
On-orbit structural dynamic performance of a 15-meter microwave radiometer antenna [NASA-TP-3041] p 16 N91-17114
A new fabrication method for precision antenna reflectors for space flight and ground test [NASA-TP-3078] p 17 N91-21185
- ANTHROPOMETRY**
Responses of women to orthostatic and exercise stresses [NASA-TP-3043] p 37 N91-19711
- ANTICYCLONES**
Inertial oscillation of a vertical rotating draft with application to a supercell storm [NASA-TP-3230] p 36 N92-33482
- APOLLO PROJECT**
NASA engineers and the age of Apollo [NASA-SP-4104] p 52 N92-28344
- APPLICATIONS PROGRAMS (COMPUTERS)**
A method for determining spiral-bevel gear tooth geometry for finite element analysis [NASA-TP-3096] p 28 N92-10195
- ARCHITECTURE (COMPUTERS)**
Guidance, navigation, and control subsystem equipment selection algorithm using expert system methods [NASA-TP-3082] p 42 N91-25624
Control Center Technology Conference Proceedings [NASA-CP-10081] p 14 N92-12010
Destination-directed, packet-switching architecture for 30/20-GHz FDMA/TDM geostationary communications satellite network [NASA-TP-3201] p 16 N92-19762

ARCTIC REGIONS

SAM 2 measurements of the polar stratospheric aerosol.
Volume 9: October 1982 - April 1983
[NASA-RP-1244] p 33 N91-18505

AREA

Static footprint local forces, areas, and aspect ratios for three type 7 aircraft tires
[NASA-TP-2983] p 10 N91-17014

ARROW WINGS

Span reduction effects on the flutter characteristics of arrow-wing supersonic transport configurations
[NASA-TP-3077] p 11 N91-21127

ARTIFICIAL GRAVITY

Benefits from synergies and advanced technologies for an advanced-technology space station
[NASA-TP-3067] p 14 N91-20177

ARTIFICIAL INTELLIGENCE

The 1991 Goddard Conference on Space Applications of Artificial Intelligence
[NASA-CP-3110] p 43 N91-22769

Technology 2000, volume 1
[NASA-CP-3109-VOL-1] p 52 N91-23021

Technology 2001: The Second National Technology Transfer Conference and Exposition, volume 1
[NASA-CP-3136-VOL-1] p 52 N92-22423

The 1992 Goddard Conference on Space Applications of Artificial Intelligence
[NASA-CP-3141] p 43 N92-23356

The Federal Conference on Intelligent Processing Equipment
[NASA-CP-3138] p 52 N92-24987

ASPECT RATIO

Static footprint local forces, areas, and aspect ratios for three type 7 aircraft tires
[NASA-TP-2983] p 10 N91-17014

ASTRONAUT PERFORMANCE

Reliability of a Shuttle reaction timer
[NASA-TP-3176] p 40 N92-16562

ASTRONAUTICS

Aeronautical engineering: A continuing bibliography with indexes (supplement 278)
[NASA-SP-7037(278)] p 3 N92-28677

Aeronautical engineering: A continuing bibliography with indexes (supplement 275)
[NASA-SP-7037(275)] p 3 N92-28679

ASTRONAUTS

Nutritional Requirements for Space Station Freedom Crews
[NASA-CP-3146] p 40 N92-25961

ASTRONOMICAL MODELS

Interstellar Dust: Contributed Papers
[NASA-CP-3036] p 48 N91-14897

ASTRONOMICAL SPECTROSCOPY

The Compton Observatory Science Workshop
[NASA-CP-3137] p 49 N92-21874

ASTRONOMY

Paired and Interacting Galaxies: International Astronomical Union Colloquium No. 124
[NASA-CP-3098] p 49 N91-16858

ASTROPHYSICS

The Compton Observatory Science Workshop
[NASA-CP-3137] p 49 N92-21874

ATMOSPHERIC CHEMISTRY

The atmospheric effects of stratospheric aircraft: A current consensus
[NASA-RP-1251] p 33 N91-16467

Volcanism-Climate Interactions
[NASA-CP-10062] p 34 N91-21641

SAGE 1 data user's guide
[NASA-RP-1275] p 34 N92-33097

ATMOSPHERIC CIRCULATION

NASA/MSFC FY90 Global Scale Atmospheric Processes Research Program Review
[NASA-CP-3093] p 35 N91-16500

Sixteenth International Laser Radar Conference, part 1
[NASA-CP-3158-PT-1] p 28 N92-29228

Inertial oscillation of a vertical rotating draft with application to a supercell storm
[NASA-TP-3230] p 36 N92-33482

Inertial oscillation of a vertical rotating draft with application to a supercell storm: Video supplement to NASA Technical Paper 3230
[NASA-TP-3230-VIDEO-SUPPL] p 36 N92-34246

ATMOSPHERIC COMPOSITION

The atmospheric effects of stratospheric aircraft: A topical review
[NASA-RP-1250] p 33 N91-16466

SAGE 1 data user's guide
[NASA-RP-1275] p 34 N92-33097

ATMOSPHERIC EFFECTS

The atmospheric effects of stratospheric aircraft: A topical review
[NASA-RP-1250] p 33 N91-16466

The atmospheric effects of stratospheric aircraft: A current consensus
[NASA-RP-1251] p 33 N91-16467

First LDEF Post-Retrieval Symposium abstracts
[NASA-CP-10072] p 52 N91-24972

The atmospheric effects of stratospheric aircraft: A first program report
[NASA-RP-1272] p 33 N92-19121

Sixteenth International Laser Radar Conference, part 1
[NASA-CP-3158-PT-1] p 28 N92-29228

High-Speed Research: Sonic Boom, volume 1
[NASA-CP-3172] p 11 N92-33874

ATMOSPHERIC MODELS

The atmospheric effects of stratospheric aircraft: A current consensus
[NASA-RP-1251] p 33 N91-16467

NASA/MSFC FY90 Global Scale Atmospheric Processes Research Program Review
[NASA-CP-3093] p 35 N91-16500

Volcanism-Climate Interactions
[NASA-CP-10062] p 34 N91-21641

Inertial oscillation of a vertical rotating draft with application to a supercell storm: Video supplement to NASA Technical Paper 3230
[NASA-TP-3230-VIDEO-SUPPL] p 36 N92-34246

ATMOSPHERIC MOISTURE

The role of water vapor in climate. A strategic research plan for the proposed GEWEX water vapor project (GvAp)
[NASA-CP-3120] p 35 N91-25556

ATMOSPHERIC PHYSICS

NASA/MSFC FY90 Global Scale Atmospheric Processes Research Program Review
[NASA-CP-3093] p 35 N91-16500

NASA/MSFC FY91 Global Scale Atmospheric Processes Research Program Review
[NASA-CP-3126] p 35 N91-32660

Inertial oscillation of a vertical rotating draft with application to a supercell storm
[NASA-TP-3230] p 36 N92-33482

ATMOSPHERIC RADIATION

Limb-darkening functions as derived from along-track operation of the ERBE scanning radiometers for August 1985
[NASA-RP-1243] p 34 N91-14683

Mission description and in-flight operations of ERBE instruments on ERBS and NOAA 9 spacecraft, November 1984 - January 1986
[NASA-RP-1256] p 32 N92-10208

ATMOSPHERIC SOUNDING

NASA/MSFC FY90 Global Scale Atmospheric Processes Research Program Review
[NASA-CP-3093] p 35 N91-16500

ATMOSPHERIC TURBULENCE

Development of an adaptive failure detection and identification system for detecting aircraft control element failures
[NASA-TP-3051] p 12 N91-25151

High-Speed Research: Sonic Boom, volume 1
[NASA-CP-3172] p 11 N92-33874

ATOMIC CLOCKS

The 22nd Annual Precise Time and Time Interval (PTTI) Applications and Planning Meeting
[NASA-CP-3116] p 44 N91-25755

ATTENUATORS

Determination of the flight hardware configuration of an energy absorbing attenuator for the proposed Space Station crew and equipment translation aid cart
[NASA-TP-3084] p 29 N91-21556

ATTITUDE (INCLINATION)

Fight Mechanics/Estimation Theory Symposium, 1990
[NASA-CP-3102] p 14 N91-17073

Fight Mechanics/Estimation Theory Symposium, 1991
[NASA-CP-3123] p 14 N92-14070

ATTITUDE GYROS

A nonlinear estimator for reconstructing the angular velocity of a spacecraft without rate gyros
[NASA-TP-3178] p 24 N92-13343

AUDITORY STIMULI

Reliability of a Shuttle reaction timer
[NASA-TP-3176] p 40 N92-16562

AUTOCLAVES

A statistical comparison of two carbon fiber/epoxy fabrication techniques
[NASA-TP-3179] p 22 N92-20950

AUTOMATIC CONTROL

Proceedings of the Second Joint Technology Workshop on Neural Networks and Fuzzy Logic, volume 2
[NASA-CP-10061-VOL-2] p 43 N91-20811

Automating a spacecraft electrical power system using expert systems
[NASA-TP-3161] p 20 N92-12052

Software design for automated assembly of truss structures
[NASA-TP-3198] p 43 N92-28375

AUTONOMY

Automating a spacecraft electrical power system using expert systems
[NASA-TP-3161] p 20 N92-12052

AVIATION METEOROLOGY

The 1991 International Aerospace and Ground Conference on Lightning and Static Electricity, volume 1
[NASA-CP-3106-VOL-1] p 35 N91-32599

AVIONICS

Aviation Safety/Automation Program Conference
[NASA-CP-3090] p 9 N91-10936

Space Transportation Avionics Technology Symposium. Volume 2: Conference Proceedings
[NASA-CP-3081-VOL-2] p 11 N91-17020

NASA Formal Methods Workshop, 1990
[NASA-CP-10052] p 42 N91-17559

Joint University Program for Air Transportation Research, 1989-1990
[NASA-CP-3095] p 1 N91-19024

AXES (REFERENCE LINES)

A nonlinear estimator for reconstructing the angular velocity of a spacecraft without rate gyros
[NASA-TP-3178] p 24 N92-13343

AXIAL COMPRESSION LOADS

Compression behavior of graphite-thermoplastic and graphite-epoxy panels with circular holes or impact damage
[NASA-TP-3071] p 21 N91-18215

AXIAL LOADS

Plate and butt-weld stresses beyond elastic limit, material and structural modeling
[NASA-TP-3075] p 29 N91-16413

B**BACKSCATTERING**

Sixteenth International Laser Radar Conference, part 1
[NASA-CP-3158-PT-1] p 28 N92-29228

BANDPASS FILTERS

A scheme for bandpass filtering magnetometer measurements to reconstruct tethered satellite skiprope motion
[NASA-TP-3123] p 42 N91-25629

BANDWIDTH

The effect of bandwidth on telerobot system performance
[NASA-TP-3152] p 28 N91-30540

The effects of video compression on acceptability of images for monitoring life sciences experiments
[NASA-TP-3239] p 16 N92-33933

BARYONS

Improvements in computational accuracy of BRYNTRN (a baryon transport code)
[NASA-TP-3093] p 51 N91-23017

BASE PRESSURE

Simulation of real-gas effects on pressure distributions for aeroassist flight experiment vehicle and comparison with prediction
[NASA-TP-3157] p 27 N92-20677

BAYS (STRUCTURAL UNITS)

The microgravity environment of the Space Shuttle Columbia payload bay during STS-32
[NASA-TP-3141] p 49 N92-11931

Payload bay doors and radiator panels familiarization handbook
[NASA-TM-107793] p 15 N92-20676

BEAMS (SUPPORTS)

Research in Structures, Structural Dynamics and Materials, 1990
[NASA-CP-3064] p 29 N91-10301

Influence of mass moment of inertia on normal modes of preloaded solar array mast
[NASA-TP-3273] p 31 N92-33476

BED REST

Fuel utilization during exercise after 7 days of bed rest
[NASA-TP-3175] p 38 N92-16554

Eccentric and concentric muscle performance following 7 days of simulated weightlessness
[NASA-TP-3182] p 39 N92-17645

BEND TESTS

Stress concentrations for straight-shank and countersunk holes in plates subjected to tension, bending, and pin loading
[NASA-TP-3192] p 31 N92-25997

BENDING

Monograph on propagation of sound waves in curved ducts
[NASA-RP-1248] p 44 N91-15848

Plate and butt-weld stresses beyond elastic limit, material and structural modeling
[NASA-TP-3075] p 29 N91-16413

Buckling behavior of long symmetrically laminated plates subjected to combined loadings
[NASA-TP-3195] p 22 N92-25160

- Influence of mass moment of inertia on normal modes of preloaded solar array mast
[NASA-TP-3273] p 31 N92-33476
- BIBLIOGRAPHIES**
- Aeronautical engineering: A continuing bibliography with indexes (supplement 256)
[NASA-SP-7037(256)] p 1 N91-10002
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 341)
[NASA-SP-7011(341)] p 37 N91-10594
- Aeronautical engineering: A continuing bibliography with indexes (supplement 257)
[NASA-SP-7037(257)] p 1 N91-12589
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 342)
[NASA-SP-7011(342)] p 37 N91-13063
- NASA scientific and technical publications: A catalog of special publications, reference publications, conference publications, and technical papers, 1989
[NASA-SP-7063(04)] p 47 N91-13374
- Aeronautical engineering: A continuing bibliography with indexes (supplement 258)
[NASA-SP-7037(258)] p 1 N91-13399
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 343)
[NASA-SP-7011(343)] p 37 N91-14711
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 344)
[NASA-SP-7011(344)] p 37 N91-14712
- Aeronautical engineering: A continuing bibliography with indexes (supplement 260)
[NASA-SP-7037(260)] p 1 N91-15978
- Aeronautical engineering: A continuing bibliography with indexes (supplement 259)
[NASA-SP-7037(259)] p 1 N91-15979
- Aerospace medicine and biology: A cumulative index to a continuing bibliography (supplement 345)
[NASA-SP-7011(345)] p 37 N91-16547
- NASA patent abstracts bibliography: A continuing bibliography. Section 1: Abstracts (supplement 38)
[NASA-SP-7039(38)-SECT-1] p 47 N91-17833
- NASA patent abstracts bibliography: A continuing bibliography. Section 2: Indexes (supplement 38)
[NASA-SP-7039(38)-SECT-2] p 47 N91-17834
- Large space structures and systems in the space station era: A bibliography with indexes
[NASA-SP-7085(01)] p 17 N91-18199
- Aeronautical engineering: A cumulative index to a continuing bibliography (supplement 261)
[NASA-SP-7037(261)] p 1 N91-23073
- Aeronautical engineering: A continuing bibliography with indexes (supplement 262)
[NASA-SP-7037(262)] p 1 N91-23074
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 346)
[NASA-SP-7011(346)] p 37 N91-23700
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 347)
[NASA-SP-7011(347)] p 37 N91-23701
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 348)
[NASA-SP-7011(348)] p 37 N91-23702
- Aeronautical engineering: A continuing bibliography with indexes (supplement 265)
[NASA-SP-7037(265)] p 2 N91-24095
- Aeronautical engineering: A continuing bibliography with indexes (supplement 263)
[NASA-SP-7037(263)] p 2 N91-24096
- Aeronautical engineering: A continuing bibliography with indexes (supplement 264)
[NASA-SP-7037(264)] p 2 N91-24097
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 349)
[NASA-SP-7011(349)] p 37 N91-24731
- Management: A bibliography for NASA managers
[NASA-SP-7500(25)] p 46 N91-24936
- NASA scientific and technical publications: A catalog of special publications, reference publications, conference publications, and technical papers, 1987-1990
[NASA-SP-7063(05)] p 47 N91-24939
- International exploration of Mars. A special bibliography
[NASA-SP-7091] p 49 N91-24965
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 350)
[NASA-SP-7011(350)] p 38 N91-25600
- Aeronautical engineering: A continuing bibliography with indexes (supplement 266)
[NASA-SP-7037(266)] p 2 N91-27122
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 351)
[NASA-SP-7011(351)] p 38 N91-27756
- NASA patent abstracts bibliography: A continuing bibliography. Section 1: Abstracts (supplement 39)
[NASA-SP-7039(39)-SECT-1] p 48 N91-28042
- Large space structures and systems in the space station era: A bibliography with indexes
[NASA-SP-7085(02)] p 18 N91-28191
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 352)
[NASA-SP-7011(352)] p 38 N91-28729
- NASA patent abstracts bibliography: A continuing bibliography. Section 2: Indexes (supplement 39)
[NASA-SP-7039(39)-SECT-2] p 48 N91-29088
- Aeronautical engineering: A continuing bibliography with indexes (supplement 268)
[NASA-SP-7037(268)] p 2 N91-30077
- Earth observations and global change decision making: A special bibliography, 1991
[NASA-SP-7092] p 32 N91-30588
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 353)
[NASA-SP-7011(353)] p 38 N91-31760
- Aeronautical engineering: A continuing bibliography with indexes (supplement 267)
[NASA-SP-7037(267)] p 2 N92-10001
- Aeronautical engineering: A continuing bibliography with indexes (supplement 270)
[NASA-SP-7037(270)] p 2 N92-10973
- Aeronautical engineering: A continuing bibliography with indexes (supplement 269)
[NASA-SP-7037(269)] p 2 N92-10974
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 354)
[NASA-SP-7011(354)] p 38 N92-12404
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 355)
[NASA-SP-7011(355)] p 38 N92-12412
- Aeronautical engineering: A continuing bibliography with indexes (supplement 271)
[NASA-SP-7037(271)] p 2 N92-14967
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 356)
[NASA-SP-7011(356)] p 38 N92-15538
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 357)
[NASA-SP-7011(357)] p 39 N92-21714
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 359)
[NASA-SP-7011(359)] p 39 N92-21715
- Aeronautical engineering: A continuing bibliography with indexes (supplement 273)
[NASA-SP-7037(273)] p 3 N92-21729
- Aeronautical engineering: A continuing bibliography with indexes (supplement 272)
[NASA-SP-7037(272)] p 3 N92-21844
- Aerospace medicine and biology: A cumulative index to a continuing bibliography (supplement 358)
[NASA-SP-7011(358)] p 39 N92-22026
- Large space structures and systems in the space station era: A bibliography with indexes (supplement 03)
[NASA-SP-7085(03)] p 18 N92-22317
- NASA patent abstracts bibliography: A continuing bibliography. Section 1: Abstracts (supplement 40)
[NASA-SP-7039(40)-SECT-1] p 48 N92-22508
- Continuous improvement: A bibliography with indexes, 1989-1991
[NASA-SP-7097] p 47 N92-22665
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 362)
[NASA-SP-7011(362)] p 39 N92-27068
- Management: A bibliography for NASA managers
[NASA-SP-7500(26)] p 47 N92-27080
- NASA patent abstracts bibliography: A continuing bibliography. Section 2: Indexes (supplement 40)
[NASA-SP-7039(40)-SECT-2] p 48 N92-27081
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 361)
[NASA-SP-7011(361)] p 39 N92-27433
- Aeronautical engineering: A continuing bibliography with indexes (supplement 277)
[NASA-SP-7037(277)] p 3 N92-27929
- Aeronautical engineering: A continuing bibliography with indexes (supplement 278)
[NASA-SP-7037(278)] p 3 N92-28677
- Aeronautical engineering: A continuing bibliography with indexes (supplement 275)
[NASA-SP-7037(275)] p 3 N92-28679
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 363)
[NASA-SP-7011(363)] p 39 N92-30987
- NASA patent abstracts bibliography: A continuing bibliography. Section 2: Indexes (supplement 41)
[NASA-SP-7039(41)-SECT-2] p 48 N92-31455
- Aeronautical engineering: A continuing bibliography with indexes (supplement 280)
[NASA-SP-7037(280)] p 3 N92-31456
- BINARY ALLOYS**
- Equivalent crystal theory of alloys
[NASA-TP-3155] p 23 N91-30318
- BIOASTRONAUTICS**
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 341)
[NASA-SP-7011(341)] p 37 N91-10594
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 342)
[NASA-SP-7011(342)] p 37 N91-13063
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 343)
[NASA-SP-7011(343)] p 37 N91-14711
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 344)
[NASA-SP-7011(344)] p 37 N91-14712
- Aerospace medicine and biology: A cumulative index to a continuing bibliography (supplement 345)
[NASA-SP-7011(345)] p 37 N91-16547
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 346)
[NASA-SP-7011(346)] p 37 N91-23700
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 347)
[NASA-SP-7011(347)] p 37 N91-23701
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 348)
[NASA-SP-7011(348)] p 37 N91-23702
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 349)
[NASA-SP-7011(349)] p 37 N91-24731
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 350)
[NASA-SP-7011(350)] p 38 N91-25600
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 351)
[NASA-SP-7011(351)] p 38 N91-27756
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 352)
[NASA-SP-7011(352)] p 38 N91-28729
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 353)
[NASA-SP-7011(353)] p 38 N91-31760
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 354)
[NASA-SP-7011(354)] p 38 N92-12404
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 355)
[NASA-SP-7011(355)] p 38 N92-12412
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 356)
[NASA-SP-7011(356)] p 38 N92-15538
- Reliability of a Shuttle reaction timer
[NASA-TP-3176] p 40 N92-16562
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 357)
[NASA-SP-7011(357)] p 39 N92-21714
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 359)
[NASA-SP-7011(359)] p 39 N92-21715
- Aerospace medicine and biology: A cumulative index to a continuing bibliography (supplement 358)
[NASA-SP-7011(358)] p 39 N92-22026
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 362)
[NASA-SP-7011(362)] p 39 N92-27068
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 361)
[NASA-SP-7011(361)] p 39 N92-27433
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 363)
[NASA-SP-7011(363)] p 39 N92-30987
- BIODYNAMICS**
- Correlation and prediction of dynamic human isolated joint strength from lean body mass
[NASA-TP-3207] p 40 N92-26682
- BIOLOGICAL EFFECTS**
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 341)
[NASA-SP-7011(341)] p 37 N91-10594
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 342)
[NASA-SP-7011(342)] p 37 N91-13063
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 343)
[NASA-SP-7011(343)] p 37 N91-14711
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 344)
[NASA-SP-7011(344)] p 37 N91-14712
- Aerospace medicine and biology: A cumulative index to a continuing bibliography (supplement 345)
[NASA-SP-7011(345)] p 37 N91-16547
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 346)
[NASA-SP-7011(346)] p 37 N91-23700
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 347)
[NASA-SP-7011(347)] p 37 N91-23701

- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 348) [NASA-SP-7011(348)] p 37 N91-23702
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 349) [NASA-SP-7011(349)] p 37 N91-24731
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 350) [NASA-SP-7011(350)] p 38 N91-25600
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 351) [NASA-SP-7011(351)] p 38 N91-27756
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 352) [NASA-SP-7011(352)] p 38 N91-28729
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 353) [NASA-SP-7011(353)] p 38 N91-31760
- Cellular repair/misrepair track model [NASA-TP-3124] p 42 N92-11685
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 354) [NASA-SP-7011(354)] p 38 N92-12404
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 355) [NASA-SP-7011(355)] p 38 N92-12412
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 356) [NASA-SP-7011(356)] p 38 N92-15538
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 357) [NASA-SP-7011(357)] p 39 N92-21714
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 359) [NASA-SP-7011(359)] p 39 N92-21715
- Aerospace medicine and biology: A cumulative index to a continuing bibliography (supplement 358) [NASA-SP-7011(358)] p 39 N92-22026
- Nutritional Requirements for Space Station Freedom Crews [NASA-CP-3146] p 40 N92-25961
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 362) [NASA-SP-7011(362)] p 39 N92-27068
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 361) [NASA-SP-7011(361)] p 39 N92-27433
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 363) [NASA-SP-7011(363)] p 39 N92-30987
- Track structure model of cell damage in space flight [NASA-TG-3235] p 39 N92-34154
- BIOLOGICAL EVOLUTION**
Fourth Symposium on Chemical Evolution and the Origin and Evolution of Life [NASA-CP-3129] p 41 N92-13588
- BIOLOGICAL MODELS (MATHEMATICS)**
Cellular track model of biological damage to mammalian cell cultures from galactic cosmic rays [NASA-TP-3055] p 50 N91-16981
- Radiation risk predictions for Space Station Freedom orbits [NASA-TP-3098] p 51 N91-26107
- BIOMEDICAL DATA**
Evaluation of noninvasive cardiac output methods during exercise [NASA-TP-3174] p 38 N92-16553
- BIOREACTORS**
Experimental measurement of the orbital paths of particles sedimenting within a rotating viscous fluid as influenced by gravity [NASA-TP-3200] p 40 N92-28897
- BIOSPHERE**
Biological Life Support Technologies: Commercial Opportunities [NASA-CP-3094] p 36 N91-13842
- BIOTECHNOLOGY**
Technology 2001: The Second National Technology Transfer Conference and Exposition, volume 1 [NASA-CP-3136-VOL-1] p 52 N92-22423
- BLADE TIPS**
Wake geometry effects on rotor blade-vortex interaction noise directivity [NASA-TP-3015] p 44 N91-12315
- BLADE-VORTEX INTERACTION**
Wake geometry effects on rotor blade-vortex interaction noise directivity [NASA-TP-3015] p 44 N91-12315
- BLUNT BODIES**
Simulation of real-gas effects on pressure distributions for aerassist flight experiment vehicle and comparison with prediction [NASA-TP-3157] p 27 N92-20677
- Two-dimensional aerodynamic characteristics of several polygon-shaped cross-sectional models applicable to helicopter fuselages [NASA-TP-3233] p 8 N92-30394
- BOATTAILS**
Effect of afterbody geometry on aerodynamic characteristics of isolated nonaxisymmetric afterbodies at transonic Mach numbers [NASA-TP-3236] p 9 N92-33706
- BODY-WING CONFIGURATIONS**
Transonic Symposium: Theory, Application and Experiment, volume 2 [NASA-CP-3020-VOL-2] p 5 N91-24132
- Transonic and supersonic Euler computations of vortex-dominated flow fields about a generic fighter [NASA-TP-3156] p 6 N92-10011
- A method for designing blended wing-body configurations for low wave drag [NASA-TP-3261] p 8 N92-32480
- Survey and analysis of research on supersonic drag-due-to-lift minimization with recommendations for wing design [NASA-TP-3202] p 9 N92-33656
- BOEING AIRCRAFT**
Lewis icing research tunnel test of the aerodynamic effects of aircraft ground deicing/anti-icing fluids [NASA-TP-3238] p 10 N92-30395
- BOILER PLATE**
Long-term orbital lifetime predictions [NASA-TP-3058] p 13 N91-10092
- BONE DEMINERALIZATION**
Workshop on Exercise Prescription for Long-Duration Space Flight [NASA-CP-3051] p 36 N91-10574
- Techniques for determination of impact forces during walking and running in a zero-G environment [NASA-TP-3159] p 38 N92-17022
- BOOSTER ROCKET ENGINES**
Parametric trade studies on a Shuttle 2 launch system architecture [NASA-TP-3059] p 14 N91-18180
- Space Transportation Propulsion Technology Symposium, Volume 1: Executive summary [NASA-CP-3112] p 19 N91-25176
- BOUNDARIES**
Validation of three-dimensional incompressible spatial direct numerical simulation code: A comparison with linear stability and parabolic stability equation theories for boundary-layer transition on a flat plate [NASA-TP-3205] p 8 N92-30295
- Applications of FEM and BEM in two-dimensional fracture mechanics problems [NASA-TP-3277] p 31 N92-31280
- BOUNDARY CONDITIONS**
Panel methods: An introduction [NASA-TP-2995] p 5 N91-19058
- Validation of three-dimensional incompressible spatial direct numerical simulation code: A comparison with linear stability and parabolic stability equation theories for boundary-layer transition on a flat plate [NASA-TP-3205] p 8 N92-30295
- BOUNDARY ELEMENT METHOD**
Analysis and prediction of Multiple-Site Damage (MSD) fatigue crack growth [NASA-TP-3231] p 31 N92-31279
- Applications of FEM and BEM in two-dimensional fracture mechanics problems [NASA-TP-3277] p 31 N92-31280
- BOUNDARY LAYER CONTROL**
Evaluation of cloud detection instruments and performance of laminar-flow leading-edge test articles during NASA Leading-Edge Flight-Test Program [NASA-TP-2888] p 11 N91-24199
- BOUNDARY LAYER FLOW**
Wall-interference assessment and corrections for transonic NACA 0012 airfoil data from various wind tunnels [NASA-TP-3070] p 5 N91-20043
- Modeling of the heat transfer in bypass transitional boundary-layer flows [NASA-TP-3170] p 27 N92-11299
- BOUNDARY LAYER TRANSITION**
Longitudinal aerodynamic characteristics of a subsonic, energy-efficient transport configuration in the National Transonic Facility [NASA-TP-2922] p 6 N91-28143
- Modeling of the heat transfer in bypass transitional boundary-layer flows [NASA-TP-3170] p 27 N92-11299
- Validation of three-dimensional incompressible spatial direct numerical simulation code: A comparison with linear stability and parabolic stability equation theories for boundary-layer transition on a flat plate [NASA-TP-3205] p 8 N92-30295
- BOUNDARY LAYERS**
Evaluation of a technique to generate artificially thickened boundary layers in supersonic and hypersonic flows [NASA-TP-3142] p 6 N91-28136
- Calculation of unsteady transonic flows with mild separation by viscous-inviscid interaction [NASA-TP-3197] p 7 N92-28477
- Validation of three-dimensional incompressible spatial direct numerical simulation code: A comparison with linear stability and parabolic stability equation theories for boundary-layer transition on a flat plate [NASA-TP-3205] p 8 N92-30295
- BRAKES (FOR ARRESTING MOTION)**
Determination of the flight hardware configuration of an energy absorbing attenuator for the proposed Space Station crew and equipment translation aid cart [NASA-TP-3084] p 29 N91-21556
- BREADBOARD MODELS**
Automating a spacecraft electrical power system using expert systems [NASA-TP-3161] p 20 N92-12052
- BUCKLING**
Research in Structures, Structural Dynamics and Materials, 1990 [NASA-CP-3064] p 29 N91-10301
- Buckling and vibration analysis of a simply supported column with a piecewise constant cross section [NASA-TP-3090] p 29 N91-20503
- Effect of low-speed impact damage and damage location on behavior of composite panels [NASA-TP-3196] p 22 N92-23981
- Buckling behavior of long symmetrically laminated plates subjected to combined loadings [NASA-TP-3195] p 22 N92-25160
- BYPASS RATIO**
Installation effects of wing-mounted turbofan nacelle-pylons on a 1/17-scale, twin-engine, low-wing transport model [NASA-TP-3168] p 7 N92-19002
- BYPASSES**
Modeling of the heat transfer in bypass transitional boundary-layer flows [NASA-TP-3170] p 27 N92-11299
- C**
- CABLES (ROPES)**
Cable compliance [NASA-TP-3216] p 24 N92-30378
- CALIBRATING**
User's guide: Nimbus-7 Earth radiation budget narrow-field-of-view products. Scene radiance tape products, sorting into angular bins products, and maximum likelihood cloud estimation products [NASA-RP-1246] p 34 N91-13043
- Calibration of the 13- by 13-inch adaptive wall test section for the Langley 0.3-meter transonic cryogenic tunnel [NASA-TP-3049] p 13 N91-13461
- Nimbus-7 TOMS Antarctic ozone atlas: August - December 1990 [NASA-RP-1264] p 35 N91-26651
- Development of the Burst and Transient Source Experiment (BATSE) [NASA-RP-1268] p 49 N91-32006
- CALORIC REQUIREMENTS**
Fuel utilization during exercise after 7 days of bed rest [NASA-TP-3175] p 38 N92-16554
- CAMBERED WINGS**
Survey and analysis of research on supersonic drag-due-to-lift minimization with recommendations for wing design [NASA-TP-3202] p 9 N92-33656
- CAPACITANCE**
A self-zeroing capacitance probe for water wave measurements [NASA-RP-1278] p 36 N92-27930
- CARBOHYDRATE METABOLISM**
Fuel utilization during exercise after 7 days of bed rest [NASA-TP-3175] p 38 N92-16554
- CARBON DIOXIDE**
Evaluation of noninvasive cardiac output methods during exercise [NASA-TP-3174] p 38 N92-16553
- CARBON FIBER REINFORCED PLASTICS**
A statistical comparison of two carbon fiber/epoxy fabrication techniques [NASA-TP-3179] p 22 N92-20950
- CARBON FIBERS**
A statistical comparison of two carbon fiber/epoxy fabrication techniques [NASA-TP-3179] p 22 N92-20950

CARBON MONOXIDE

The Interstellar Medium in External Galaxies: Summaries of contributed papers
[NASA-CP-3084] p 49 N91-14100

CARDIAC OUTPUT

Evaluation of noninvasive cardiac output methods during exercise
[NASA-TP-3174] p 38 N92-16553

CARDIOVASCULAR SYSTEM

Workshop on Exercise Prescription for Long-Duration Space Flight
[NASA-CP-3051] p 36 N91-10574

CARTS

Determination of the flight hardware configuration of an energy absorbing attenuator for the proposed Space Station crew and equipment translation aid cart
[NASA-TP-3084] p 29 N91-21556

CASCADE FLOW

Laser anemometer measurements and computations in an annular cascade of high turning core turbine vanes
[NASA-TP-3252] p 8 N92-28980

CATALOGS (PUBLICATIONS)

NASA scientific and technical publications: A catalog of special publications, reference publications, conference publications, and technical papers, 1989
[NASA-SP-7063(04)] p 47 N91-13374
NASA scientific and technical publications: A catalog of special publications, reference publications, conference publications, and technical papers, 1987-1990
[NASA-SP-7063(05)] p 47 N91-24939

CAVITIES

Flow-induced resonance of screen-covered cavities
[NASA-TP-3052] p 25 N91-15499

Experimental investigation of porous-floor effects on cavity flow fields at supersonic speeds
[NASA-TP-3032] p 5 N91-19042

Effects of yaw angle and Reynolds number on rectangular-box cavities at subsonic and transonic speeds
[NASA-TP-3099] p 5 N91-27124

Measurements of forces, moments, and pressures on a generic store separating from a box cavity at supersonic speeds
[NASA-TP-3110] p 6 N92-10005

CAVITY FLOW

Experimental investigation of porous-floor effects on cavity flow fields at supersonic speeds
[NASA-TP-3032] p 5 N91-19042

CELL DIVISION

Multiple lesion track structure model
[NASA-TP-3185] p 39 N92-22186

CELLS (BIOLOGY)

Cellular track model of biological damage to mammalian cell cultures from galactic cosmic rays
[NASA-TP-3055] p 50 N91-16981

Radiation risk predictions for Space Station Freedom orbits
[NASA-TP-3098] p 51 N91-26107

Cellular repair/misrepair track model
[NASA-TP-3124] p 42 N92-11685

Multiple lesion track structure model
[NASA-TP-3185] p 39 N92-22186

Experimental measurement of the orbital paths of particles sedimenting within a rotating viscous fluid as influenced by gravity
[NASA-TP-3200] p 40 N92-28897

Track structure model of cell damage in space flight
[NASA-TP-3235] p 39 N92-34154

CENTAUR LAUNCH VEHICLE

Graphite/epoxy composite adapters for the Space Shuttle/Centaur vehicle
[NASA-TP-3014] p 15 N92-31251

CERAMIC COATINGS

Gibbs free energy of reactions involving SiC, Si₃N₄, H₂, and H₂O as a function of temperature and pressure
[NASA-TP-3275] p 23 N92-31278

CERAMIC MATRIX COMPOSITES

High-temperature durability considerations for HSCT combustor
[NASA-TP-3162] p 23 N92-17070

CHANNEL FLOW

A weakly nonlinear theory for wave-vortex interactions in curved channel flow
[NASA-TP-3158] p 7 N92-19175

CHAOS

Steady induction effects in geomagnetism. Part 1A: Steady motional induction of geomagnetic chaos
[NASA-TP-3272-PT-1A] p 34 N92-32655

CHARGED PARTICLES

Transport methods and interactions for space radiations
[NASA-RP-1257] p 51 N92-15956

CHEMICAL COMPOSITION

Electrical and chemical interactions at Mars Workshop, part 1
[NASA-CP-10093] p 50 N92-30302

CHEMICAL EVOLUTION

Fourth Symposium on Chemical Evolution and the Origin and Evolution of Life
[NASA-CP-3129] p 41 N92-13588

CHEMICAL PROPERTIES

Sand and Dust on Mars
[NASA-CP-10074] p 50 N91-27057

CHEMICAL PROPULSION

Lunar missions using chemical propulsion: System design issues
[NASA-TP-3065] p 19 N91-15308

CIRRUS CLOUDS

FIRE Science Results 1988
[NASA-CP-3083] p 34 N91-10448

CIVIL AVIATION

Flight tests with a data link used for air traffic control information exchange
[NASA-TP-3135] p 11 N91-31143

Computational Structures Technology for Airframes and Propulsion Systems
[NASA-CP-3142] p 31 N92-25911

CLIMATE

Climate Impact of Solar Variability
[NASA-CP-3086] p 50 N91-12456

Volcanism-Climate Interactions
[NASA-CP-10062] p 34 N91-21641

The role of water vapor in climate. A strategic research plan for the proposed GEWEX water vapor project (GvAP)
[NASA-CP-3120] p 35 N91-25556

CLIMATE CHANGE

Climate Impact of Solar Variability
[NASA-CP-3086] p 50 N91-12456

West Antarctic Ice Sheet Initiative. Volume 1: Science and Implementation Plan
[NASA-CP-3115-VOL-1] p 32 N91-20541

The role of water vapor in climate. A strategic research plan for the proposed GEWEX water vapor project (GvAP)
[NASA-CP-3120] p 35 N91-25556

Sixteenth International Laser Radar Conference, part 1
[NASA-CP-3158-PT-1] p 28 N92-29228

SAGE 1 data user's guide
[NASA-RP-1275] p 34 N92-33097

CLIMATOLOGY

FIRE Science Results 1988
[NASA-CP-3083] p 34 N91-10448

Climate Impact of Solar Variability
[NASA-CP-3086] p 50 N91-12456

The atmospheric effects of stratospheric aircraft: A topical review
[NASA-RP-1250] p 33 N91-16466

West Antarctic Ice Sheet Initiative. Volume 2: Discipline Reviews
[NASA-CP-3115-VOL-2] p 32 N91-26573

International Workshop on Stratospheric Aerosols: Measurements, Properties, and Effects
[NASA-CP-3114] p 32 N91-32528

CLOCKS

Experimental validation of clock synchronization algorithms
[NASA-TP-3209] p 42 N92-27589

CLOSED ECOLOGICAL SYSTEMS

Biological Life Support Technologies: Commercial Opportunities
[NASA-CP-3094] p 36 N91-13842

Controlled Ecological Life Support Systems: Natural and Artificial Ecosystems
[NASA-CP-10040] p 40 N91-24744

CLOUD PHYSICS

Volcanism-Climate Interactions
[NASA-CP-10062] p 34 N91-21641

CLOUDS

Evaluation of cloud detection instruments and performance of laminar-flow leading-edge test articles during NASA Leading-Edge Flight-Test Program
[NASA-TP-2888] p 11 N91-24199

CLOUDS (METEOROLOGY)

Atlas of the Earth's radiation budget as measured by Nimbus-7: May 1979 to May 1980
[NASA-RP-1263] p 35 N91-24720

COBALT

The 23 to 300 C demagnetization resistance of samarium-cobalt permanent magnets
[NASA-TP-3119] p 25 N92-11252

COCKPITS

Aviation Safety/Automation Program Conference
[NASA-CP-3090] p 9 N91-10936

CODERS

Long-term life testing of Geostationary Operational Environmental Satellite (GOES) encoder lamps
[NASA-RP-1273] p 23 N92-20063

CODING

Advanced Modulation and Coding Technology Conference
[NASA-CP-10053] p 16 N92-22001

COHESION

Equivalent crystal theory of alloys
[NASA-TP-3155] p 23 N91-30318

COLLISIONS

Paired and Interacting Galaxies: International Astronomical Union Colloquium No. 124
[NASA-CP-3098] p 49 N91-18858

Orbital debris: Technical issues and future directions
[NASA-CP-10077] p 49 N92-33478

COLUMBIA (ORBITER)

The microgravity environment of the Space Shuttle Columbia middeck during STS-32
[NASA-TP-3140] p 48 N92-11930

The microgravity environment of the Space Shuttle Columbia payload bay during STS-32
[NASA-TP-3141] p 49 N92-11931

COLUMNS (SUPPORTS)

Buckling and vibration analysis of a simply supported column with a piecewise constant cross section
[NASA-TP-3090] p 29 N91-20503

Determination of the flight hardware configuration of an energy absorbing attenuator for the proposed Space Station crew and equipment translation aid cart
[NASA-TP-3084] p 29 N91-21556

COMBUSTIBLE FLOW

Computational Fluid Dynamics Symposium on Aeropropulsion
[NASA-CP-3078] p 5 N91-21062

COMBUSTION CHAMBERS

Computational Fluid Dynamics Symposium on Aeropropulsion
[NASA-CP-3078] p 5 N91-21062

High-temperature durability considerations for HSCT combustor
[NASA-TP-3162] p 23 N92-17070

An analysis of combustion studies in shock expansion tunnels and reflected shock tunnels
[NASA-TP-3224] p 22 N92-28374

COMBUSTION CHEMISTRY

Two-dimensional stability of laminar flames
[NASA-TP-3131] p 7 N92-17131

An analysis of combustion studies in shock expansion tunnels and reflected shock tunnels
[NASA-TP-3224] p 22 N92-28374

COMBUSTION PHYSICS

An analysis of combustion studies in shock expansion tunnels and reflected shock tunnels
[NASA-TP-3224] p 22 N92-28374

COMBUSTION PRODUCTS

Optical measurements on solid specimens of solid rocket motor exhaust and solid rocket motor slag
[NASA-TP-3177] p 20 N92-20949

COMMERCIAL AIRCRAFT

Annoyance caused by aircraft en route noise
[NASA-TP-3165] p 45 N92-20479

COMMUNICATION NETWORKS

Structural factoring approach for analyzing stochastic networks
[NASA-TP-3069] p 43 N91-18753

Control Center Technology Conference Proceedings
[NASA-CP-10081] p 14 N92-12010

Space Communications Technology Conference: Onboard Processing and Switching
[NASA-CP-3132] p 25 N92-14202

Propagation effects for land mobile satellite systems: Overview of experimental and modeling results
[NASA-RP-1274] p 25 N92-20404

COMMUNICATION SATELLITES

A new fabrication method for precision antenna reflectors for space flight and ground test
[NASA-TP-3078] p 17 N91-21185

Space Communications Technology Conference: Onboard Processing and Switching
[NASA-CP-3132] p 25 N92-14202

Destination-directed, packet-switching architecture for 30/20-GHz FDMA/TDM geostationary communications satellite network
[NASA-TP-3201] p 16 N92-19762

COMPLEX SYSTEMS

Model reduction by trimming for a class of semi-Markov reliability models and the corresponding error bound
[NASA-TP-3089] p 43 N91-25741

COMPONENT RELIABILITY

Reliability of a Shuttle reaction timer
[NASA-TP-3176] p 40 N92-16562

COMPOSITE MATERIALS

National Educators' Workshop: Update 1991. Standard Experiments in Engineering Materials Science and Technology
[NASA-CP-3151] p 24 N92-30263

COMPOSITE STRUCTURES

- Structural properties of laminated Douglas fir/epoxy composite material
[NASA-RP-1236] p 20 N91-10127
- Research in Structures, Structural Dynamics and Materials, 1990
[NASA-CP-3064] p 29 N91-10301
- Free vibrations of thin-walled semicircular graphite-epoxy composite frames
[NASA-TP-3010] p 29 N91-13750
- NASA workshop on impact damage to composites
[NASA-CP-10075] p 21 N91-29240
- Optimization of composite sandwich cover panels subjected to compressive loadings
[NASA-TP-3173] p 21 N92-20679
- Graphite/epoxy composite adapters for the Space Shuttle/Centaur vehicle
[NASA-TP-3014] p 15 N92-31251
- Eighth DOD/NASA/FAA Conference on Fibrous Composites in Structural Design, part 1
[NASA-CP-3087-PT-1] p 22 N92-32513
- Eighth DOD/NASA/FAA Conference on Fibrous Composites in Structural Design, part 2
[NASA-CP-3087-PT-2] p 22 N92-32574

COMPRESSIBLE FLOW

- Evaluation of a technique to generate artificially thickened boundary layers in supersonic and hypersonic flows
[NASA-TP-3142] p 6 N91-28136

COMPRESSION LOADS

- Optimization of composite sandwich cover panels subjected to compressive loadings
[NASA-TP-3173] p 21 N92-20679

COMPRESSION TESTS

- Properties of three graphite/toughened resin composites
[NASA-TP-3102] p 21 N92-10067
- Experimental behavior of graphite-epoxy Y-stiffened specimens loaded in compression
[NASA-TP-3171] p 30 N92-23115

COMPRESSIVE STRENGTH

- A statistical comparison of two carbon fiber/epoxy fabrication techniques
[NASA-TP-3179] p 22 N92-20950

COMPUTATION

- Computational methods for frictionless contact with application to Space Shuttle Orbiter nose-gear tires
[NASA-TP-3073] p 30 N91-22576

COMPUTATIONAL FLUID DYNAMICS

- NASA Computational Fluid Dynamics Conference. Volume 1: Sessions 1-6
[NASA-CP-10038-VOL-1] p 4 N91-10839
- NASA Computational Fluid Dynamics Conference. Volume 2: Sessions 7-12
[NASA-CP-10038-VOL-2] p 4 N91-10868
- Computational Fluid Dynamics Symposium on Aero propulsion
[NASA-CP-3078] p 5 N91-21062
- Transonic Symposium: Theory, Application and Experiment, volume 2
[NASA-CP-3020-VOL-2] p 5 N91-24132
- Advanced Hypervelocity Aerophysics Facility Workshop
[NASA-CP-10031] p 13 N91-24211
- Shock wave interaction with an abrupt area change
[NASA-TP-3113] p 6 N91-27140
- Seals Flow Code Development
[NASA-CP-10070] p 15 N92-15082
- Software Surface Modeling and Grid Generation Steering Committee
[NASA-CP-3143] p 42 N92-24397
- Workshop on Engineering Turbulence Modeling
[NASA-CP-10088] p 27 N92-24514
- Computational Fluid Dynamics --- numerical methods and algorithm development
[NASA-CP-10078] p 12 N92-25808
- NASA Workshop on future directions in surface modeling and grid generation
[NASA-CP-10092] p 8 N92-29625
- Stagnation-point heat-transfer rate predictions at aeroassist flight conditions
[NASA-TP-3208] p 27 N92-31281
- Tenth Workshop for Computational Fluid Dynamic Applications in Rocket Propulsion, part 2
[NASA-CP-3163-PT-2] p 27 N92-32245
- Tenth Workshop for Computational Fluid Dynamic Applications in Rocket Propulsion, part 1
[NASA-CP-3163-PT-1] p 27 N92-32278
- COMPUTATIONAL GRIDS**
- NASA Computational Fluid Dynamics Conference. Volume 1: Sessions 1-6
[NASA-CP-10038-VOL-1] p 4 N91-10839
- Relative efficiency and accuracy of two Navier-Stokes codes for simulating attached transonic flow over wings
[NASA-TP-3061] p 26 N91-17310

- Workshop on Grid Generation and Related Areas
[NASA-CP-10089] p 12 N92-25712
- Trajectory fitting in function space with application to analytic modeling of surfaces
[NASA-TP-3232] p 8 N92-30747
- Direct simulation of high-speed mixing layers
[NASA-TP-3186] p 8 N92-30909
- A method for designing blended wing-body configurations for low wave drag
[NASA-TP-3261] p 8 N92-32480
- COMPUTER AIDED DESIGN**
- On-orbit structural dynamic performance of a 15-meter microwave radiometer antenna
[NASA-TP-3041] p 16 N91-17114
- Guidance, navigation, and control subsystem equipment selection algorithm using expert system methods
[NASA-TP-3082] p 42 N91-25624
- A method for determining spiral-bevel gear tooth geometry for finite element analysis
[NASA-TP-3096] p 28 N92-10195
- Second CLIPS Conference Proceedings, volume 1
[NASA-CP-10085-VOL-1] p 42 N92-16568
- Software Surface Modeling and Grid Generation Steering Committee
[NASA-CP-3143] p 42 N92-24397
- Computational Structures Technology for Airframes and Propulsion Systems
[NASA-CP-3142] p 31 N92-25911
- COMPUTER AIDED MANUFACTURING**
- The Federal Conference on Intelligent Processing Equipment
[NASA-CP-3138] p 52 N92-24987
- COMPUTER AIDED TOMOGRAPHY**
- Second Conference on NDE for Aerospace Requirements
[NASA-CP-3091] p 16 N91-18189
- COMPUTER INFORMATION SECURITY**
- Proceedings of the Second Annual NASA Science Internet User Working Group Conference
[NASA-CP-3117] p 48 N91-27009
- COMPUTER NETWORKS**
- Proceedings of the Second Annual NASA Science Internet User Working Group Conference
[NASA-CP-3117] p 48 N91-27009
- Control Center Technology Conference Proceedings
[NASA-CP-10081] p 14 N92-12010
- COMPUTER PROGRAMMING**
- Space Transportation Avionics Technology Symposium. Volume 2: Conference Proceedings
[NASA-CP-3081-VOL-2] p 11 N91-17020
- COMPUTER PROGRAMS**
- Transonic flow analysis for rotors. Part 3: Three-dimensional, quasi-steady, Euler calculation
[NASA-TP-2375] p 3 N91-10007
- Prediction of effects of wing contour modifications on low-speed maximum lift and transonic performance for the EA-6B aircraft
[NASA-TP-3046] p 4 N91-10902
- Navier-Stokes and Euler solutions for lee-side flows over supersonic delta wings. A correlation with experiment
[NASA-TP-3035] p 4 N91-13401
- Physically weighted approximations of unsteady aerodynamic forces using the minimum-state method
[NASA-TP-3025] p 4 N91-18031
- Panel methods: An introduction
[NASA-TP-2995] p 5 N91-19058
- State estimation applications in aircraft flight-data analysis: A user's manual for SMACK
[NASA-RP-1252] p 10 N91-19082
- Aero propulsion 1991
[NASA-CP-10063] p 12 N91-20086
- Improvements in computational accuracy of BRYNTRN (a baryon transport code)
[NASA-TP-3093] p 51 N91-23017
- Technology 2000, volume 1
[NASA-CP-3109-VOL-1] p 52 N91-23021
- Development of an integrated aeroservoelastic analysis program and correlation with test data
[NASA-TP-3120] p 2 N91-26113
- A three-dimensional finite-element thermal/mechanical analytical technique for high-performance traveling wave tubes
[NASA-TP-3081] p 25 N91-27436
- HZETRN: A heavy ion/nucleon transport code for space radiations
[NASA-TP-3146] p 51 N92-15959
- Optimization of composite sandwich cover panels subjected to compressive loadings
[NASA-TP-3173] p 21 N92-20679
- An efficient HZETRN (a galactic cosmic ray transport code)
[NASA-TP-3147] p 51 N92-22218
- Improved accuracy for finite element structural analysis via a new integrated force method
[NASA-TP-3204] p 30 N92-22227

- MIRACAL: A mission radiation calculation program for analysis of lunar and interplanetary missions
[NASA-TP-3211] p 51 N92-25100
- COMPUTER SYSTEMS DESIGN**
- Technology 2000, volume 1
[NASA-CP-3109-VOL-1] p 52 N91-23021
- NASA-LaRc Flight-Critical Digital Systems Technology Workshop
[NASA-CP-10028] p 11 N91-24200
- COMPUTER SYSTEMS PERFORMANCE**
- Advanced techniques in reliability model representation and solution
[NASA-TP-3242] p 43 N92-33483
- COMPUTER TECHNIQUES**
- Report of the workshop on Aviation Safety/Automation Program
[NASA-CP-10054] p 9 N91-15141
- Technique to eliminate computational instability in multibody simulations employing the Lagrange multiplier
[NASA-TP-3220] p 42 N92-23432
- COMPUTER VISION**
- The 1991 Goddard Conference on Space Applications of Artificial Intelligence
[NASA-CP-3110] p 43 N91-22769
- COMPUTERIZED SIMULATION**
- A scheme for bandpass filtering magnetometer measurements to reconstruct tethered satellite skip rope motion
[NASA-TP-3123] p 42 N91-25629
- Analyses of risks associated with radiation exposure from past major solar particle events
[NASA-TP-3137] p 50 N91-31061
- Modeling of the heat transfer in bypass transitional boundary-layer flows
[NASA-TP-3170] p 27 N92-11299
- Human Machine Interfaces for Teleoperators and Virtual Environments Conference
[NASA-CP-10071] p 40 N92-11638
- Flight deck benefits of integrated data link communication
[NASA-TP-3219] p 10 N92-21459
- Fault tolerance of artificial neural networks with applications in critical systems
[NASA-TP-3187] p 42 N92-22285
- Technique to eliminate computational instability in multibody simulations employing the Lagrange multiplier
[NASA-TP-3220] p 42 N92-23432
- Validation of three-dimensional incompressible spatial direct numerical simulation code: A comparison with linear stability and parabolic stability equation theories for boundary-layer transition on a flat plate
[NASA-TP-3205] p 8 N92-30295
- Direct simulation of high-speed mixing layers
[NASA-TP-3186] p 8 N92-30909
- Advanced techniques in reliability model representation and solution
[NASA-TP-3242] p 43 N92-33483
- Reconfiguring the RUM experiment to test circular scanning with rotating unbalanced-mass devices on gimbaled payloads
[NASA-TP-3282] p 25 N92-33601
- Inertial oscillation of a vertical rotating draft with application to a supercell storm: Video supplement to NASA Technical Paper 3230
[NASA-TP-3230-VIDEO-SUPPL] p 36 N92-34246
- CONFERENCES**
- Research in Structures, Structural Dynamics and Materials, 1990
[NASA-CP-3064] p 29 N91-10301
- FIRE Science Results 1988
[NASA-CP-3083] p 34 N91-10448
- NASA Computational Fluid Dynamics Conference. Volume 1: Sessions 1-6
[NASA-CP-10038-VOL-1] p 4 N91-10839
- NASA Computational Fluid Dynamics Conference. Volume 2: Sessions 7-12
[NASA-CP-10038-VOL-2] p 4 N91-10868
- Aviation Safety/Automation Program Conference
[NASA-CP-3090] p 9 N91-10936
- Twenty-Second Annual NASA Supply and Equipment Management Conference
[NASA-CP-10042] p 46 N91-11591
- Airborne Wind Shear Detection and Warning Systems. Second Combined Manufacturers' and Technologists' Conference, part 1
[NASA-CP-10050-PT-1] p 9 N91-11682
- Airborne Wind Shear Detection and Warning Systems. Second Combined Manufacturers' and Technologists' Conference, part 2
[NASA-CP-10050-PT-2] p 9 N91-11695
- Measurement and Characterization of the Acceleration Environment on Board the Space Station
[NASA-CP-3088] p 48 N91-12401
- Climate Impact of Solar Variability
[NASA-CP-3086] p 50 N91-12456

- The Interstellar Medium in External Galaxies: Summaries of contributed papers
[NASA-CP-3084] p 49 N91-14100
- Interstellar Dust: Contributed Papers
[NASA-CP-3036] p 48 N91-14897
- Report of the workshop on Aviation Safety/Automation Program
[NASA-CP-10054] p 9 N91-15141
- Space Station Freedom Toxic and Reactive Materials Handling
[NASA-CP-3085] p 48 N91-15930
- Fourth International Symposium on Long-Range Sound Propagation
[NASA-CP-3101] p 44 N91-16682
- Paired and Interacting Galaxies: International Astronomical Union Colloquium No. 124
[NASA-CP-3098] p 49 N91-16858
- Space Transportation Avionics Technology Symposium. Volume 2: Conference Proceedings
[NASA-CP-3081-VOL-2] p 11 N91-17020
- Flight Mechanics/Estimation Theory Symposium, 1990
[NASA-CP-3102] p 14 N91-17073
- NASA Formal Methods Workshop, 1990
[NASA-CP-10052] p 42 N91-17559
- Current Collection from Space Plasmas
[NASA-CP-3089] p 46 N91-17713
- Second Conference on NDE for Aerospace Requirements
[NASA-CP-3091] p 16 N91-18189
- The 5th Annual NASA Spacecraft Control Laboratory Experiment (SCOLE) Workshop, part 2
[NASA-CP-10057-PT-2] p 17 N91-19122
- Sixteenth Space Simulation Conference Confirming Spaceworthiness Into the Next Millennium
[NASA-CP-3096] p 17 N91-19126
- Space Photovoltaic Research and Technology, 1989
[NASA-CP-3107] p 19 N91-19182
- Proceedings of the X-15 First Flight 30th Anniversary Celebration
[NASA-CP-3105] p 10 N91-20071
- National Educators' Workshop: Update 1988. Standard Experiments in Engineering Materials Science and Technology
[NASA-CP-3060] p 20 N91-20207
- Nineteenth NASTRAN (R) Users' Colloquium
[NASA-CP-3111] p 29 N91-20506
- Fourth Annual Workshop on Space Operations Applications and Research (SOAR 90)
[NASA-CP-3103-VOL-1] p 41 N91-20641
- Fourth Annual Workshop on Space Operations Applications and Research (SOAR 90)
[NASA-CP-3103-VOL-2] p 41 N91-20702
- Proceedings of the Second Joint Technology Workshop on Neural Networks and Fuzzy Logic, volume 2
[NASA-CP-10061-VOL-2] p 43 N91-20811
- Computational Fluid Dynamics Symposium on Aeropropulsion
[NASA-CP-3078] p 5 N91-21062
- Volcanism-Climate Interactions
[NASA-CP-10062] p 34 N91-21641
- Proceedings of the Second Joint Technology Workshop on Neural Networks and Fuzzy Logic, volume 1
[NASA-CP-10061-VOL-1] p 43 N91-21778
- Vision-21: Space Travel for the Next Millennium
[NASA-CP-10059] p 13 N91-22139
- Fourth NASA Workshop on Computational Control of Flexible Aerospace Systems, part 2
[NASA-CP-10065-PT-2] p 17 N91-22331
- The 1991 Goddard Conference on Space Applications of Artificial Intelligence
[NASA-CP-3110] p 43 N91-22769
- Technology 2000, volume 2
[NASA-CP-3109-VOL-2] p 52 N91-24041
- Airborne Wind Shear Detection and Warning Systems: Third Combined Manufacturers' and Technologists' Conference, part 2
[NASA-CP-10060-PT-2] p 9 N91-24140
- Structural Integrity and Durability of Reusable Space Propulsion Systems
[NASA-CP-10030] p 19 N91-24307
- The 25th Aerospace Mechanisms Symposium
[NASA-CP-3113] p 30 N91-24603
- Proceedings of the Second Annual NASA Science Internet User Working Group Conference
[NASA-CP-3117] p 48 N91-27009
- Technology for the Future: In-Space Technology Experiments Program, part 1
[NASA-CP-10073-PT-1] p 14 N91-27177
- Technology for the Future: In-Space Technology Experiments Program, part 2
[NASA-CP-10073-PT-2] p 14 N91-27178
- Space Transportation Propulsion Technology Symposium. Volume 3: Panel Session Summaries and Presentations
[NASA-CP-3112-VOL-3] p 19 N91-28235
- NASA workshop on impact damage to composites
[NASA-CP-10075] p 21 N91-29240
- Space Photovoltaic Research and Technology Conference
[NASA-CP-3121] p 19 N91-30203
- The 1991 International Aerospace and Ground Conference on Lightning and Static Electricity, volume 1
[NASA-CP-3106-VOL-1] p 35 N91-32599
- Magnetoplasmadynamic Thruster Workshop
[NASA-CP-10084] p 20 N92-10044
- Control Center Technology Conference Proceedings
[NASA-CP-10081] p 14 N92-12010
- Fourth Symposium on Chemical Evolution and the Origin and Evolution of Life
[NASA-CP-3129] p 41 N92-13588
- Space Communications Technology Conference: Onboard Processing and Switching
[NASA-CP-3132] p 25 N92-14202
- Rotodynamic Instability Problems in High-Performance Turbomachinery, 1990
[NASA-CP-3122] p 28 N92-14346
- Second CLIPS Conference Proceedings, volume 1
[NASA-CP-10085-VOL-1] p 42 N92-16568
- Second CLIPS Conference Proceedings, volume 2
[NASA-CP-10085-VOL-2] p 42 N92-16590
- Beyond the Baseline 1991: Proceedings of the Space Station Evolution Symposium. Volume 2: Space Station Freedom, part 2
[NASA-CP-10083-VOL-2-PT-2] p 18 N92-17348
- Beyond the Baseline 1991: Proceedings of the Space Station Evolution Symposium. Volume 1: Space Station Freedom, part 2
[NASA-CP-10083-VOL-1-PT-2] p 18 N92-17409
- Beyond the Baseline 1991: Proceedings of the Space Station Evolution Symposium. Volume 2: Space Station Freedom, part 1
[NASA-CP-10083-VOL-2-PT-1] p 18 N92-17768
- Visually Guided Control of Movement
[NASA-CP-3118] p 39 N92-21467
- The Compton Observatory Science Workshop
[NASA-CP-3137] p 49 N92-21874
- Advanced Modulation and Coding Technology Conference
[NASA-CP-10053] p 16 N92-22001
- Workshop on Squeezed States and Uncertainty Relations
[NASA-CP-3135] p 46 N92-22045
- Fifth Annual Workshop on Space Operations Applications and Research (SOAR 1991), volume 2
[NASA-CP-3127-VOL-2] p 41 N92-22324
- Technology 2001: The Second National Technology Transfer Conference and Exposition, volume 1
[NASA-CP-3136-VOL-1] p 52 N92-22423
- Aeropropulsion 1987
[NASA-CP-3049] p 12 N92-22510
- The 1991 NASA Aerospace Battery Workshop
[NASA-CP-3140] p 33 N92-22740
- LDEF: 69 Months in Space. First Post-Retrieval Symposium, part 1
[NASA-CP-3134-PT-1] p 52 N92-23280
- Software Surface Modeling and Grid Generation Steering Committee
[NASA-CP-3143] p 42 N92-24397
- Workshop on Engineering Turbulence Modeling
[NASA-CP-10088] p 27 N92-24514
- The Federal Conference on Intelligent Processing Equipment
[NASA-CP-3138] p 52 N92-24987
- The 26th Aerospace Mechanisms Symposium
[NASA-CP-3147] p 30 N92-25067
- Workshop on Grid Generation and Related Areas
[NASA-CP-10089] p 12 N92-25712
- Computational Structures Technology for Airframes and Propulsion Systems
[NASA-CP-3142] p 31 N92-25911
- LDEF: 69 Months in Space. First Post-Retrieval Symposium, part 3
[NASA-CP-3134-PT-3] p 52 N92-27083
- The 1990 NASA Aerospace Battery Workshop
[NASA-CP-3119] p 20 N92-27130
- International Symposium on Magnetic Suspension Technology, part 1
[NASA-CP-3152-PT-1] p 18 N92-27721
- International Workshop on Vibration Isolation Technology for Microgravity Science Applications
[NASA-CP-10094] p 24 N92-28436
- Types and Characteristics of Data for Geomagnetic Field Modeling
[NASA-CP-3153] p 31 N92-28620
- NASA Workshop on future directions in surface modeling and grid generation
[NASA-CP-10092] p 8 N92-29625
- The 1991 International Conference on Aging Aircraft and Structural Airworthiness
[NASA-CP-3160] p 31 N92-30106
- National Educators' Workshop: Update 1991. Standard Experiments in Engineering Materials Science and Technology
[NASA-CP-3151] p 24 N92-30263
- Electrical and chemical interactions at Mars Workshop, part 1
[NASA-CP-10093] p 50 N92-30302
- Sixteenth International Laser Radar Conference, part 2
[NASA-CP-3158-PT-2] p 28 N92-31013
- Tenth Workshop for Computational Fluid Dynamic Applications in Rocket Propulsion, part 2
[NASA-CP-3163-PT-2] p 27 N92-32245
- Tenth Workshop for Computational Fluid Dynamic Applications in Rocket Propulsion, part 1
[NASA-CP-3163-PT-1] p 27 N92-32278
- Eighth DOD/NASA/FAA Conference on Fibrous Composites in Structural Design, part 1
[NASA-CP-3087-PT-1] p 22 N92-32513
- Eighth DOD/NASA/FAA Conference on Fibrous Composites in Structural Design, part 2
[NASA-CP-3087-PT-2] p 22 N92-32574
- Fourth Aircraft Interior Noise Workshop
[NASA-CP-10103] p 45 N92-32948
- Proceedings of the 23rd Annual Precise Time and Time Interval (PTTI) Applications and Planning Meeting
[NASA-CP-3159] p 44 N92-33350
- Orbital debris: Technical issues and future directions
[NASA-CP-10077] p 49 N92-33478
- CONNECTORS**
The 26th Aerospace Mechanisms Symposium
[NASA-CP-3147] p 30 N92-25067
- CONSTRAINTS**
The effect of acceleration versus displacement methods on steady-state boundary forces
[NASA-TP-3218] p 30 N92-21457
- CONSTRUCTION**
A self-zeroing capacitance probe for water wave measurements
[NASA-RP-1278] p 36 N92-27930
- Software design for automated assembly of truss structures
[NASA-TP-3198] p 43 N92-28375
- CONTACT LENSES**
An investigation of microstructural characteristics of contact-lens polymers
[NASA-TP-3034] p 21 N91-13492
- CONTAMINATION**
Payload bay doors and radiator panels familiarization handbook
[NASA-TM-107793] p 15 N92-20676
- CONTOURS**
Prediction of effects of wing contour modifications on low-speed maximum lift and transonic performance for the EA-6B aircraft
[NASA-TP-3046] p 4 N91-10902
- CONTROL EQUIPMENT**
The Federal Conference on Intelligent Processing Equipment
[NASA-CP-3138] p 52 N92-24987
- International Symposium on Magnetic Suspension Technology, part 1
[NASA-CP-3152-PT-1] p 18 N92-27721
- CONTROL STABILITY**
A methodology for computing uncertainty bounds of multivariable systems based on sector stability theory concepts
[NASA-TP-3166] p 13 N92-21410
- CONTROL SYSTEMS DESIGN**
Research in Structures, Structural Dynamics and Materials, 1990
[NASA-CP-3064] p 29 N91-10301
- Design of control laws for flutter suppression based on the aerodynamic energy concept and comparisons with other design methods
[NASA-TP-3056] p 29 N91-10328
- NASA Formal Methods Workshop, 1990
[NASA-CP-10052] p 42 N91-17559
- The 5th Annual NASA Spacecraft Control Laboratory Experiment (SCOLE) Workshop, part 1
[NASA-CP-10057-PT-1] p 16 N91-18186
- The 5th Annual NASA Spacecraft Control Laboratory Experiment (SCOLE) Workshop, part 2
[NASA-CP-10057-PT-2] p 17 N91-19122
- Aeropropulsion 1991
[NASA-CP-10063] p 12 N91-20086
- A controls engineering approach for analyzing airplane input-output characteristics
[NASA-TP-3072] p 12 N91-20128
- Aerospace Applications of Magnetic Suspension Technology, part 2
[NASA-CP-10066-PT-2] p 17 N91-21203
- Rigid-body-control subsystem sizing for an Earth science geostationary platform
[NASA-TP-3087] p 17 N91-22302

Fourth NASA Workshop on Computational Control of Flexible Aerospace Systems, part 1
[NASA-CP-10065-PT-1] p 17 N91-22307

Guidance, navigation, and control subsystem equipment selection algorithm using expert system methods
[NASA-TP-3082] p 42 N91-25624

Application and flight test of linearizing transformations using measurement feedback to the nonlinear control problem
[NASA-TP-3154] p 12 N91-30154

On the formulation of a minimal uncertainty model for robust control with structured uncertainty
[NASA-TP-3094] p 13 N92-10027

Multidisciplinary optimization of controlled space structures with global sensitivity equations
[NASA-TP-3130] p 18 N92-11087

International Symposium on Magnetic Suspension Technology, part 2
[NASA-CP-3152-PT-2] p 18 N92-27788

Ongoing Progress in Spacecraft Controls
[NASA-CP-10099] p 19 N92-28730

CONTROL THEORY

Design of control laws for flutter suppression based on the aerodynamic energy concept and comparisons with other design methods
[NASA-TP-3056] p 29 N91-10328

Joint University Program for Air Transportation Research, 1989-1990
[NASA-CP-3095] p 1 N91-19024

Aerospace Applications of Magnetic Suspension Technology, part 2
[NASA-CP-10066-PT-2] p 17 N91-21203

Fourth NASA Workshop on Computational Control of Flexible Aerospace Systems, part 1
[NASA-CP-10065-PT-1] p 17 N91-22307

The 1991 Goddard Conference on Space Applications of Artificial Intelligence
[NASA-CP-3110] p 43 N91-22769

A methodology for computing uncertainty bounds of multivariable systems based on sector stability theory concepts
[NASA-TP-3166] p 13 N92-21410

Visually Guided Control of Movement
[NASA-CP-3118] p 39 N92-21467

CONTROLLERS

Proceedings of the Second Joint Technology Workshop on Neural Networks and Fuzzy Logic, volume 2
[NASA-CP-10061-VOL-2] p 43 N91-20811

Application and flight test of linearizing transformations using measurement feedback to the nonlinear control problem
[NASA-TP-3154] p 12 N91-30154

International Workshop on Vibration Isolation Technology for Microgravity Science Applications
[NASA-CP-10094] p 24 N92-28436

CONVECTION

Direct simulation of high-speed mixing layers
[NASA-TP-3186] p 8 N92-30909

CONVECTIVE HEAT TRANSFER

Numerical studies of convective cooling for a locally heated skin
[NASA-TP-3100] p 26 N91-22509

CONVERGENT NOZZLES

Parametric investigation of single-expansion-ramp nozzles at Mach numbers from 0.60 to 1.20
[NASA-TP-3240] p 9 N92-34193

CONVERGENT-DIVERGENT NOZZLES

Parametric study of afterbody/nozzle drag on twin two-dimensional convergent-divergent nozzles at Mach numbers from 0.60 to 1.20
[NASA-TP-2640] p 4 N91-14316

Static thrust-vectoring performance of nonaxisymmetric convergent-divergent nozzles with post-exit yaw vanes
[NASA-TP-3085] p 5 N91-21059

Aeropropulsive characteristics of canted twin pitch-vectoring nozzles at Mach 0.20 to 1.20
[NASA-TP-3060] p 5 N91-22069

Static performance of a cruciform nozzle with multiaxis thrust-vectoring and reverse-thrust capabilities
[NASA-TP-3188] p 7 N92-23095

Parametric investigation of single-expansion-ramp nozzles at Mach numbers from 0.60 to 1.20
[NASA-TP-3240] p 9 N92-34193

COOLANTS

Numerical studies of convective cooling for a locally heated skin
[NASA-TP-3100] p 26 N91-22509

COOLING

Investigation of microstructural changes in polyetherether-ketone films at cryogenic temperatures by positron lifetime spectroscopy
[NASA-TP-3064] p 21 N91-18216

CORE FLOW

Steady induction effects in geomagnetism. Part 1A: Steady motional induction of geomagnetic chaos
[NASA-TP-3272-PT-1A] p 34 N92-32655

CORIOLIS EFFECT

Inertial oscillation of a vertical rotating draft with application to a supercell storm
[NASA-TP-3230] p 36 N92-33482

CORRECTION

Comparison of a two-dimensional adaptive-wall technique with analytical wall interference correction techniques
[NASA-TP-3132] p 7 N92-20494

CORROSION

Electrochemical studies of corrosion inhibitors
[NASA-TP-3066] p 22 N91-17208

CORROSION PREVENTION

Electrochemical studies of corrosion inhibitors
[NASA-TP-3066] p 22 N91-17208

COSMIC DUST

The Interstellar Medium in External Galaxies: Summaries of contributed papers
[NASA-CP-3084] p 49 N91-14100

Interstellar Dust: Contributed Papers
[NASA-CP-3036] p 48 N91-14897

Fourth Symposium on Chemical Evolution and the Origin and Evolution of Life
[NASA-CP-3129] p 41 N92-13588

COST ANALYSIS

Resource envelope concepts for mission planning
[NASA-TP-3139] p 15 N91-29209

COUPLED MODES

The effect of acceleration versus displacement methods on steady-state boundary forces
[NASA-TP-3218] p 30 N92-21457

COWLINGS

A simplified method for thermal analysis of a cowl leading edge subject to intense local shock-wave-interference heating
[NASA-TP-3167] p 27 N92-24797

CRACK PROPAGATION

Analysis and prediction of Multiple-Site Damage (MSD) fatigue crack growth
[NASA-TP-3231] p 31 N92-31279

CRACK TIPS

Applications of FEM and BEM in two-dimensional fracture mechanics problems
[NASA-TP-3277] p 31 N92-31280

CRACKING (FRACTURING)

Analysis and prediction of Multiple-Site Damage (MSD) fatigue crack growth
[NASA-TP-3231] p 31 N92-31279

CRASHES

Effect of crash pulse shape on seat stroke requirements for limiting loads on occupants of aircraft
[NASA-TP-3126] p 30 N92-18053

CRASHWORTHINESS

Failure behavior of generic metallic and composite aircraft structural components under crash loads
[NASA-RP-1239] p 29 N91-13751

Effect of crash pulse shape on seat stroke requirements for limiting loads on occupants of aircraft
[NASA-TP-3126] p 30 N92-18053

CREW PROCEDURES (INFLIGHT)

Mission description and in-flight operations of ERBE instruments on ERBS and NOAA 9 spacecraft, November 1984 - January 1986
[NASA-RP-1256] p 32 N92-10208

CRITICAL PATH METHOD

Structural factoring approach for analyzing stochastic networks
[NASA-TP-3069] p 43 N91-18753

CRITICAL VELOCITY

Laser anemometer measurements and computations in an annular cascade of high turning core turbine vanes
[NASA-TP-3252] p 8 N92-28980

CROSS SECTIONS

Two-dimensional aerodynamic characteristics of several polygon-shaped cross-sectional models applicable to helicopter fuselages
[NASA-TP-3233] p 8 N92-30394

CRYOGENICS

The 25th Aerospace Mechanisms Symposium
[NASA-CP-3113] p 30 N91-24603

CRYSTAL DEFECTS

Equivalent crystal theory of alloys
[NASA-TP-3155] p 23 N91-30318

CRYSTAL GROWTH

Long-term life testing of Geostationary Operational Environmental Satellite (GOES) encoder lamps
[NASA-RP-1273] p 23 N92-20063

CRYSTAL LATTICES

Equivalent crystal theory of alloys
[NASA-TP-3155] p 23 N91-30318

CRYSTAL STRUCTURE

Equivalent crystal theory of alloys
[NASA-TP-3155] p 23 N91-30318

CRYSTALLOGRAPHY

Stiffness and strength tailoring in uniform space-filling truss structures
[NASA-TP-3210] p 30 N92-24546

CULTURE TECHNIQUES

Analysis of gravity-induced particle motion and fluid perfusion flow in the NASA-designed rotating zero-head-space tissue culture vessel
[NASA-TP-3143] p 24 N92-13340

Experimental measurement of the orbital paths of particles sedimenting within a rotating viscous fluid as influenced by gravity
[NASA-TP-3200] p 40 N92-28897

CURING

A statistical comparison of two carbon fiber/epoxy fabrication techniques
[NASA-TP-3179] p 22 N92-20950

CURVATURE

Planform curvature effects on flutter characteristics of a wing with 56 deg leading-edge sweep and panel aspect ratio of 1.14
[NASA-TP-3116] p 11 N92-13054

CURVE FITTING

Calculations and curve fits of thermodynamic and transport properties for equilibrium air to 30000 K
[NASA-RP-1260] p 26 N92-11285

Trajectory fitting in function space with application to analytic modeling of surfaces
[NASA-TP-3232] p 8 N92-30747

CURVES

Monograph on propagation of sound waves in curved ducts
[NASA-RP-1248] p 44 N91-15848

D

DAMAGE

An examination of the damage tolerance enhancement of carbon/epoxy using an outer lamina of spectra (R)
[NASA-TP-3160] p 21 N92-11142

Analysis and prediction of Multiple-Site Damage (MSD) fatigue crack growth
[NASA-TP-3231] p 31 N92-31279

DAMAGE ASSESSMENT

Cellular track model of biological damage to mammalian cell cultures from galactic cosmic rays
[NASA-TP-3055] p 50 N91-16981

DATA ACQUISITION

Outgassing data for selecting spacecraft materials, revision 2
[NASA-RP-1124-REV-2] p 21 N91-14437

Multisource Data Integration in Remote Sensing
[NASA-CP-3099] p 32 N91-15615

Three-dimensional laser window formation
[NASA-RP-1280] p 14 N92-30307

DATA BASES

Responses of women to orthostatic and exercise stresses
[NASA-TP-3043] p 37 N91-19711

International exploration of Mars. A special bibliography
[NASA-SP-7091] p 49 N91-24965

Earth observations and global change decision making: A special bibliography, 1991
[NASA-SP-7092] p 32 N91-30588

Continuous improvement: A bibliography with indexes, 1989-1991
[NASA-SP-7097] p 47 N92-22665

The development of the NASA aviation safety reporting system
[NASA-RP-1114] p 10 N91-70436

DATA COMPRESSION

High Resolution, High Frame Rate Video Technology
[NASA-CP-3080] p 27 N91-14574

Space and Earth Science Data Compression Workshop
[NASA-CP-3130] p 41 N92-12425

The effects of video compression on acceptability of images for monitoring life sciences experiments
[NASA-TP-3239] p 16 N92-33933

DATA INTEGRATION

Multisource Data Integration in Remote Sensing
[NASA-CP-3099] p 32 N91-15615

DATA LINKS

Structural factoring approach for analyzing stochastic networks
[NASA-TP-3069] p 43 N91-18753

Flight tests with a data link used for air traffic control information exchange
[NASA-TP-3135] p 11 N91-31143

Space Network Control Conference on Resource Allocation Concepts and Approaches
[NASA-CP-3124] p 16 N92-11039

- Flight deck benefits of integrated data link communication
[NASA-TP-3219] p 10 N92-21459
- DATA MANAGEMENT**
- Flight deck benefits of integrated data link communication
[NASA-TP-3219] p 10 N92-21459
- SAGE 1 data user's guide
[NASA-RP-1275] p 34 N92-33097
- DATA PROCESSING**
- NASA/MSFC FY91 Global Scale Atmospheric Processes Research Program Review
[NASA-CP-3126] p 35 N91-32660
- Mission description and in-flight operations of ERBE instruments on ERBS and NOAA 9 spacecraft, November 1984 - January 1986
[NASA-RP-1256] p 32 N92-10208
- DATA REDUCTION**
- Types and Characteristics of Data for Geomagnetic Field Modeling
[NASA-CP-3153] p 31 N92-28620
- Mission description and in-flight operations of ERBE instruments on ERBS, NOAA 9, and NOAA 10 spacecraft
[NASA-RP-1279] p 32 N92-32127
- DATA SMOOTHING**
- State estimation applications in aircraft flight-data analysis: A user's manual for SMACK
[NASA-RP-1252] p 10 N91-19082
- DATA SYSTEMS**
- Small Explorer Data System MIL-STD-1773 fiber optic bus
[NASA-TP-3227] p 16 N92-26667
- DATA TRANSMISSION**
- High Resolution, High Frame Rate Video Technology
[NASA-CP-3080] p 27 N91-14574
- Flight deck benefits of integrated data link communication
[NASA-TP-3219] p 10 N92-21459
- Large space structures and systems in the space station era: A bibliography with indexes (supplement 03)
[NASA-SP-7085(03)] p 18 N92-22317
- DECISION MAKING**
- Proceedings of the Second Joint Technology Workshop on Neural Networks and Fuzzy Logic, volume 2
[NASA-CP-10061-VOL-2] p 43 N91-20811
- Proceedings of the Second Joint Technology Workshop on Neural Networks and Fuzzy Logic, volume 1
[NASA-CP-10061-VOL-1] p 43 N91-21778
- DECONDITIONING**
- Workshop on Exercise Prescription for Long-Duration Space Flight
[NASA-CP-3051] p 36 N91-10574
- DEFLECTION**
- Effect of temperature and gap opening rate on the resiliency of candidate solid rocket booster O-ring materials
[NASA-TP-3226] p 23 N92-27194
- DEICING**
- Lewis icing research tunnel test of the aerodynamic effects of aircraft ground deicing/anti-icing fluids
[NASA-TP-3238] p 10 N92-30395
- DELTA WINGS**
- Navier-Stokes and Euler solutions for lee-side flows over supersonic delta wings. A correlation with experiment
[NASA-TP-3035] p 4 N91-13401
- Detailed flow-field measurements over a 75 deg swept delta wing
[NASA-TP-2997] p 4 N91-18030
- Wind tunnel investigation of the interaction and breakdown characteristics of slender wing vortices at subsonic, transonic, and supersonic speeds
[NASA-TP-3114] p 6 N92-12994
- Influence of airfoil geometry on delta wing leading-edge vortices and vortex-induced aerodynamics at supersonic speeds
[NASA-TP-3105] p 7 N92-20038
- DEMAGNETIZATION**
- The 23 to 300 C demagnetization resistance of samarium-cobalt permanent magnets
[NASA-TP-3119] p 25 N92-11252
- DENSITY DISTRIBUTION**
- Simulation of real-gas effects on pressure distributions for aerassist flight experiment vehicle and comparison with prediction
[NASA-TP-3157] p 27 N92-20677
- DEPTH**
- Effect of short-term exposure to stereoscopic three-dimensional flight displays on real-world depth perception
[NASA-TP-3117] p 11 N92-13065
- DESIGN ANALYSIS**
- A new fabrication method for precision antenna reflectors for space flight and ground test
[NASA-TP-3078] p 17 N91-21185
- Fundamentals of fluid lubrication
[NASA-RP-1255] p 28 N91-30531
- Optimization of composite sandwich cover panels subjected to compressive loadings
[NASA-TP-3173] p 21 N92-20679
- DETECTION**
- Airborne Wind Shear Detection and Warning Systems. Second Combined Manufacturers' and Technologists' Conference, part 1
[NASA-CP-10050-PT-1] p 9 N91-11682
- Airborne Wind Shear Detection and Warning Systems. Second Combined Manufacturers' and Technologists' Conference, part 2
[NASA-CP-10050-PT-2] p 9 N91-11695
- Evaluation of cloud detection instruments and performance of laminar-flow leading-edge test articles during NASA Leading-Edge Flight-Test Program
[NASA-TP-2888] p 11 N91-24199
- DIFFUSION**
- Saturation point model for the formation of metal nitrate in nitrogen tetroxide oxidizer
[NASA-TP-3107] p 26 N91-24542
- Analysis of gravity-induced particle motion and fluid perfusion flow in the NASA-designed rotating zero-head-space tissue culture vessel
[NASA-TP-3143] p 24 N92-13340
- Design and performance of controlled-diffusion stator compared with original double-circular-arc stator
[NASA-TP-2852] p 12 N92-22863
- DIGITAL DATA**
- Flight deck benefits of integrated data link communication
[NASA-TP-3219] p 10 N92-21459
- DIGITAL SYSTEMS**
- NASA Formal Methods Workshop, 1990
[NASA-CP-10052] p 42 N91-17559
- NASA-LaRc Flight-Critical Digital Systems Technology Workshop
[NASA-CP-10028] p 11 N91-24200
- DIRECTIONAL STABILITY**
- Wind-tunnel static and free-flight investigation of high-angle-of-attack stability and control characteristics of a model of the EA-6B airplane
[NASA-TP-3194] p 7 N92-25276
- DISCHARGE COEFFICIENT**
- A nozzle internal performance prediction method
[NASA-TP-3221] p 8 N92-33625
- DISPLAY DEVICES**
- Effect of short-term exposure to stereoscopic three-dimensional flight displays on real-world depth perception
[NASA-TP-3117] p 11 N92-13065
- DISTORTION**
- Thermal-distortion analysis of a spacecraft box truss in geostationary orbit
[NASA-TP-3054] p 16 N91-11041
- DISTRIBUTED PARAMETER SYSTEMS**
- Beyond the Baseline 1991: Proceedings of the Space Station Evolution Symposium. Volume 2: Space Station Freedom, part 1
[NASA-CP-10083-VOL-2-PT-1] p 18 N92-17768
- DISTRIBUTED PROCESSING**
- Fault tolerance of artificial neural networks with applications in critical systems
[NASA-TP-3187] p 42 N92-22285
- Advanced techniques in reliability model representation and solution
[NASA-TP-3242] p 43 N92-33483
- DIURNAL VARIATIONS**
- Atlas of the Earth's radiation budget as measured by Nimbus-7: May 1979 to May 1980
[NASA-RP-1263] p 35 N91-24720
- DOCUMENTS**
- Large space structures and systems in the space station era: A bibliography with indexes
[NASA-SP-7085(01)] p 17 N91-18199
- International exploration of Mars. A special bibliography
[NASA-SP-7091] p 49 N91-24965
- Earth observations and global change decision making: A special bibliography, 1991
[NASA-SP-7092] p 32 N91-30588
- Aeronautical engineering: A continuing bibliography with indexes (supplement 277)
[NASA-SP-7037(277)] p 3 N92-27929
- DOORS**
- Payload bay doors and radiator panels familiarization handbook
[NASA-TM-107793] p 15 N92-20676
- DOPPLER RADAR**
- Airborne Wind Shear Detection and Warning Systems: Third Combined Manufacturers' and Technologists' Conference, part 2
[NASA-CP-10060-PT-2] p 9 N91-24140
- Sixteenth International Laser Radar Conference, part 2
[NASA-CP-3158-PT-2] p 28 N92-31013
- DRAG MEASUREMENT**
- Parametric study of afterbody/nozzle drag on twin two-dimensional convergent-divergent nozzles at Mach numbers from 0.60 to 1.20
[NASA-TP-2640] p 4 N91-14316
- DRAG REDUCTION**
- A method for designing blended wing-body configurations for low wave drag
[NASA-TP-3261] p 8 N92-32480
- Applications of a direct/iterative design method to complex transonic configurations
[NASA-TP-3234] p 8 N92-33484
- DUCTS**
- Effect of type of load on stress analysis of thin-walled ducts
[NASA-TP-3248] p 31 N92-26669
- DUST**
- Sand and Dust on Mars
[NASA-CP-10074] p 50 N91-27057
- DUST STORMS**
- Sand and Dust on Mars
[NASA-CP-10074] p 50 N91-27057
- DYNAMIC CHARACTERISTICS**
- Influence of mass moment of inertia on normal modes of preloaded solar array mast
[NASA-TP-3273] p 31 N92-33476
- DYNAMIC CONTROL**
- Large space structures and systems in the space station era: A bibliography with indexes (supplement 03)
[NASA-SP-7085(03)] p 18 N92-22317
- DYNAMIC MODELS**
- Correlation and prediction of dynamic human isolated joint strength from lean body mass
[NASA-TP-3207] p 40 N92-26682
- DYNAMIC PRESSURE**
- Span reduction effects on the flutter characteristics of arrow-wing supersonic transport configurations
[NASA-TP-3077] p 11 N91-21127
- DYNAMIC RESPONSE**
- Research in Structures, Structural Dynamics and Materials, 1990
[NASA-CP-3064] p 29 N91-10301
- Development of an integrated aeroservoelastic analysis program and correlation with test data
[NASA-TP-3120] p 2 N91-26113
- DYNAMIC STABILITY**
- A scheme for bandpass filtering magnetometer measurements to reconstruct tethered satellite skiprope motion
[NASA-TP-3123] p 42 N91-25629
- Wind-tunnel static and free-flight investigation of high-angle-of-attack stability and control characteristics of a model of the EA-6B airplane
[NASA-TP-3194] p 7 N92-25276
- DYNAMIC STRUCTURAL ANALYSIS**
- Research in Structures, Structural Dynamics and Materials, 1990
[NASA-CP-3064] p 29 N91-10301
- Axisymmetric shell analysis of the space shuttle solid rocket booster field joint
[NASA-TP-3033] p 28 N91-14618
- Wind turbine acoustics
[NASA-TP-3057] p 44 N91-16679
- The 5th Annual NASA Spacecraft Control Laboratory Experiment (SCOLE) Workshop, part 2
[NASA-CP-10057-PT-2] p 17 N91-19122
- Buckling and vibration analysis of a simply supported column with a piecewise constant cross section
[NASA-TP-3090] p 29 N91-20503
- Fourth NASA Workshop on Computational Control of Flexible Aerospace Systems, part 2
[NASA-CP-10065-PT-2] p 17 N91-22331
- Structural Integrity and Durability of Reusable Space Propulsion Systems
[NASA-CP-10030] p 19 N91-24307
- Methods of applied dynamics
[NASA-RP-1262] p 24 N91-25303
- Development of an integrated aeroservoelastic analysis program and correlation with test data
[NASA-TP-3120] p 2 N91-26113
- The effect of acceleration versus displacement methods on steady-state boundary forces
[NASA-TP-3218] p 30 N92-21457
- Ongoing Progress in Spacecraft Controls
[NASA-CP-10099] p 19 N92-28730
- Influence of mass moment of inertia on normal modes of preloaded solar array mast
[NASA-TP-3273] p 31 N92-33476
- DYNAMIC TESTS**
- Effect of crash pulse shape on seat stroke requirements for limiting loads on occupants of aircraft
[NASA-TP-3126] p 30 N92-18053

DYNAMICAL SYSTEMS

Technique to eliminate computational instability in multibody simulations employing the Lagrange multiplier [NASA-TP-3220] p 42 N92-23432

E

EARTH (PLANET)

Earth observations and global change decision making: A special bibliography, 1991 [NASA-SP-7092] p 32 N91-30588

EARTH ATMOSPHERE

NASA/MSFC FY90 Global Scale Atmospheric Processes Research Program Review [NASA-CP-3093] p 35 N91-16500

NASA/MSFC FY91 Global Scale Atmospheric Processes Research Program Review [NASA-CP-3126] p 35 N91-32660

EARTH OBSERVATIONS (FROM SPACE)

NASA/MSFC FY91 Global Scale Atmospheric Processes Research Program Review [NASA-CP-3126] p 35 N91-32660

Space and Earth Science Data Compression Workshop [NASA-CP-3130] p 41 N92-12425

EARTH ORBITAL ENVIRONMENTS

Orbital debris: Technical issues and future directions [NASA-CP-10077] p 49 N92-33478

EARTH ORBITS

Metallized propellants for the human exploration of Mars [NASA-TP-3062] p 19 N91-11800

Current Collection from Space Plasmas [NASA-CP-3089] p 46 N91-17713

EARTH RADIATION BUDGET

User's guide: Nimbus-7 Earth radiation budget narrow-field-of-view products. Scene radiance tape products, sorting into angular bins products, and maximum likelihood cloud estimation products [NASA-RP-1246] p 34 N91-13043

Limb-darkening functions as derived from along-track operation of the ERBE scanning radiometers for August 1985 [NASA-RP-1243] p 34 N91-14683

Atlas of wide-field-of-view outgoing longwave radiation derived from Nimbus 7 Earth radiation budget data set, November 1985 to October 1987 [NASA-RP-1261] p 35 N91-24719

Atlas of the Earth's radiation budget as measured by Nimbus-7: May 1979 to May 1980 [NASA-RP-1263] p 35 N91-24720

Mission description and in-flight operations of ERBE instruments on ERBS, NOAA 9, and NOAA 10 spacecraft [NASA-RP-1279] p 32 N92-32127

EARTH RADIATION BUDGET EXPERIMENT

Limb-darkening functions as derived from along-track operation of the ERBE scanning radiometers for August 1985 [NASA-RP-1243] p 34 N91-14683

Atlas of wide-field-of-view outgoing longwave radiation derived from Nimbus 7 Earth radiation budget data set, November 1985 to October 1987 [NASA-RP-1261] p 35 N91-24719

Mission description and in-flight operations of ERBE instruments on ERBS and NOAA 9 spacecraft, November 1984 - January 1986 [NASA-RP-1256] p 32 N92-10208

Mission description and in-flight operations of ERBE instruments on ERBS, NOAA 9, and NOAA 10 spacecraft [NASA-RP-1279] p 32 N92-32127

EARTH SCIENCES

Rigid-body-control subsystem sizing for an Earth science geostationary platform [NASA-TP-3087] p 17 N91-22302

Launch vehicle integration options for a large Earth sciences geostationary platform concept [NASA-TP-3083] p 15 N91-27180

ECOSYSTEMS

Controlled Ecological Life Support Systems: Natural and Artificial Ecosystems [NASA-CP-10040] p 40 N91-24744

EDUCATION

National Educators' Workshop: Update 1988. Standard Experiments in Engineering Materials Science and Technology [NASA-CP-3060] p 20 N91-20207

National Educators' Workshop: Update 1991. Standard Experiments in Engineering Materials Science and Technology [NASA-CP-3151] p 24 N92-30263

EIGENVALUES

Identification of linear systems by an asymptotically stable observer [NASA-TP-3164] p 31 N92-26537

EJECTORS

Venturi air-jet vacuum ejectors for high-volume atmospheric sampling on aircraft platforms [NASA-TP-3183] p 11 N92-20546

ELASTIC PLATES

Applications of FEM and BEM in two-dimensional fracture mechanics problems [NASA-TP-3277] p 31 N92-31280

ELASTOHYDRODYNAMICS

Fundamentals of fluid lubrication [NASA-RP-1255] p 28 N91-30531

ELASTOMERS

Effect of temperature and gap opening rate on the resiliency of candidate solid rocket booster O-ring materials [NASA-TP-3226] p 23 N92-27194

ELECTRA AIRCRAFT

Venturi air-jet vacuum ejectors for high-volume atmospheric sampling on aircraft platforms [NASA-TP-3183] p 11 N92-20546

ELECTRIC BATTERIES

Space Electrochemical Research and Technology [NASA-CP-3125] p 33 N91-32549
The 1991 NASA Aerospace Battery Workshop [NASA-CP-3140] p 33 N92-22740

ELECTRIC POTENTIAL

Long-term life testing of Geostationary Operational Environmental Satellite (GOES) encoder lamps [NASA-RP-1273] p 23 N92-20063

ELECTRIC ROCKET ENGINES

Magnetoplasmadynamic Thruster Workshop [NASA-CP-10084] p 20 N92-10044

ELECTRICAL PROPERTIES

Electrical and chemical interactions at Mars Workshop, part 1 [NASA-CP-10093] p 50 N92-30302

ELECTROCHEMISTRY

Electrochemical studies of corrosion inhibitors [NASA-TP-3066] p 22 N91-17208
Space Electrochemical Research and Technology [NASA-CP-3125] p 33 N91-32549

ELECTROMAGNETIC COUPLING

The 1991 International Aerospace and Ground Conference on Lightning and Static Electricity, volume 2 [NASA-CP-3106-VOL-2] p 36 N91-32693

ELECTROMAGNETIC PULSES

The 1991 International Aerospace and Ground Conference on Lightning and Static Electricity, volume 2 [NASA-CP-3106-VOL-2] p 36 N91-32693

ELECTRON IRRADIATION

Space Photovoltaic Research and Technology Conference [NASA-CP-3121] p 19 N91-30203

ELECTROSTATIC PROBES

A self-zeroing capacitance probe for water wave measurements [NASA-RP-1278] p 36 N92-27930

ELECTROSTATICS

Sand and Dust on Mars [NASA-CP-10074] p 50 N91-27057
The 1991 International Aerospace and Ground Conference on Lightning and Static Electricity, volume 1 [NASA-CP-3106-VOL-1] p 35 N91-32599

ELEVATION

A self-zeroing capacitance probe for water wave measurements [NASA-RP-1278] p 36 N92-27930

ENERGETIC PARTICLES

An efficient HZETRN (a galactic cosmic ray transport code) [NASA-TP-3147] p 51 N92-22218

ENERGY ABSORPTION

Failure behavior of generic metallic and composite aircraft structural components under crash loads [NASA-RP-1239] p 29 N91-13751

ENERGY BUDGETS

Limb-darkening functions as derived from along-track operation of the ERBE scanning radiometers for August 1985 [NASA-RP-1243] p 34 N91-14683

Atlas of the Earth's radiation budget as measured by Nimbus-7: May 1979 to May 1980 [NASA-RP-1263] p 35 N91-24720

The role of water vapor in climate. A strategic research plan for the proposed GEWEX water vapor project (GvAP) [NASA-CP-3120] p 35 N91-25556

ENERGY CONVERSION EFFICIENCY

Design and performance of controlled-diffusion stator compared with original double-circular-arc stator [NASA-TP-2852] p 12 N92-22863

ENERGY DISSIPATION

Aeroacoustic and aerodynamic applications of the theory of nonequilibrium thermodynamics [NASA-TP-3118] p 26 N91-25352

ENERGY METHODS

Design of control laws for flutter suppression based on the aerodynamic energy concept and comparisons with other design methods [NASA-TP-3056] p 29 N91-10328

ENERGY OF FORMATION

Equivalent crystal theory of alloys [NASA-TP-3155] p 23 N91-30318

ENGINE AIRFRAME INTEGRATION

Effect of location of aft-mounted nacelles on the longitudinal aerodynamic characteristics of a high-wing transport airplane [NASA-TP-3047] p 4 N91-13402

ENGINE DESIGN

Aeropropulsion 1987 [NASA-CP-3049] p 12 N92-22510

ENGINE NOISE

J-85 jet engine noise measured in the ONERA S1 wind tunnel and extrapolated to far field [NASA-TP-3053] p 45 N91-19823

ENGINE PARTS

Rocket-Based Combined-Cycle (RBCC) Propulsion Technology Workshop. Tutorial session [NASA-CP-10090] p 20 N92-21517

ENGINEERING MANAGEMENT

NASA engineers and the age of Apollo [NASA-SP-4104] p 52 N92-28344

ENTHALPY

Calculations and curve fits of thermodynamic and transport properties for equilibrium air to 30000 K [NASA-RP-1260] p 26 N92-11285

ENTROPY

Aeroacoustic and aerodynamic applications of the theory of nonequilibrium thermodynamics [NASA-TP-3118] p 26 N91-25352

ENVIRONMENT EFFECTS

Climate Impact of Solar Variability [NASA-CP-3086] p 50 N91-12456

The atmospheric effects of stratospheric aircraft: A topical review [NASA-RP-1250] p 33 N91-16466

Wind tunnel aerodynamic characteristics of a transport-type airfoil in a simulated heavy rain environment [NASA-TP-3184] p 8 N92-31532

ENVIRONMENT MODELS

Electrical and chemical interactions at Mars Workshop, part 1 [NASA-CP-10093] p 50 N92-30302

ENVIRONMENT SIMULATION

Shortcomings in ground testing, environment simulations, and performance predictions for space applications [NASA-TP-3217] p 23 N92-22593

Wind tunnel aerodynamic characteristics of a transport-type airfoil in a simulated heavy rain environment [NASA-TP-3184] p 8 N92-31532

ENVIRONMENTAL ENGINEERING

Biological Life Support Technologies: Commercial Opportunities [NASA-CP-3094] p 36 N91-13842

ENVIRONMENTAL SURVEYS

The atmospheric effects of stratospheric aircraft: A topical review [NASA-RP-1250] p 33 N91-16466

EPOXY MATRIX COMPOSITES

An examination of the damage tolerance enhancement of carbon/epoxy using an outer lamina of spectra (R) [NASA-TP-3160] p 21 N92-11142

A statistical comparison of two carbon fiber/epoxy fabrication techniques [NASA-TP-3179] p 22 N92-20950

EPOXY RESINS

Structural properties of laminated Douglas fir/epoxy composite material [NASA-RP-1236] p 20 N91-10127

EQUATIONS OF STATE

Hypervelocity atmospheric flight: Real gas flow fields [NASA-RP-1249] p 26 N91-20418

EQUIPMENT SPECIFICATIONS

Exobiology on Mars [NASA-CP-10055] p 41 N91-15691

ERROR ANALYSIS

Model reduction by trimming for a class of semi-Markov reliability models and the corresponding error bound [NASA-TP-3089] p 43 N91-25741

ESTIMATES

Fight Mechanics/Estimation Theory Symposium, 1990 [NASA-CP-3102] p 14 N91-17073

ESTIMATORS

A nonlinear estimator for reconstructing the angular velocity of a spacecraft without rate gyros
[NASA-TP-3178] p 24 N92-13343

EULER EQUATIONS OF MOTION

Transonic flow analysis for rotors. Part 3: Three-dimensional, quasi-steady, Euler calculation
[NASA-TP-2375] p 3 N91-10007
Navier-Stokes and Euler solutions for lee-side flows over supersonic delta wings. A correlation with experiment
[NASA-TP-3035] p 4 N91-13401
Shock wave interaction with an abrupt area change
[NASA-TP-3113] p 6 N91-27140
Transonic and supersonic Euler computations of vortex-dominated flow fields about a generic fighter
[NASA-TP-3156] p 6 N92-10011

EVOLUTION (DEVELOPMENT)

Beyond the Baseline 1991: Proceedings of the Space Station Evolution Symposium. Volume 2: Space Station Freedom, part 2
[NASA-CP-10083-VOL-2-PT-2] p 18 N92-17348

EXERCISE PHYSIOLOGY

Workshop on Exercise Prescription for Long-Duration Space Flight
[NASA-CP-3051] p 36 N91-10574

EXHAUST EMISSION

The atmospheric effects of stratospheric aircraft: A current consensus
[NASA-RP-1251] p 33 N91-16467
Optical measurements on solid specimens of solid rocket motor exhaust and solid rocket motor slag
[NASA-TP-3177] p 20 N92-20949

EXHAUST FLOW SIMULATION

A parametric experimental investigation of a scramjet nozzle at Mach 6 with Freon and argon or air used for exhaust simulation
[NASA-TP-3048] p 4 N91-16990

EXHAUST GASES

A parametric experimental investigation of a scramjet nozzle at Mach 6 with Freon and argon or air used for exhaust simulation
[NASA-TP-3048] p 4 N91-16990

EXHAUST NOZZLES

A parametric experimental investigation of a scramjet nozzle at Mach 6 with Freon and argon or air used for exhaust simulation
[NASA-TP-3048] p 4 N91-16990
Static internal performance of ventral and rear nozzle concepts for short-takeoff and vertical-landing aircraft
[NASA-TP-3103] p 6 N92-10975

EXHAUST SYSTEMS

Static internal performance of ventral and rear nozzle concepts for short-takeoff and vertical-landing aircraft
[NASA-TP-3103] p 6 N92-10975

EXOBIOLGY

Aerospace medicine and biology: A continuing bibliography with indexes (supplement 341)
[NASA-SP-7011(341)] p 37 N91-10594
Aerospace medicine and biology: A continuing bibliography with indexes (supplement 342)
[NASA-SP-7011(342)] p 37 N91-13063
Aerospace medicine and biology: A continuing bibliography with indexes (supplement 343)
[NASA-SP-7011(343)] p 37 N91-14711
Aerospace medicine and biology: A continuing bibliography with indexes (supplement 344)
[NASA-SP-7011(344)] p 37 N91-14712
Exobiology in Earth orbit: The results of science workshops held at NASA, Ames Research Center
[NASA-SP-500] p 41 N91-14725
Exobiology on Mars
[NASA-CP-10055] p 41 N91-15691
Aerospace medicine and biology: A cumulative index to a continuing bibliography (supplement 345)
[NASA-SP-7011(345)] p 37 N91-16547
Microbiology on Space Station Freedom
[NASA-CP-3108] p 37 N91-18573
Aerospace medicine and biology: A continuing bibliography with indexes (supplement 346)
[NASA-SP-7011(346)] p 37 N91-23700
Aerospace medicine and biology: A continuing bibliography with indexes (supplement 347)
[NASA-SP-7011(347)] p 37 N91-23701
Aerospace medicine and biology: A continuing bibliography with indexes (supplement 348)
[NASA-SP-7011(348)] p 37 N91-23702
Aerospace medicine and biology: A continuing bibliography with indexes (supplement 349)
[NASA-SP-7011(349)] p 37 N91-24731
Aerospace medicine and biology: A continuing bibliography with indexes (supplement 350)
[NASA-SP-7011(350)] p 38 N91-25600
Aerospace medicine and biology: A continuing bibliography with indexes (supplement 351)
[NASA-SP-7011(351)] p 38 N91-27756

Aerospace medicine and biology: A continuing bibliography with indexes (supplement 352)
[NASA-SP-7011(352)] p 38 N91-28729

Aerospace medicine and biology: A continuing bibliography with indexes (supplement 353)
[NASA-SP-7011(353)] p 38 N91-31760

Aerospace medicine and biology: A continuing bibliography with indexes (supplement 354)
[NASA-SP-7011(354)] p 38 N92-12404

Aerospace medicine and biology: A continuing bibliography with indexes (supplement 355)
[NASA-SP-7011(355)] p 38 N92-12412

Fourth Symposium on Chemical Evolution and the Origin and Evolution of Life
[NASA-CP-3129] p 41 N92-13588

Aerospace medicine and biology: A continuing bibliography with indexes (supplement 356)
[NASA-SP-7011(356)] p 38 N92-15538

Aerospace medicine and biology: A continuing bibliography with indexes (supplement 357)
[NASA-SP-7011(357)] p 39 N92-21714

Aerospace medicine and biology: A continuing bibliography with indexes (supplement 359)
[NASA-SP-7011(359)] p 39 N92-21715

Aerospace medicine and biology: A cumulative index to a continuing bibliography (supplement 358)
[NASA-SP-7011(358)] p 39 N92-22026

Aerospace medicine and biology: A continuing bibliography with indexes (supplement 362)
[NASA-SP-7011(362)] p 39 N92-27068

Aerospace medicine and biology: A continuing bibliography with indexes (supplement 361)
[NASA-SP-7011(361)] p 39 N92-27433

Aerospace medicine and biology: A continuing bibliography with indexes (supplement 363)
[NASA-SP-7011(363)] p 39 N92-30987

EXPERIMENT DESIGN

Exobiology on Mars
[NASA-CP-10055] p 41 N91-15691
Definition and design of an experiment to test raster scanning with rotating unbalanced-mass devices on gimbaled payloads
[NASA-TP-3249] p 24 N92-29677

EXPERIMENTATION

National Educators' Workshop: Update 1988. Standard Experiments in Engineering Materials Science and Technology
[NASA-CP-3060] p 20 N91-20207
National Educators' Workshop: Update 1991. Standard Experiments in Engineering Materials Science and Technology
[NASA-CP-3151] p 24 N92-30263

EXPERT SYSTEMS

Joint University Program for Air Transportation Research, 1989-1990
[NASA-CP-3095] p 1 N91-19024
Fourth Annual Workshop on Space Operations Applications and Research (SOAR 90)
[NASA-CP-3103-VOL-2] p 41 N91-20702
Proceedings of the Second Joint Technology Workshop on Neural Networks and Fuzzy Logic, volume 1
[NASA-SP-10061-VOL-1] p 43 N91-21778
Guidance, navigation, and control subsystem equipment selection algorithm using expert system methods
[NASA-TP-3082] p 42 N91-25624
Automating a spacecraft electrical power system using expert systems
[NASA-TP-3161] p 20 N92-12052
Second CLIPS Conference Proceedings, volume 1
[NASA-CP-10085-VOL-1] p 42 N92-16568
Second CLIPS Conference Proceedings, volume 2
[NASA-CP-10085-VOL-2] p 42 N92-16590
Beyond the Baseline 1991: Proceedings of the Space Station Evolution Symposium. Volume 1: Space Station Freedom, part 2
[NASA-CP-10083-VOL-1-PT-2] p 18 N92-17409
Fifth Annual Workshop on Space Operations Applications and Research (SOAR 1991), volume 2
[NASA-CP-3127-VOL-2] p 41 N92-22324

EXPLORER SATELLITES

Small Explorer Data System MIL-STD-1773 fiber optic bus
[NASA-TP-3227] p 16 N92-26667

EXPOSURE

Space Photovoltaic Research and Technology Conference
[NASA-CP-3121] p 19 N91-30203
Track structure model of cell damage in space flight
[NASA-TP-3235] p 39 N92-34154

EXTERNAL STORE SEPARATION

Measurements of forces, moments, and pressures on a generic store separating from a box cavity at supersonic speeds
[NASA-TP-3110] p 6 N92-10005

EXTRATERRESTRIAL ENVIRONMENTS

Second LDEF Post-Retrieval Symposium abstracts
[NASA-CP-10097] p 52 N92-27218

EXTRATERRESTRIAL RADIATION

Improvements in computational accuracy of BRYNTRN (a baryon transport code)
[NASA-TP-3093] p 51 N91-23017
First LDEF Post-Retrieval Symposium abstracts
[NASA-CP-10072] p 52 N91-24972
Transport methods and interactions for space radiations
[NASA-RP-1257] p 51 N92-15956
Track structure model of cell damage in space flight
[NASA-TP-3235] p 39 N92-34154

EXTRAVEHICULAR ACTIVITY

A method of evaluating efficiency during space-suited work in a neutral buoyancy environment
[NASA-TP-3153] p 40 N92-19772
Large space structures and systems in the space station era: A bibliography with indexes (supplement 03)
[NASA-SP-7085(03)] p 18 N92-22317

F

F-15 AIRCRAFT

Application and flight test of linearizing transformations using measurement feedback to the nonlinear control problem
[NASA-TP-3154] p 12 N91-30154

F-18 AIRCRAFT

Wind tunnel investigation of vortex flows on F/A-18 configuration at subsonic through transonic speed
[NASA-TP-3111] p 6 N92-14968

FABRICATION

Structural properties of laminated Douglas fir/epoxy composite material
[NASA-RP-1236] p 20 N91-10127
A new fabrication method for precision antenna reflectors for space flight and ground test
[NASA-TP-3078] p 17 N91-21185

FAILURE

Reliability training
[NASA-RP-1253] p 15 N92-32456

FAILURE ANALYSIS

Failure behavior of generic metallic and composite aircraft structural components under crash loads
[NASA-RP-1239] p 29 N91-13751
Development of an adaptive failure detection and identification system for detecting aircraft control element failures
[NASA-TP-3051] p 12 N91-25151
A three-dimensional finite-element thermal/mechanical analytical technique for high-performance traveling wave tubes
[NASA-TP-3081] p 25 N91-27436
The role of failure/problems in engineering: A commentary of failures experienced - lessons learned
[NASA-TP-3213] p 24 N92-22235
Reliability training
[NASA-RP-1253] p 15 N92-32456
Advanced techniques in reliability model representation and solution
[NASA-TP-3242] p 43 N92-33483

FAILURE MODES

Experimental validation of clock synchronization algorithms
[NASA-TP-3209] p 42 N92-27589
Reliability training
[NASA-RP-1253] p 15 N92-32456
Advanced techniques in reliability model representation and solution
[NASA-TP-3242] p 43 N92-33483

FAIRINGS

Payload bay doors and radiator panels familiarization handbook
[NASA-TM-107793] p 15 N92-20676

FAN BLADES

Design and performance of controlled-diffusion stator compared with original double-circular-arc stator
[NASA-TP-2852] p 12 N92-22863

FAR FIELDS

J-85 jet engine noise measured in the ONERA S1 wind tunnel and extrapolated to far field
[NASA-TP-3053] p 45 N91-19823

FASTENERS

Development of a truss joint for robotic assembly of space structures
[NASA-TP-3214] p 31 N92-27974

FATIGUE (MATERIALS)

Analysis and prediction of Multiple-Site Damage (MSD) fatigue crack growth
[NASA-TP-3231] p 31 N92-31279

FATIGUE TESTS

A method of evaluating efficiency during space-suited work in a neutral buoyancy environment
[NASA-TP-3153] p 40 N92-19772

FAULT TOLERANCE

NASA Formal Methods Workshop, 1990
[NASA-CP-10052] p 42 N91-17559

Development of an adaptive failure detection and identification system for detecting aircraft control element failures
[NASA-TP-3051] p 12 N91-25151

Fault tolerance of artificial neural networks with applications in critical systems
[NASA-TP-3187] p 42 N92-22285

The 1992 Goddard Conference on Space Applications of Artificial Intelligence
[NASA-CP-3141] p 43 N92-23356

Advanced techniques in reliability model representation and solution
[NASA-TP-3242] p 43 N92-33483

FEASIBILITY ANALYSIS

Feasibility study of a low-energy gamma ray system for measuring quantity and flow rate of slush hydrogen
[NASA-TP-3150] p 19 N92-25147

Definition and design of an experiment to test raster scanning with rotating unbalanced-mass devices on gimballed payloads
[NASA-TP-3249] p 24 N92-29677

FEEDBACK CONTROL

Application and flight test of linearizing transformations using measurement feedback to the nonlinear control problem
[NASA-TP-3154] p 12 N91-30154

The effect of bandwidth on teleoperator system performance
[NASA-TP-3152] p 28 N91-30540

On the formulation of a minimal uncertainty model for robust control with structured uncertainty
[NASA-TP-3094] p 13 N92-10027

FEMALES

Responses of women to orthostatic and exercise stresses
[NASA-TP-3043] p 37 N91-19711

FIBER COMPOSITES

Eighth DOD/NASA/FAA Conference on Fibrous Composites in Structural Design, part 1
[NASA-CP-3087-PT-1] p 22 N92-32513

Eighth DOD/NASA/FAA Conference on Fibrous Composites in Structural Design, part 2
[NASA-CP-3087-PT-2] p 22 N92-32574

FIBER OPTICS

Small Explorer Data System MIL-STD-1773 fiber optic bus
[NASA-TP-3227] p 16 N92-26667

FIELD THEORY (PHYSICS)

Workshop on Squeezed States and Uncertainty Relations
[NASA-CP-3135] p 46 N92-22045

FIGHTER AIRCRAFT

Transonic and supersonic Euler computations of vortex-dominated flow fields about a generic fighter
[NASA-TP-3156] p 6 N92-10011

Static internal performance of ventral and rear nozzle concepts for short-takeoff and vertical-landing aircraft
[NASA-TP-3103] p 6 N92-10975

Effect of afterbody geometry on aerodynamic characteristics of isolated nonaxisymmetric afterbodies at transonic Mach numbers
[NASA-TP-3236] p 9 N92-33706

FILM THICKNESS

Low-energy positron flux generator for microstructural characterization of thin films
[NASA-TP-3074] p 27 N91-22538

FINITE DIFFERENCE THEORY

Validation of three-dimensional incompressible spatial direct numerical simulation code: A comparison with linear stability and parabolic stability equation theories for boundary-layer transition on a flat plate
[NASA-TP-3205] p 8 N92-30295

FINITE ELEMENT METHOD

Nineteenth NASTRAN (R) Users' Colloquium
[NASA-CP-3111] p 29 N91-20506

Computational methods for frictionless contact with application to Space Shuttle Orbiter nose-gear tires
[NASA-TP-3073] p 30 N91-22576

Development of an integrated aeroservoelastic analysis program and correlation with test data
[NASA-TP-3120] p 2 N91-26113

A three-dimensional finite-element thermal/mechanical analytical technique for high-performance traveling wave tubes
[NASA-TP-3081] p 25 N91-27436

A method for determining spiral-bevel gear tooth geometry for finite element analysis
[NASA-TP-3096] p 28 N92-10195

Improved accuracy for finite element structural analysis via a new integrated force method
[NASA-TP-3204] p 30 N92-22227

Twentieth NASTRAN (R) Users' Colloquium
[NASA-CP-3145] p 30 N92-24324

Stress concentrations for straight-shank and countersunk holes in plates subjected to tension, bending, and pin loading
[NASA-TP-3192] p 31 N92-25997

Applications of FEM and BEM in two-dimensional fracture mechanics problems
[NASA-TP-3277] p 31 N92-31280

Eighth DOD/NASA/FAA Conference on Fibrous Composites in Structural Design, part 1
[NASA-CP-3087-PT-1] p 22 N92-32513

FINITE VOLUME METHOD

Transonic flow analysis for rotors. Part 3: Three-dimensional, quasi-steady, Euler calculation
[NASA-TP-2375] p 3 N91-10007

FIRE (CLIMATOLOGY)

FIRE Science Results 1988
[NASA-CP-3083] p 34 N91-10448

FLAME STABILITY

Two-dimensional stability of laminar flames
[NASA-TP-3131] p 7 N92-17131

FLAPPING

Full-scale semispan tests of a business-jet wing with a natural laminar flow airfoil
[NASA-TP-3133] p 6 N91-30098

FLAPS (CONTROL SURFACES)

Aeropropulsive characteristics of canted twin pitch-vectoring nozzles at Mach 0.20 to 1.20
[NASA-TP-3060] p 5 N91-22069

FLAT PLATES

Measurements of forces, moments, and pressures on a generic store separating from a box cavity at supersonic speeds
[NASA-TP-3110] p 6 N92-10005

Validation of three-dimensional incompressible spatial direct numerical simulation code: A comparison with linear stability and parabolic stability equation theories for boundary-layer transition on a flat plate
[NASA-TP-3205] p 8 N92-30295

FLEXIBILITY

Calibration of the 13- by 13-inch adaptive wall test section for the Langley 0.3-meter transonic cryogenic tunnel
[NASA-TP-3049] p 13 N91-13461

FLEXIBLE BODIES

Technique to eliminate computational instability in multibody simulations employing the Lagrange multiplier
[NASA-TP-3220] p 42 N92-23432

FLEXIBLE SPACECRAFT

The 5th Annual NASA Spacecraft Control Laboratory Experiment (SCOLE) Workshop, part 2
[NASA-CP-10057-PT-2] p 17 N91-19122

Fourth NASA Workshop on Computational Control of Flexible Aerospace Systems, part 1
[NASA-CP-10065-PT-1] p 17 N91-22307

Fourth NASA Workshop on Computational Control of Flexible Aerospace Systems, part 2
[NASA-CP-10065-PT-2] p 17 N91-22331

FLEXIBLE WINGS

A method for the design of transonic flexible wings
[NASA-TP-3045] p 10 N91-14323

Fourth NASA Workshop on Computational Control of Flexible Aerospace Systems, part 2
[NASA-CP-10065-PT-2] p 17 N91-22331

FLIGHT CHARACTERISTICS

Flight characteristics of a modified Schweizer SGS-1-36 sailplane at low and very high angles of attack
[NASA-TP-3022] p 12 N91-10079

FLIGHT CONDITIONS

Stagnation-point heat-transfer rate predictions at aerossist flight conditions
[NASA-TP-3208] p 27 N92-31281

FLIGHT CONTROL

NASA Formal Methods Workshop, 1990
[NASA-CP-10052] p 42 N91-17559

NASA-LaRc Flight-Critical Digital Systems Technology Workshop
[NASA-CP-10028] p 11 N91-24200

Development of an integrated aeroservoelastic analysis program and correlation with test data
[NASA-TP-3120] p 2 N91-26113

Application and flight test of linearizing transformations using measurement feedback to the nonlinear control problem
[NASA-TP-3154] p 12 N91-30154

Control Center Technology Conference Proceedings
[NASA-CP-10081] p 14 N92-12010

Control integration concept for hypersonic cruise-turn maneuvers
[NASA-TP-3136] p 13 N92-20195

Advanced techniques in reliability model representation and solution
[NASA-TP-3242] p 43 N92-33483

FLIGHT HAZARDS

Airborne Wind Shear Detection and Warning Systems: Third Combined Manufacturers' and Technologists' Conference, part 1
[NASA-CP-10060-PT-1] p 9 N91-24166

The 1991 International Aerospace and Ground Conference on Lightning and Static Electricity, volume 1
[NASA-CP-3106-VOL-1] p 35 N91-32599

FLIGHT INSTRUMENTS

Effect of short-term exposure to stereoscopic three-dimensional flight displays on real-world depth perception
[NASA-TP-3117] p 11 N92-13065

FLIGHT MANAGEMENT SYSTEMS

Report of the workshop on Aviation Safety/Automation Program
[NASA-CP-10054] p 9 N91-15141

Airborne Wind Shear Detection and Warning Systems: Third Combined Manufacturers' and Technologists' Conference, part 1
[NASA-CP-10060-PT-1] p 9 N91-24166

FLIGHT MECHANICS

Flight Mechanics/Estimation Theory Symposium, 1990
[NASA-CP-3102] p 14 N91-17073

FLIGHT OPERATIONS

Flight tests with a data link used for air traffic control information exchange
[NASA-TP-3135] p 11 N91-31143

FLIGHT SAFETY

A comparison of airborne wake vortex detection measurements with values predicted from potential theory
[NASA-TP-3125] p 10 N92-10994

FLIGHT SIMULATION

Evaluation of cloud detection instruments and performance of laminar-flow leading-edge test articles during NASA Leading-Edge Flight-Test Program
[NASA-TP-2888] p 11 N91-24199

Human Machine Interfaces for Teleoperators and Virtual Environments Conference
[NASA-CP-10071] p 40 N92-11638

FLIGHT TESTS

Transonic Symposium: Theory, Application and Experiment, volume 2
[NASA-CP-3020-VOL-2] p 5 N91-24132

Airborne Wind Shear Detection and Warning Systems: Third Combined Manufacturers' and Technologists' Conference, part 1
[NASA-CP-10060-PT-1] p 9 N91-24166

Flight tests with a data link used for air traffic control information exchange
[NASA-TP-3135] p 11 N91-31143

FLOW CHARACTERISTICS

Direct simulation of high-speed mixing layers
[NASA-TP-3186] p 8 N92-30909

FLOW DISTRIBUTION

Navier-Stokes and Euler solutions for lee-side flows over supersonic delta wings. A correlation with experiment
[NASA-TP-3035] p 4 N91-13401

Calibration of the 13- by 13-inch adaptive wall test section for the Langley 0.3-meter transonic cryogenic tunnel
[NASA-TP-3049] p 13 N91-13461

A parametric experimental investigation of a scramjet nozzle at Mach 6 with Freon and argon or air used for exhaust simulation
[NASA-TP-3048] p 4 N91-16990

Relative efficiency and accuracy of two Navier-Stokes codes for simulating attached transonic flow over wings
[NASA-TP-3061] p 26 N91-17310

Detailed flow-field measurements over a 75 deg swept delta wing
[NASA-TP-2997] p 4 N91-18030

An explicit upwind algorithm for solving the parabolized Navier-Stokes equations
[NASA-TP-3050] p 4 N91-18032

An upwind-biased space marching algorithm for supersonic viscous flow
[NASA-TP-3068] p 26 N91-18381

Experimental investigation of porous-floor effects on cavity flow fields at supersonic speeds
[NASA-TP-3032] p 5 N91-19042

Hypervelocity atmospheric flight: Real gas flow fields
[NASA-TP-1249] p 26 N91-20418

Aeropropulsive characteristics of canted twin pitch-vectoring nozzles at Mach 0.20 to 1.20
[NASA-TP-3060] p 5 N91-22069

Effects of yaw angle and Reynolds number on rectangular-box cavities at subsonic and transonic speeds
[NASA-TP-3099] p 5 N91-27124

Measurements of forces, moments, and pressures on a generic store separating from a box cavity at supersonic speeds
[NASA-TP-3110] p 6 N92-10005

Transonic and supersonic Euler computations of vortex-dominated flow fields about a generic fighter
[NASA-TP-3156] p 6 N92-10011

Numerical analysis and simulation of an assured crew return vehicle flow field
[NASA-TP-3101] p 26 N92-10161

A comparison of airborne wake vortex detection measurements with values predicted from potential theory
[NASA-TP-3125] p 10 N92-10994

Calculations and curve fits of thermodynamic and transport properties for equilibrium air to 30000 K
[NASA-RP-1260] p 26 N92-11285

Wind tunnel investigation of the interaction and breakdown characteristics of slender wing vortices at subsonic, transonic, and supersonic speeds
[NASA-TP-3114] p 6 N92-12994

The natural flow wing-design concept
[NASA-TP-3193] p 7 N92-25202

Computational Fluid Dynamics ... numerical methods and algorithm development
[NASA-CP-10078] p 12 N92-25808

Calculation of unsteady transonic flows with mild separation by viscous-inviscid interaction
[NASA-TP-3197] p 7 N92-28477

A nozzle internal performance prediction method
[NASA-TP-3221] p 8 N92-33625

FLOW EQUATIONS

Calculation of unsteady transonic flows with mild separation by viscous-inviscid interaction
[NASA-TP-3197] p 7 N92-28477

FLOW MEASUREMENT

Three-dimensional laser window formation
[NASA-RP-1280] p 14 N92-30307

FLOW STABILITY

Aeroacoustic and aerodynamic applications of the theory of nonequilibrium thermodynamics
[NASA-TP-3118] p 26 N91-25352

FLOW VELOCITY

Analysis of gravity-induced particle motion and fluid perfusion flow in the NASA-designed rotating zero-head-space tissue culture vessel
[NASA-TP-3143] p 24 N92-13340

Feasibility study of a low-energy gamma ray system for measuring quantity and flow rate of slush hydrogen
[NASA-TP-3150] p 19 N92-25147

FLOW VISUALIZATION

Detailed flow-field measurements over a 75 deg swept delta wing
[NASA-TP-2997] p 4 N91-18030

FLUID DYNAMICS

A weakly nonlinear theory for wave-vortex interactions in curved channel flow
[NASA-TP-3158] p 7 N92-19175

Aeronautical engineering: A continuing bibliography with indexes (supplement 277)
[NASA-SP-7037(277)] p 3 N92-27929

Validation of three-dimensional incompressible spatial direct numerical simulation code: A comparison with linear stability and parabolic stability equation theories for boundary-layer transition on a flat plate
[NASA-TP-3205] p 8 N92-30295

FLUID FILMS

Fundamentals of fluid lubrication
[NASA-RP-1255] p 28 N91-30531

FLUID MECHANICS

Aeropropulsion 1991
[NASA-CP-10063] p 12 N91-20086

Analysis of gravity-induced particle motion and fluid perfusion flow in the NASA-designed rotating zero-head-space tissue culture vessel
[NASA-TP-3143] p 24 N92-13340

FLUTTER

Fourth NASA Workshop on Computational Control of Flexible Aerospace Systems, part 2
[NASA-CP-10065-PT-2] p 17 N91-22331

FLUTTER ANALYSIS

Design of control laws for flutter suppression based on the aerodynamic energy concept and comparisons with other design methods
[NASA-TP-3056] p 29 N91-10328

Span reduction effects on the flutter characteristics of arrow-wing supersonic transport configurations
[NASA-TP-3077] p 11 N91-21127

Planform curvature effects on flutter characteristics of a wing with 56 deg leading-edge sweep and panel aspect ratio of 1.14
[NASA-TP-3116] p 11 N92-13054

FLYING PLATFORMS

Venturi air-jet vacuum ejectors for high-volume atmospheric sampling on aircraft platforms
[NASA-TP-3183] p 11 N92-20546

FOREBODIES

Wind tunnel investigation of vortex flows on F/A-18 configuration at subsonic through transonic speed
[NASA-TP-3111] p 6 N92-14968

Simulation of real-gas effects on pressure distributions for aerosassit flight experiment vehicle and comparison with prediction
[NASA-TP-3157] p 27 N92-20677

FOURIER SERIES

Validation of three-dimensional incompressible spatial direct numerical simulation code: A comparison with linear stability and parabolic stability equation theories for boundary-layer transition on a flat plate
[NASA-TP-3205] p 8 N92-30295

FRACTURE MECHANICS

National Educators' Workshop: Update 1988. Standard Experiments in Engineering Materials Science and Technology
[NASA-CP-3060] p 20 N91-20207

National Educators' Workshop: Update 1991. Standard Experiments in Engineering Materials Science and Technology
[NASA-CP-3151] p 24 N92-30263

Applications of FEM and BEM in two-dimensional fracture mechanics problems
[NASA-TP-3277] p 31 N92-31280

FRACTURING

National Educators' Workshop: Update 1988. Standard Experiments in Engineering Materials Science and Technology
[NASA-CP-3060] p 20 N91-20207

FRAMES

Free vibrations of thin-walled semicircular graphite-epoxy composite frames
[NASA-TP-3010] p 29 N91-13750

FRAMES (DATA PROCESSING)

High Resolution, High Frame Rate Video Technology
[NASA-CP-3080] p 27 N91-14574

FREE FLIGHT

Wind-tunnel static and free-flight investigation of high-angle-of-attack stability and control characteristics of a model of the EA-6B airplane
[NASA-TP-3194] p 7 N92-25276

FREE FLOW

Detailed flow-field measurements over a 75 deg swept delta wing
[NASA-TP-2997] p 4 N91-18030

FREE WING AIRCRAFT

Direct simulation of high-speed mixing layers
[NASA-TP-3186] p 8 N92-30909

FREQUENCY DIVISION MULTIPLEXING

Destination-directed, packet-switching architecture for 30/20-GHz FDMA/TDM geostationary communications satellite network
[NASA-TP-3201] p 16 N92-19762

FREQUENCY SHIFT KEYING

Advanced Modulation and Coding Technology Conference
[NASA-CP-10053] p 16 N92-22001

FREQUENCY STANDARDS

The 22nd Annual Precise Time and Time Interval (PTTI) Applications and Planning Meeting
[NASA-CP-3116] p 44 N91-25755

Proceedings of the 23rd Annual Precise Time and Time Interval (PTTI) Applications and Planning Meeting
[NASA-CP-3159] p 44 N92-33350

FRICTIONLESS ENVIRONMENTS

Computational methods for frictionless contact with application to Space Shuttle Orbiter nose-gear tires
[NASA-TP-3073] p 30 N91-22576

FUEL CELLS

Space Electrochemical Research and Technology
[NASA-CP-3125] p 33 N91-32549

FULL SCALE TESTS

Full-scale semispan tests of a business-jet wing with a natural laminar flow airfoil
[NASA-TP-3133] p 6 N91-30098

FUNCTION SPACE

Trajectory fitting in function space with application to analytic modeling of surfaces
[NASA-TP-3232] p 8 N92-30747

FUNCTIONAL DESIGN SPECIFICATIONS

Beyond the Baseline 1991: Proceedings of the Space Station Evolution Symposium. Volume 2: Space Station Freedom, part 1
[NASA-CP-10083-VOL-2-PT-1] p 18 N92-17768

FUSELAGES

Two-dimensional aerodynamic characteristics of several polygon-shaped cross-sectional models applicable to helicopter fuselages
[NASA-TP-3233] p 8 N92-30394

FUZZY SETS

Proceedings of the Second Joint Technology Workshop on Neural Networks and Fuzzy Logic, volume 2
[NASA-CP-10061-VOL-2] p 43 N91-20811

Proceedings of the Second Joint Technology Workshop on Neural Networks and Fuzzy Logic, volume 1
[NASA-CP-10061-VOL-1] p 43 N91-21778

FUZZY SYSTEMS

Proceedings of the Second Joint Technology Workshop on Neural Networks and Fuzzy Logic, volume 1
[NASA-CP-10061-VOL-1] p 43 N91-21778

G**GALACTIC CLUSTERS**

Paired and Interacting Galaxies: International Astronomical Union Colloquium No. 124
[NASA-CP-3098] p 49 N91-16858

GALACTIC COSMIC RAYS

Cellular track model of biological damage to mammalian cell cultures from galactic cosmic rays
[NASA-TP-3055] p 50 N91-16981

Radiation protection for human missions to the Moon and Mars
[NASA-TP-3079] p 50 N91-17999

Benchmark solutions for the galactic heavy-ion transport equations with energy and spatial coupling
[NASA-TP-3112] p 44 N92-13756

An efficient HZETRN (a galactic cosmic ray transport code)
[NASA-TP-3147] p 51 N92-22218

GALACTIC STRUCTURE

Paired and Interacting Galaxies: International Astronomical Union Colloquium No. 124
[NASA-CP-3098] p 49 N91-16858

GALAXIES

The Interstellar Medium in External Galaxies: Summaries of contributed papers
[NASA-CP-3084] p 49 N91-14100

GAMMA RAY ASTRONOMY

The Compton Observatory Science Workshop
[NASA-CP-3137] p 49 N92-21874

GAMMA RAY BURSTS

Development of the Burst and Transient Source Experiment (BATSE)
[NASA-RP-1268] p 49 N91-32006

The Compton Observatory Science Workshop
[NASA-CP-3137] p 49 N92-21874

GAMMA RAY OBSERVATORY

Development of the Burst and Transient Source Experiment (BATSE)
[NASA-RP-1268] p 49 N91-32006

The Compton Observatory Science Workshop
[NASA-CP-3137] p 49 N92-21874

GAMMA RAY TELESCOPES

The Compton Observatory Science Workshop
[NASA-CP-3137] p 49 N92-21874

GAMMA RAYS

Development of the Burst and Transient Source Experiment (BATSE)
[NASA-RP-1268] p 49 N91-32006

Feasibility study of a low-energy gamma ray system for measuring quantity and flow rate of slush hydrogen
[NASA-TP-3150] p 19 N92-25147

GAS FLOW

An explicit upwind algorithm for solving the parabolized Navier-Stokes equations
[NASA-TP-3050] p 4 N91-18032

Hypervelocity atmospheric flight: Real gas flow fields
[NASA-RP-1249] p 26 N91-20418

GAS-METAL INTERACTIONS

The interaction of hydrogen with metal alloys
[NASA-TP-3128] p 23 N91-29318

GASEOUS DIFFUSION

An investigation of microstructural characteristics of contact-lens polymers
[NASA-TP-3034] p 21 N91-13492

The interaction of hydrogen with metal alloys
[NASA-TP-3128] p 23 N91-29318

GEAR TEETH

A method for determining spiral-bevel gear tooth geometry for finite element analysis
[NASA-TP-3096] p 28 N92-10195

GEARS

Development of a full-scale transmission testing procedure to evaluate advanced lubricants
[NASA-TP-3265] p 28 N92-30396

GELLED PROPELLANTS

Upper stages using liquid propulsion and metallized propellants
[NASA-TP-3191] p 20 N92-17151

GENERAL AVIATION AIRCRAFT

Effect of crash pulse shape on seat stroke requirements for limiting loads on occupants of aircraft
[NASA-TP-3126] p 30 N92-18053

GEOCHEMISTRY

Fourth Symposium on Chemical Evolution and the Origin and Evolution of Life
[NASA-CP-3129] p 41 N92-13588

Planetary geosciences, 1989-1990
[NASA-SP-508] p 50 N92-28345

GEODESY
Types and Characteristics of Data for Geomagnetic Field Modeling
[NASA-CP-3153] p 31 N92-28620

GEOLOGY
Volcanism-Climate Interactions
[NASA-CP-10062] p 34 N91-21641
Planetary geosciences, 1989-1990
[NASA-SP-508] p 50 N92-28345

GEOMAGNETISM
Types and Characteristics of Data for Geomagnetic Field Modeling
[NASA-CP-3153] p 31 N92-28620
Steady induction effects in geomagnetism. Part 1A: Steady motional induction of geomagnetic chaos
[NASA-TP-3272-PT-1A] p 34 N92-32655

GEOPHYSICS
Planetary geosciences, 1989-1990
[NASA-SP-508] p 50 N92-28345
Types and Characteristics of Data for Geomagnetic Field Modeling
[NASA-CP-3153] p 31 N92-28620

GEOSYNCHRONOUS ORBITS
Thermal-distortion analysis of a spacecraft box truss in geostationary orbit
[NASA-TP-3054] p 16 N91-11041
On-orbit structural dynamic performance of a 15-meter microwave radiometer antenna
[NASA-TP-3041] p 16 N91-17114
Launch vehicle integration options for a large Earth sciences geostationary platform concept
[NASA-TP-3083] p 15 N91-27180
Packaging, development, and on-orbit assembly options for large geostationary spacecraft
[NASA-TP-3088] p 17 N91-27182

GIBBS FREE ENERGY
Gibbs free energy of reactions involving SiC, Si₃N₄, H₂, and H₂O as a function of temperature and pressure
[NASA-TP-3275] p 23 N92-31278

GLASS
Three-dimensional laser window formation
[NASA-RP-1280] p 14 N92-30307

GLIDERS
Flight characteristics of a modified Schweizer SGS1-36 sailplane at low and very high angles of attack
[NASA-TP-3022] p 12 N91-10079

GLOBAL ATMOSPHERIC RESEARCH PROGRAM
NASA/MSFC FY90 Global Scale Atmospheric Processes Research Program Review
[NASA-CP-3093] p 35 N91-16500

GOVERNMENT/INDUSTRY RELATIONS
Space Transportation Materials and Structures Technology Workshop. Volume 1: Executive summary
[NASA-CP-3148-VOL-1] p 15 N92-22660
Technology 2001: The Second National Technology Transfer Conference and Exposition, volume 2
[NASA-CP-3136-VOL-2] p 52 N92-22676

GOVERNMENTS
The Federal Conference on Intelligent Processing Equipment
[NASA-CP-3138] p 52 N92-24987

GRAPHITE-EPOXY COMPOSITES
Free vibrations of thin-walled semicircular graphite-epoxy composite frames
[NASA-TP-3010] p 29 N91-13750
Compression behavior of graphite-thermoplastic and graphite-epoxy panels with circular holes or impact damage
[NASA-TP-3071] p 21 N91-18215
Properties of three graphite/toughened resin composites
[NASA-TP-3102] p 21 N92-10067
Experimental behavior of graphite-epoxy Y-stiffened specimens loaded in compression
[NASA-TP-3171] p 30 N92-23115
Effect of low-speed impact damage and damage location on behavior of composite panels
[NASA-TP-3196] p 22 N92-23981
Graphite/epoxy composite adapters for the Space Shuttle/Centaur vehicle
[NASA-TP-3014] p 15 N92-31251

GRAVITATIONAL EFFECTS
The microgravity environment of the Space Shuttle Columbia payload bay during STS-32
[NASA-TP-3141] p 49 N92-11931
Analysis of gravity-induced particle motion and fluid perfusion flow in the NASA-designed rotating zero-head-space tissue culture vessel
[NASA-TP-3143] p 24 N92-13340
Fuel utilization during exercise after 7 days of bed rest
[NASA-TP-3175] p 38 N92-16554

GRAVITATIONAL PHYSIOLOGY
Techniques for determination of impact forces during walking and running in a zero-G environment
[NASA-TP-3159] p 38 N92-17022

GREENHOUSE EFFECT
Climate Impact of Solar Variability
[NASA-CP-3086] p 50 N91-12456

GRID GENERATION (MATHEMATICS)
NASA Computational Fluid Dynamics Conference. Volume 1: Sessions 1-6
[NASA-CP-10038-VOL-1] p 4 N91-10839
Computational Fluid Dynamics Symposium on Aeropropulsion
[NASA-CP-3078] p 5 N91-21062
An efficient HZETRN (a galactic cosmic ray transport code)
[NASA-TP-3147] p 51 N92-22218
Software Surface Modeling and Grid Generation Steering Committee
[NASA-CP-3143] p 42 N92-24397
Workshop on Grid Generation and Related Areas
[NASA-CP-10089] p 12 N92-25712
NASA Workshop on future directions in surface modeling and grid generation
[NASA-CP-10092] p 8 N92-29625
Trajectory fitting in function space with application to analytic modeling of surfaces
[NASA-TP-3232] p 8 N92-30747
Tenth Workshop for Computational Fluid Dynamic Applications in Rocket Propulsion, part 1
[NASA-CP-3163-PT-1] p 27 N92-32278

GROUND BASED CONTROL
Control Center Technology Conference Proceedings
[NASA-CP-10081] p 14 N92-12010

GROUND EFFECT (AERODYNAMICS)
Low-speed, powered ground effects of a generic, hypersonic configuration
[NASA-TP-3092] p 5 N91-25103

GROUND SUPPORT EQUIPMENT
The 25th Aerospace Mechanisms Symposium
[NASA-CP-3113] p 30 N91-24603
Control Center Technology Conference Proceedings
[NASA-CP-10081] p 14 N92-12010

GROUND SUPPORT SYSTEMS
Control Center Technology Conference Proceedings
[NASA-CP-10081] p 14 N92-12010

GROUND TESTS
Shortcomings in ground testing, environment simulations, and performance predictions for space applications
[NASA-TP-3217] p 23 N92-22593

GROUND-AIR-GROUND COMMUNICATION
Flight deck benefits of integrated data link communication
[NASA-TP-3219] p 10 N92-21459

GROUP THEORY
Workshop on Squeezed States and Uncertainty Relations
[NASA-CP-3135] p 46 N92-22045

GUIDANCE (MOTION)
Joint University Program for Air Transportation Research, 1989-1990
[NASA-CP-3095] p 1 N91-19024

H

HARMONICS
Wind turbine acoustics
[NASA-TP-3057] p 44 N91-16679

HAZARDS
Space Station Freedom Toxic and Reactive Materials Handling
[NASA-CP-3085] p 48 N91-15930

HAZE
Evaluation of cloud detection instruments and performance of laminar-flow leading-edge test articles during NASA Leading-Edge Flight-Test Program
[NASA-TP-2888] p 11 N91-24199

HEALTH
Microbiology on Space Station Freedom
[NASA-CP-3108] p 37 N91-18573

HEAT AFFECTED ZONE
A simplified method for thermal analysis of a cowl leading edge subject to intense local shock-wave-interference heating
[NASA-TP-3167] p 27 N92-24797

HEAT FLUX
Thermal-distortion analysis of a spacecraft box truss in geostationary orbit
[NASA-TP-3054] p 16 N91-11041

HEAT TRANSFER
Modeling of the heat transfer in bypass transitional boundary-layer flows
[NASA-TP-3170] p 27 N92-11299

Tenth Workshop for Computational Fluid Dynamic Applications in Rocket Propulsion, part 1
[NASA-CP-3163-PT-1] p 27 N92-32278

HEAT TREATMENT
Outgassing data for selecting spacecraft materials, revision 2
[NASA-RP-1124-REV-2] p 21 N91-14437

HEAVY IONS
Inclusive inelastic scattering of heavy ions and nuclear correlations
[NASA-TP-3026] p 46 N91-13985
Cellular track model of biological damage to mammalian cell cultures from galactic cosmic rays
[NASA-TP-3055] p 50 N91-16981
Benchmark solutions for the galactic heavy-ion transport equations with energy and spatial coupling
[NASA-TP-3112] p 44 N92-13756
HZETRN: A heavy ion/nucleon transport code for space radiations
[NASA-TP-3146] p 51 N92-15959
Multiple lesion track structure model
[NASA-TP-3185] p 39 N92-22186

HEISENBERG THEORY
Workshop on Squeezed States and Uncertainty Relations
[NASA-CP-3135] p 46 N92-22045

HELICOPTER PROPELLER DRIVE
Experimental and analytical evaluation of efficiency of helicopter planetary stage
[NASA-TP-3063] p 28 N91-12956
Development of a full-scale transmission testing procedure to evaluate advanced lubricants
[NASA-TP-3265] p 28 N92-30396

HELICOPTERS
Experimental and analytical evaluation of efficiency of helicopter planetary stage
[NASA-TP-3063] p 28 N91-12956
Two-dimensional aerodynamic characteristics of several polygon-shaped cross-sectional models applicable to helicopter fuselages
[NASA-TP-3233] p 8 N92-30394

HELIUM
The interaction of hydrogen with metal alloys
[NASA-TP-3128] p 23 N91-29318

HEMATOPOIETIC SYSTEM
Analyses of risks associated with radiation exposure from past major solar particle events
[NASA-TP-3137] p 50 N91-31061

HIGH FREQUENCIES
Time-frequency representation of a highly nonstationary signal via the modified Wigner distribution
[NASA-TP-3215] p 25 N92-20492

HIGH RESOLUTION
High Resolution, High Frame Rate Video Technology
[NASA-CP-3080] p 27 N91-14574
The High Resolution Accelerometer Package (HIRAP) flight experiment summary for the first 10 flights
[NASA-RP-1267] p 3 N92-22505

HIGH REYNOLDS NUMBER
Effects of yaw angle and Reynolds number on rectangular-box cavities at subsonic and transonic speeds
[NASA-TP-3099] p 5 N91-27124

HIGH TEMPERATURE SUPERCONDUCTORS
National Educators' Workshop: Update 1988. Standard Experiments in Engineering Materials Science and Technology
[NASA-CP-3060] p 20 N91-20207
AMSAHTS 1990: Advances in Materials Science and Applications of High Temperature Superconductors
[NASA-CP-3100] p 22 N92-21605

HIGH TEMPERATURE TESTS
High-temperature durability considerations for HSCT combustor
[NASA-TP-3162] p 23 N92-17070
Thermal and structural tests of Rene 41 honeycomb integral-tank concept for future space transportation systems
[NASA-TP-3145] p 30 N92-24205

HISTORIES
Engines and innovation: Lewis Laboratory and American propulsion technology
[NASA-SP-4306] p 51 N91-15975
Responses of women to orthostatic and exercise stresses
[NASA-TP-3043] p 37 N91-19711
Proceedings of the X-15 First Flight 30th Anniversary Celebration
[NASA-CP-3105] p 10 N91-20071
NASA engineers and the age of Apollo
[NASA-SP-4104] p 52 N92-28344

HOLE DISTRIBUTION (MECHANICS)
Compression behavior of graphite-thermoplastic and graphite-epoxy panels with circular holes or impact damage
[NASA-TP-3071] p 21 N91-18215

HOLES (MECHANICS)

Stress concentrations for straight-shank and countersunk holes in plates subjected to tension, bending, and pin loading
[NASA-TP-3192] p 31 N92-25997

HONEYCOMB CORES

A novel method of testing the shear strength of thick honeycomb composites
[NASA-TP-3108] p 21 N91-21242

HONEYCOMB STRUCTURES

A novel method of testing the shear strength of thick honeycomb composites
[NASA-TP-3108] p 21 N91-21242

Determination of the flight hardware configuration of an energy absorbing attenuator for the proposed Space Station crew and equipment translation aid cart
[NASA-TP-3084] p 29 N91-21556

Evaluation of a technique to generate artificially thickened boundary layers in supersonic and hypersonic flows
[NASA-TP-3142] p 6 N91-28136

Thermal and structural tests of Rene 41 honeycomb integral-tank concept for future space transportation systems
[NASA-TP-3145] p 30 N92-24205

HUBBLE SPACE TELESCOPE

The role of failure/problems in engineering: A commentary of failures experienced - lessons learned
[NASA-TP-3213] p 24 N92-22235

HUMAN BEINGS

Correlation and prediction of dynamic human isolated joint strength from lean body mass
[NASA-TP-3207] p 40 N92-26682

HUMAN FACTORS ENGINEERING

Aviation Safety/Automation Program Conference
[NASA-CP-3090] p 9 N91-10936

Manual Control Aspects of Orbital Flight
[NASA-CP-10056] p 13 N91-20147

Fourth Annual Workshop on Space Operations Applications and Research (SOAR 90)
[NASA-CP-3103-VOL-1] p 41 N91-20641

Fourth Annual Workshop on Space Operations Applications and Research (SOAR 90)
[NASA-CP-3103-VOL-2] p 41 N91-20702

Effect of short-term exposure to stereoscopic three-dimensional flight displays on real-world depth perception
[NASA-TP-3117] p 11 N92-13065

Fifth Annual Workshop on Space Operations Applications and Research (SOAR 1991), volume 2
[NASA-CP-3127-VOL-2] p 41 N92-22324

Cable compliance
[NASA-TP-3216] p 24 N92-30378

HUMAN PERFORMANCE

Eccentric and concentric muscle performance following 7 days of simulated weightlessness
[NASA-TP-3182] p 39 N92-17645

The validation of a human force model to predict dynamic forces resulting from multi-joint motions
[NASA-TP-3206] p 40 N92-26538

HYDRAZINES

Lunar missions using chemical propulsion: System design issues
[NASA-TP-3065] p 19 N91-15308

HYDRODYNAMIC EQUATIONS

Hypervelocity atmospheric flight: Real gas flow fields
[NASA-RP-1249] p 26 N91-20418

HYDROGEN

Surface effects on hydrogen permeation through Ti-14Al-21Nb alloy
[NASA-TP-3109] p 23 N91-20266

The interaction of hydrogen with metal alloys
[NASA-TP-3128] p 23 N91-29318

Gibbs free energy of reactions involving SiC, Si₃N₄, H₂, and H₂O as a function of temperature and pressure
[NASA-TP-3275] p 23 N92-31278

HYDROGEN EMBRITTLEMENT

The interaction of hydrogen with metal alloys
[NASA-TP-3128] p 23 N91-29318

HYDROGEN MASERS

The 22nd Annual Precise Time and Time Interval (PTTI) Applications and Planning Meeting
[NASA-CP-3116] p 44 N91-25755

HYDROGEN OXYGEN ENGINES

Tenth Workshop for Computational Fluid Dynamic Applications in Rocket Propulsion, part 2
[NASA-CP-3163-PT-2] p 27 N92-32245

HYPERSONIC AIRCRAFT

Advanced Hypervelocity Aerophysics Facility Workshop
[NASA-CP-10031] p 13 N91-24211

Low-speed, powered ground effects of a generic, hypersonic configuration
[NASA-TP-3092] p 5 N91-25103

HYPERSONIC FLIGHT

Proceedings of the X-15 First Flight 30th Anniversary Celebration
[NASA-CP-3105] p 10 N91-20071

Hypervelocity atmospheric flight: Real gas flow fields
[NASA-RP-1249] p 26 N91-20418

Control integration concept for hypersonic cruise-turn maneuvers
[NASA-TP-3136] p 13 N92-20195

Rocket-Based Combined-Cycle (RBCC) Propulsion Technology Workshop. Tutorial session
[NASA-CP-10090] p 20 N92-21517

An analysis of combustion studies in shock expansion tunnels and reflected shock tunnels
[NASA-TP-3224] p 22 N92-28374

HYPERSONIC FLOW

An explicit upwind algorithm for solving the parabolized Navier-Stokes equations
[NASA-TP-3050] p 4 N91-18032

Evaluation of a technique to generate artificially thickened boundary layers in supersonic and hypersonic flows
[NASA-TP-3142] p 6 N91-28136

Numerical analysis and simulation of an assured crew return vehicle flow field
[NASA-TP-3101] p 26 N92-10161

Stagnation-point heat-transfer rate predictions at aerossist flight conditions
[NASA-TP-3208] p 27 N92-31281

HYPERSONIC HEAT TRANSFER

Stagnation-point heat-transfer rate predictions at aerossist flight conditions
[NASA-TP-3208] p 27 N92-31281

HYPERSONIC SPEED

Simulation of real-gas effects on pressure distributions for aerossist flight experiment vehicle and comparison with prediction
[NASA-TP-3157] p 27 N92-20677

HYPERSONIC VEHICLES

Control integration concept for hypersonic cruise-turn maneuvers
[NASA-TP-3136] p 13 N92-20195

HYPERSONICS

NASA Computational Fluid Dynamics Conference, Volume 2: Sessions 7-12
[NASA-CP-10038-VOL-2] p 4 N91-10868

HYPERVELOCITY FLOW

Hypervelocity atmospheric flight: Real gas flow fields
[NASA-RP-1249] p 26 N91-20418

Advanced Hypervelocity Aerophysics Facility Workshop
[NASA-CP-10031] p 13 N91-24211

HYPERVELOCITY IMPACT

Orbital debris: Technical issues and future directions
[NASA-CP-10077] p 49 N92-33478

ICE

West Antarctic Ice Sheet Initiative, Volume 1: Science and Implementation Plan
[NASA-CP-3115-VOL-1] p 32 N91-20541

West Antarctic Ice Sheet Initiative, Volume 2: Discipline Reviews
[NASA-CP-3115-VOL-2] p 32 N91-26573

ICE CLOUDS

International Workshop on Stratospheric Aerosols: Measurements, Properties, and Effects
[NASA-CP-3114] p 32 N91-32528

ICE ENVIRONMENTS

West Antarctic Ice Sheet Initiative, Volume 1: Science and Implementation Plan
[NASA-CP-3115-VOL-1] p 32 N91-20541

ICE FORMATION

Lewis icing research tunnel test of the aerodynamic effects of aircraft ground deicing/anti-icing fluids
[NASA-TP-3238] p 10 N92-30395

IMAGE ANALYSIS

Multisource Data Integration in Remote Sensing
[NASA-CP-3099] p 32 N91-15615

IMAGE PROCESSING

High Resolution, High Frame Rate Video Technology
[NASA-CP-3080] p 27 N91-14574

Multisource Data Integration in Remote Sensing
[NASA-CP-3099] p 32 N91-15615

Proceedings of the Second Joint Technology Workshop on Neural Networks and Fuzzy Logic, volume 2
[NASA-CP-10061-VOL-2] p 43 N91-20811

Space and Earth Science Data Compression Workshop
[NASA-CP-3130] p 41 N92-12425

IMAGE RESOLUTION

The effects of video compression on acceptability of images for monitoring life sciences experiments
[NASA-TP-3239] p 16 N92-33933

IMAGING TECHNIQUES

High Resolution, High Frame Rate Video Technology
[NASA-CP-3080] p 27 N91-14574

Sixteenth International Laser Radar Conference, part 1
[NASA-CP-3158-PT-1] p 28 N92-29228

Sixteenth International Laser Radar Conference, part 2
[NASA-CP-3158-PT-2] p 28 N92-31013

IMPACT DAMAGE

Compression behavior of graphite-thermoplastic and graphite-epoxy panels with circular holes or impact damage
[NASA-TP-3071] p 21 N91-18215

A novel method of testing the shear strength of thick honeycomb composites
[NASA-TP-3108] p 21 N91-21242

NASA workshop on impact damage to composites
[NASA-CP-10075] p 21 N91-29240

Properties of three graphite/toughened resin composites
[NASA-TP-3102] p 21 N92-10067

Effect of low-speed impact damage and damage location on behavior of composite panels
[NASA-TP-3196] p 22 N92-23981

Orbital debris: Technical issues and future directions
[NASA-CP-10077] p 49 N92-33478

IMPACT LOADS

Failure behavior of generic metallic and composite aircraft structural components under crash loads
[NASA-RP-1239] p 29 N91-13751

Properties of three graphite/toughened resin composites
[NASA-TP-3102] p 21 N92-10067

Techniques for determination of impact forces during walking and running in a zero-G environment
[NASA-TP-3159] p 38 N92-17022

IMPACT TESTS

A novel method of testing the shear strength of thick honeycomb composites
[NASA-TP-3108] p 21 N91-21242

Properties of three graphite/toughened resin composites
[NASA-TP-3102] p 21 N92-10067

An examination of the damage tolerance enhancement of carbon/epoxy using an outer lamina of spectra (R)
[NASA-TP-3160] p 21 N92-11142

Effect of low-speed impact damage and damage location on behavior of composite panels
[NASA-TP-3196] p 22 N92-23981

IMPACT TOLERANCES

A novel method of testing the shear strength of thick honeycomb composites
[NASA-TP-3108] p 21 N91-21242

IN-FLIGHT MONITORING

A comparison of airborne wake vortex detection measurements with values predicted from potential theory
[NASA-TP-3125] p 10 N92-10994

INCOMPRESSIBLE FLOW

Validation of three-dimensional incompressible spatial direct numerical simulation code: A comparison with linear stability and parabolic stability equation theories for boundary-layer transition on a flat plate
[NASA-TP-3205] p 8 N92-30295

INDEXES (DOCUMENTATION)

Aeronautical engineering: A continuing bibliography with indexes (supplement 256)
[NASA-SP-7037(256)] p 1 N91-10002

Aerospace medicine and biology: A continuing bibliography with indexes (supplement 341)
[NASA-SP-7011(341)] p 37 N91-10594

NASA Thesaurus supplement: A four part cumulative supplement to the 1988 edition of the NASA Thesaurus (supplement 4)
[NASA-SP-7064-SUPPL-4] p 47 N91-10804

Aeronautical engineering: A continuing bibliography with indexes (supplement 257)
[NASA-SP-7037(257)] p 1 N91-12589

Aerospace medicine and biology: A continuing bibliography with indexes (supplement 342)
[NASA-SP-7011(342)] p 37 N91-13063

NASA scientific and technical publications: A catalog of special publications, reference publications, conference publications, and technical papers, 1989
[NASA-SP-7063(04)] p 47 N91-13374

Aeronautical engineering: A continuing bibliography with indexes (supplement 258)
[NASA-SP-7037(258)] p 1 N91-13399

Aerospace medicine and biology: A continuing bibliography with indexes (supplement 344)
[NASA-SP-7011(344)] p 37 N91-14712

Aeronautical engineering: A continuing bibliography with indexes (supplement 260)
[NASA-SP-7037(260)] p 1 N91-15978

- Aeronautical engineering: A continuing bibliography with indexes (supplement 259)
[NASA-SP-7037(259)] p 1 N91-15979
- Aerospace medicine and biology: A cumulative index to a continuing bibliography (supplement 345)
[NASA-SP-7011(345)] p 37 N91-16547
- Large space structures and systems in the space station era: A bibliography with indexes
[NASA-SP-7085(01)] p 17 N91-18199
- NASA Thesaurus supplement: A four part cumulative supplement to the 1988 edition of the NASA Thesaurus (supplement 5)
[NASA-SP-7064-SUPPL-5] p 47 N91-19962
- Aeronautical engineering: A cumulative index to a continuing bibliography (supplement 261)
[NASA-SP-7037(261)] p 1 N91-23073
- Aeronautical engineering: A continuing bibliography with indexes (supplement 262)
[NASA-SP-7037(262)] p 1 N91-23074
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 346)
[NASA-SP-7011(346)] p 37 N91-23700
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 347)
[NASA-SP-7011(347)] p 37 N91-23701
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 348)
[NASA-SP-7011(348)] p 37 N91-23702
- Aeronautical engineering: A continuing bibliography with indexes (supplement 265)
[NASA-SP-7037(265)] p 2 N91-24095
- Aeronautical engineering: A continuing bibliography with indexes (supplement 263)
[NASA-SP-7037(263)] p 2 N91-24096
- Aeronautical engineering: A continuing bibliography with indexes (supplement 264)
[NASA-SP-7037(264)] p 2 N91-24097
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 349)
[NASA-SP-7011(349)] p 37 N91-24731
- NASA scientific and technical publications: A catalog of special publications, reference publications, conference publications, and technical papers, 1987-1990
[NASA-SP-7063(05)] p 47 N91-24939
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 350)
[NASA-SP-7011(350)] p 38 N91-25600
- Aeronautical engineering: A continuing bibliography with indexes (supplement 266)
[NASA-SP-7037(266)] p 2 N91-27122
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 351)
[NASA-SP-7011(351)] p 38 N91-27756
- Large space structures and systems in the space station era: A bibliography with indexes
[NASA-SP-7085(02)] p 18 N91-28191
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 352)
[NASA-SP-7011(352)] p 38 N91-28729
- NASA patent abstracts bibliography: A continuing bibliography, Section 2: Indexes (supplement 39)
[NASA-SP-7039(39)-SECT-2] p 48 N91-29088
- Aeronautical engineering: A continuing bibliography with indexes (supplement 268)
[NASA-SP-7037(268)] p 2 N91-30077
- Earth observations and global change decision making: A special bibliography, 1991
[NASA-SP-7092] p 32 N91-30588
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 353)
[NASA-SP-7011(353)] p 38 N91-31760
- Aeronautical engineering: A continuing bibliography with indexes (supplement 270)
[NASA-SP-7037(270)] p 2 N92-10973
- Aeronautical engineering: A continuing bibliography with indexes (supplement 269)
[NASA-SP-7037(269)] p 2 N92-10974
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 354)
[NASA-SP-7011(354)] p 38 N92-12404
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 355)
[NASA-SP-7011(355)] p 38 N92-12412
- Aeronautical engineering: A continuing bibliography with indexes (supplement 271)
[NASA-SP-7037(271)] p 2 N92-14967
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 356)
[NASA-SP-7011(356)] p 38 N92-15538
- Aeronautical engineering: A continuing bibliography with indexes (supplement 273)
[NASA-SP-7037(273)] p 3 N92-21729
- Aeronautical engineering: A continuing bibliography with indexes (supplement 272)
[NASA-SP-7037(272)] p 3 N92-21844
- Aerospace medicine and biology: A cumulative index to a continuing bibliography (supplement 358)
[NASA-SP-7011(358)] p 39 N92-22026
- NASA patent abstracts bibliography: A continuing bibliography, Section 2: Indexes (supplement 40)
[NASA-SP-7039(40)-SECT-2] p 48 N92-27081
- Aeronautical engineering: A continuing bibliography with indexes (supplement 277)
[NASA-SP-7037(277)] p 3 N92-27929
- Aeronautical engineering: A continuing bibliography with indexes (supplement 278)
[NASA-SP-7037(278)] p 3 N92-28677
- Aeronautical engineering: A continuing bibliography with indexes (supplement 275)
[NASA-SP-7037(275)] p 3 N92-28679
- NASA patent abstracts bibliography: A continuing bibliography, Section 2: Indexes (supplement 41)
[NASA-SP-7039(41)-SECT-2] p 48 N92-31455
- Aeronautical engineering: A continuing bibliography with indexes (supplement 280)
[NASA-SP-7037(280)] p 3 N92-31456
- INDUCED DRAG**
Applications of a direct/iterative design method to complex transonic configurations
[NASA-TP-3234] p 8 N92-33484
- INDUSTRIES**
Technology for the Future: In-Space Technology Experiments Program, part 1
[NASA-CP-10073-PT-1] p 14 N91-27177
Technology for the Future: In-Space Technology Experiments Program, part 2
[NASA-CP-10073-PT-2] p 14 N91-27178
- INELASTIC SCATTERING**
Inclusive inelastic scattering of heavy ions and nuclear correlations
[NASA-TP-3026] p 46 N91-13985
- INERTIA**
Inertial oscillation of a vertical rotating draft with application to a supercell storm
[NASA-TP-3230] p 36 N92-33482
- INERTIAL UPPER STAGE**
Upper stages using liquid propulsion and metallized propellants
[NASA-TP-3191] p 20 N92-17151
- INFORMATION DISSEMINATION**
Large space structures and systems in the space station era: A bibliography with indexes
[NASA-SP-7085(01)] p 17 N91-18199
Technology 2000, volume 2
[NASA-CP-3109-VOL-2] p 52 N91-24041
Large space structures and systems in the space station era: A bibliography with indexes
[NASA-SP-7085(02)] p 18 N91-28191
The development of the NASA aviation safety reporting system
[NASA-RP-1114] p 10 N91-70436
- INFORMATION MANAGEMENT**
The 1991 Goddard Conference on Space Applications of Artificial Intelligence
[NASA-CP-3110] p 43 N91-22769
The development of the NASA aviation safety reporting system
[NASA-RP-1114] p 10 N91-70436
- INFORMATION RETRIEVAL**
NASA Thesaurus supplement: A four part cumulative supplement to the 1988 edition of the NASA Thesaurus (supplement 4)
[NASA-SP-7064-SUPPL-4] p 47 N91-10804
NASA Thesaurus supplement: A four part cumulative supplement to the 1988 edition of the NASA Thesaurus (supplement 5)
[NASA-SP-7064-SUPPL-5] p 47 N91-19962
The development of the NASA aviation safety reporting system
[NASA-RP-1114] p 10 N91-70436
- INFORMATION SYSTEMS**
Aeronautical engineering: A continuing bibliography with indexes (supplement 267)
[NASA-SP-7037(267)] p 2 N92-10001
Space and Earth Science Data Compression Workshop
[NASA-CP-3130] p 41 N92-12425
Continuous improvement: A bibliography with indexes, 1989-1991
[NASA-SP-7097] p 47 N92-22665
The development of the NASA aviation safety reporting system
[NASA-RP-1114] p 10 N91-70436
- INFRARED ASTRONOMY**
Interstellar Dust: Contributed Papers
[NASA-CP-3036] p 48 N91-14897
- INFRARED RADIATION**
Interstellar Dust: Contributed Papers
[NASA-CP-3036] p 48 N91-14897
- INHIBITORS**
Electrochemical studies of corrosion inhibitors
[NASA-TP-3066] p 22 N91-17208
- INSERTS**
Large-scale aeroacoustic research feasibility and conceptual design of test-section inserts for the Ames 80-by 120-foot wind tunnel
[NASA-TP-3020] p 45 N91-19824
- INSPECTION**
Second Conference on NDE for Aerospace Requirements
[NASA-CP-3091] p 16 N91-18189
National Educators' Workshop: Update 1988. Standard Experiments in Engineering Materials Science and Technology
[NASA-CP-3060] p 20 N91-20207
- INSTALLING**
Large-scale aeroacoustic research feasibility and conceptual design of test-section inserts for the Ames 80-by 120-foot wind tunnel
[NASA-TP-3020] p 45 N91-19824
- INSTRUMENTS**
NASA Wallops Flight Facility Air-Sea Interaction Research Facility
[NASA-RP-1277] p 36 N92-25981
- INSULATORS**
Low-energy positron flux generator for microstructural characterization of thin films
[NASA-TP-3074] p 27 N91-22538
- INTEGRATED MISSION CONTROL CENTER**
Control Center Technology Conference Proceedings
[NASA-CP-10081] p 14 N92-12010
- INTERACTING GALAXIES**
Paired and Interacting Galaxies: International Astronomical Union Colloquium No. 124
[NASA-CP-3098] p 49 N91-16858
- INTERACTIONAL AERODYNAMICS**
Wake geometry effects on rotor blade-vortex interaction noise directivity
[NASA-TP-3015] p 44 N91-12315
Acoustic and aerodynamic study of a pusher-propeller aircraft model
[NASA-TP-3040] p 45 N91-21828
Wind tunnel investigation of vortex flows on F/A-18 configuration at subsonic through transonic speed
[NASA-TP-3111] p 6 N92-14968
Installation effects of wing-mounted turbofan nacelle-pylons on a 1/17-scale, twin-engine, low-wing transport model
[NASA-TP-3168] p 7 N92-19002
Effect of afterbody geometry on aerodynamic characteristics of isolated nonaxisymmetric afterbodies at transonic Mach numbers
[NASA-TP-3236] p 9 N92-33706
- INTERACTIONS**
Electrical and chemical interactions at Mars Workshop, part 1
[NASA-CP-10093] p 50 N92-30302
- INTERFERENCE DRAG**
Applications of a direct/iterative design method to complex transonic configurations
[NASA-TP-3234] p 8 N92-33484
- INTERPOLATION**
An efficient HZETRN (a galactic cosmic ray transport code)
[NASA-TP-3147] p 51 N92-22218
- INTERSTELLAR EXTINCTION**
Interstellar Dust: Contributed Papers
[NASA-CP-3036] p 48 N91-14897
- INTERSTELLAR MATTER**
The Interstellar Medium in External Galaxies: Summaries of contributed papers
[NASA-CP-3084] p 49 N91-14100
Interstellar Dust: Contributed Papers
[NASA-CP-3036] p 48 N91-14897
- INVENTORIES**
Twenty-Second Annual NASA Supply and Equipment Management Conference
[NASA-CP-10042] p 46 N91-11591
- INVERSE KINEMATICS**
The validation of a human force model to predict dynamic forces resulting from multi-joint motions
[NASA-TP-3206] p 40 N92-26538
- INVISCID FLOW**
Panel methods: An introduction
[NASA-TP-2995] p 5 N91-19058
Numerical study of the aerodynamic effects of using sulfur hexafluoride as a test gas in wind tunnels
[NASA-TP-3086] p 5 N91-22070
Numerical analysis and simulation of an assured crew return vehicle flow field
[NASA-TP-3101] p 26 N92-10161
- ION SCATTERING**
Inclusive inelastic scattering of heavy ions and nuclear correlations
[NASA-TP-3026] p 46 N91-13985

IONIC COLLISIONS

- Inclusive inelastic scattering of heavy ions and nuclear correlations
[NASA-TP-3026] p 46 N91-13985
- IRRADIATION**
Radiation risk predictions for Space Station Freedom orbits
[NASA-TP-3098] p 51 N91-26107

J

J-85 ENGINE

- J-85 jet engine noise measured in the ONERA S1 wind tunnel and extrapolated to far field
[NASA-TP-3053] p 45 N91-19823

JET AIRCRAFT

- Full-scale semispan tests of a business-jet wing with a natural laminar flow airfoil
[NASA-TP-3133] p 6 N91-30098

JET AIRCRAFT NOISE

- Aeroacoustics of flight vehicles: Theory and practice. Volume 2: Noise control
[NASA-RP-1258-VOL-2] p 45 N92-14779

JET FLOW

- Detailed flow-field measurements over a 75 deg swept delta wing
[NASA-TP-2997] p 4 N91-18030

JET PROPULSION

- Engines and innovation: Lewis Laboratory and American propulsion technology
[NASA-SP-4306] p 51 N91-15975

JET VANES

- Static thrust-vectoring performance of nonaxisymmetric convergent-divergent nozzles with post-exit yaw vanes
[NASA-TP-3085] p 5 N91-21059

JOINTS (ANATOMY)

- Correlation and prediction of dynamic human isolated joint strength from lean body mass
[NASA-TP-3207] p 40 N92-26682

JOINTS (JUNCTIONS)

- Axisymmetric shell analysis of the space shuttle solid rocket booster field joint
[NASA-TP-3033] p 28 N91-14618
- Cable compliance
[NASA-TP-3216] p 24 N92-30378

JUDGMENTS

- Annoyance caused by aircraft en route noise
[NASA-TP-3165] p 45 N92-20479

K

K-EPSILON TURBULENCE MODEL

- Modeling of the heat transfer in bypass transitional boundary-layer flows
[NASA-TP-3170] p 27 N92-11299

KALMAN FILTERS

- A nonlinear estimator for reconstructing the angular velocity of a spacecraft without rate gyros
[NASA-TP-3178] p 24 N92-13343

KINEMATICS

- State estimation applications in aircraft flight-data analysis: A user's manual for SMACK
[NASA-RP-1252] p 10 N91-19082
- Methods of applied dynamics
[NASA-RP-1262] p 24 N91-25303
- Steady induction effects in geomagnetism. Part 1A: Steady motional induction of geomagnetic chaos
[NASA-TP-3272-PT-1A] p 34 N92-32655

KINETICS

- Cellular repair/misrepair track model
[NASA-TP-3124] p 42 N92-11685

KNOWLEDGE BASES (ARTIFICIAL INTELLIGENCE)

- Second CLIPS Conference Proceedings, volume 2
[NASA-CP-10085-VOL-2] p 42 N92-16590

KNOWLEDGE REPRESENTATION

- The 1991 Goddard Conference on Space Applications of Artificial Intelligence
[NASA-CP-3110] p 43 N91-22769
- Second CLIPS Conference Proceedings, volume 1
[NASA-CP-10085-VOL-1] p 42 N92-16588

L

LAGRANGE MULTIPLIERS

- Technique to eliminate computational instability in multibody simulations employing the Lagrange multiplier
[NASA-TP-3220] p 42 N92-23432

LAMINAR BOUNDARY LAYER

- Evaluation of cloud detection instruments and performance of laminar-flow leading-edge test articles during NASA Leading-Edge Flight-Test Program
[NASA-TP-2888] p 11 N91-24199

LAMINAR FLOW

- Two-dimensional stability of laminar flames
[NASA-TP-3131] p 7 N92-17131

LAMINAR FLOW AIRFOILS

- Full-scale semispan tests of a business-jet wing with a natural laminar flow airfoil
[NASA-TP-3133] p 6 N91-30098

LAMINATES

- Structural properties of laminated Douglas fir/epoxy composite material
[NASA-RP-1236] p 20 N91-10127
- Free vibrations of thin-walled semicircular graphite-epoxy composite frames
[NASA-TP-3010] p 29 N91-13750
- Compression behavior of graphite-thermoplastic and graphite-epoxy panels with circular holes or impact damage
[NASA-TP-3071] p 21 N91-18215
- Properties of three graphite/toughened resin composites
[NASA-TP-3102] p 21 N92-10067
- Effect of low-speed impact damage and damage location on behavior of composite panels
[NASA-TP-3196] p 22 N92-23981
- Buckling behavior of long symmetrically laminated plates subjected to combined loadings
[NASA-TP-3195] p 22 N92-25160

LAND MOBILE SATELLITE SERVICE

- Propagation effects for land mobile satellite systems: Overview of experimental and modeling results
[NASA-RP-1274] p 25 N92-20404

LANDING GEAR

- Computational methods for frictionless contact with application to Space Shuttle Orbiter nose-gear tires
[NASA-TP-3073] p 30 N91-22576

LARGE SPACE STRUCTURES

- The 5th Annual NASA Spacecraft Control Laboratory Experiment (SCOLE) Workshop, part 1
[NASA-CP-10057-PT-1] p 16 N91-18186
- Large space structures and systems in the space station era: A bibliography with indexes
[NASA-SP-7085(01)] p 17 N91-18199
- The 5th Annual NASA Spacecraft Control Laboratory Experiment (SCOLE) Workshop, part 2
[NASA-CP-10057-PT-2] p 17 N91-19122
- Fourth NASA Workshop on Computational Control of Flexible Aerospace Systems, part 2
[NASA-CP-10065-PT-2] p 17 N91-22331
- Packaging, development, and on-orbit assembly options for large geostationary spacecraft
[NASA-TP-3088] p 17 N91-27182
- Large space structures and systems in the space station era: A bibliography with indexes
[NASA-SP-7085(02)] p 18 N91-28191
- Multidisciplinary optimization of controlled space structures with global sensitivity equations
[NASA-TP-3130] p 18 N92-11087
- Large space structures and systems in the space station era: A bibliography with indexes (supplement 03)
[NASA-SP-7085(03)] p 18 N92-22317
- The 26th Aerospace Mechanisms Symposium
[NASA-CP-3147] p 30 N92-25067
- Automation and Robotics for Space-Based Systems, 1991
[NASA-CP-10098] p 43 N92-27763
- Development of a truss joint for robotic assembly of space structures
[NASA-TP-3214] p 31 N92-27974

LASER ANEMOMETERS

- Three-component laser anemometer measurement systems
[NASA-TP-3080] p 5 N91-19057
- Laser anemometer measurements and computations in an annular cascade of high turning core turbine vanes
[NASA-TP-3252] p 8 N92-28980

LASER APPLICATIONS

- Three-dimensional laser window formation
[NASA-RP-1280] p 14 N92-30307

LASER DOPPLER VELOCIMETERS

- Three-component laser anemometer measurement systems
[NASA-TP-3080] p 5 N91-19057

LASER INTERFEROMETRY

- Three-component laser anemometer measurement systems
[NASA-TP-3080] p 5 N91-19057

LASER WINDOWS

- Three-dimensional laser window formation
[NASA-RP-1280] p 14 N92-30307

LASERS

- Wind tunnel investigation of the interaction and breakdown characteristics of slender wing vortices at subsonic, transonic, and supersonic speeds
[NASA-TP-3114] p 6 N92-12994

- Workshop on Squeezed States and Uncertainty Relations
[NASA-CP-3135] p 46 N92-22045
- Sixteenth International Laser Radar Conference, part 2
[NASA-CP-3158-PT-2] p 28 N92-31013

LATCHES

- The 25th Aerospace Mechanisms Symposium
[NASA-CP-3113] p 30 N91-24603
- The 26th Aerospace Mechanisms Symposium
[NASA-CP-3147] p 30 N92-25067

LATTICE PARAMETERS

- Equivalent crystal theory of alloys
[NASA-TP-3155] p 23 N91-30318

LAUNCH VEHICLE CONFIGURATIONS

- Parametric trade studies on a Shuttle 2 launch system architecture
[NASA-TP-3059] p 14 N91-18180
- Graphite/epoxy composite adapters for the Space Shuttle/Centaur vehicle
[NASA-TP-3014] p 15 N92-31251

LAUNCH VEHICLES

- Launch vehicle integration options for a large Earth sciences geostationary platform concept
[NASA-TP-3083] p 15 N91-27180
- Packaging, development, and on-orbit assembly options for large geostationary spacecraft
[NASA-TP-3088] p 17 N91-27182
- Upper stages using liquid propulsion and metallized propellants
[NASA-TP-3191] p 20 N92-17151

LAUNCHING

- Metallized propellants for the human exploration of Mars
[NASA-TP-3062] p 19 N91-11800

LEADING EDGE SWEEP

- Planform curvature effects on flutter characteristics of a wing with 56 deg leading-edge sweep and panel aspect ratio of 1.14
[NASA-TP-3116] p 11 N92-13054

LEADING EDGES

- Evaluation of cloud detection instruments and performance of laminar-flow leading-edge test articles during NASA Leading-Edge Flight-Test Program
[NASA-TP-2888] p 11 N91-24199
- Modeling of the heat transfer in bypass transitional boundary-layer flows
[NASA-TP-3170] p 27 N92-11299
- Wind tunnel investigation of the interaction and breakdown characteristics of slender wing vortices at subsonic, transonic, and supersonic speeds
[NASA-TP-3114] p 6 N92-12994
- Wind tunnel investigation of vortex flows on F/A-18 configuration at subsonic through transonic speed
[NASA-TP-3111] p 6 N92-14968
- Influence of airfoil geometry on delta wing leading-edge vortices and vortex-induced aerodynamics at supersonic speeds
[NASA-TP-3105] p 7 N92-20038
- A simplified method for thermal analysis of a cowl leading edge subject to intense local shock-wave-interference heating
[NASA-TP-3167] p 27 N92-24797
- The natural flow wing-design concept
[NASA-TP-3193] p 7 N92-25202

LEAST SQUARES METHOD

- Physically weighted approximations of unsteady aerodynamic forces using the minimum-state method
[NASA-TP-3025] p 4 N91-18031

- Correlation and prediction of dynamic human isolated joint strength from lean body mass
[NASA-TP-3207] p 40 N92-26682

LESIONS

- Multiple lesion track structure model
[NASA-TP-3185] p 39 N92-22186

LETHALITY

- Cellular repair/misrepair track model
[NASA-TP-3124] p 42 N92-11685

LEWIS NUMBERS

- Two-dimensional stability of laminar flames
[NASA-TP-3131] p 7 N92-17131

LIFE (DURABILITY)

- Structural Integrity and Durability of Reusable Space Propulsion Systems
[NASA-CP-10030] p 19 N91-24307

LIFE SCIENCES

- Fourth Annual Workshop on Space Operations Applications and Research (SOAR 90)
[NASA-CP-3103-VOL-1] p 41 N91-20641
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 357)
[NASA-SP-7011(357)] p 39 N92-21714
- Aerospace medicine and biology: A continuing bibliography with indexes (supplement 359)
[NASA-SP-7011(359)] p 39 N92-21715

Fifth Annual Workshop on Space Operations Applications and Research (SOAR 1991), volume 2 [NASA-CP-3127-VOL-2] p 41 N92-22324

LDEF: 69 Months in Space. First Post-Retrieval Symposium, part 2 [NASA-CP-3134-PT-2] p 52 N92-24806

Aerospace medicine and biology: A continuing bibliography with indexes (supplement 362) [NASA-SP-7011(362)] p 39 N92-27068

LDEF: 69 Months in Space. First Post-Retrieval Symposium, part 3 [NASA-CP-3134-PT-3] p 52 N92-27083

Aerospace medicine and biology: A continuing bibliography with indexes (supplement 361) [NASA-SP-7011(361)] p 39 N92-27433

Aeronautical engineering: A continuing bibliography with indexes (supplement 275) [NASA-SP-7037(275)] p 3 N92-28679

Aerospace medicine and biology: A continuing bibliography with indexes (supplement 363) [NASA-SP-7011(363)] p 39 N92-30987

The effects of video compression on acceptability of images for monitoring life sciences experiments [NASA-TP-3239] p 16 N92-33933

LIFE SUPPORT SYSTEMS

Aerospace medicine and biology: A continuing bibliography with indexes (supplement 343) [NASA-SP-7011(343)] p 37 N91-14711

LIFTING REENTRY VEHICLES

Numerical analysis and simulation of an assured crew return vehicle flow field [NASA-TP-3101] p 26 N92-10161

LIFTING ROTORS

Transonic flow analysis for rotors. Part 3: Three-dimensional, quasi-steady, Euler calculation [NASA-TP-2375] p 3 N91-10007

LIGHTNING

The 1991 International Aerospace and Ground Conference on Lightning and Static Electricity, volume 1 [NASA-CP-3106-VOL-1] p 35 N91-32599

The 1991 International Aerospace and Ground Conference on Lightning and Static Electricity, volume 2 [NASA-CP-3106-VOL-2] p 36 N91-32693

LIGHTNING SUPPRESSION

The 1991 International Aerospace and Ground Conference on Lightning and Static Electricity, volume 1 [NASA-CP-3106-VOL-1] p 35 N91-32599

LIMB DARKENING

Limb-darkening functions as derived from along-track operation of the ERBE scanning radiometers for August 1985 [NASA-RP-1243] p 34 N91-14683

LINEAR ENERGY TRANSFER (LET)

Track structure model of cell damage in space flight [NASA-TP-3235] p 39 N92-34154

LINEAR SYSTEMS

A methodology for computing uncertainty bounds of multivariable systems based on sector stability theory concepts [NASA-TP-3166] p 13 N92-21410

Identification of linear systems by an asymptotically stable observer [NASA-TP-3164] p 31 N92-26537

LININGS

Large-scale aeroacoustic research feasibility and conceptual design of test-section inserts for the Ames 80-by-120-foot wind tunnel [NASA-TP-3020] p 45 N91-19824

High-temperature durability considerations for HSCST combustor [NASA-TP-3162] p 23 N92-17070

LIQUID CRYSTALS

Positron lifetime measurements in chiral nematic liquid crystals [NASA-TP-3122] p 46 N92-10677

LIQUID PROPELLANT ROCKET ENGINES

Tenth Workshop for Computational Fluid Dynamic Applications in Rocket Propulsion, part 2 [NASA-CP-3163-PT-2] p 27 N92-32245

Tenth Workshop for Computational Fluid Dynamic Applications in Rocket Propulsion, part 1 [NASA-CP-3163-PT-1] p 27 N92-32278

LITHIUM SULFUR BATTERIES

The 1990 NASA Aerospace Battery Workshop [NASA-CP-3119] p 20 N92-27130

LOAD DISTRIBUTION (FORCES)

Static footprint local forces, areas, and aspect ratios for three type 7 aircraft tires [NASA-TP-2983] p 10 N91-17014

LOADS (FORCES)

Research in Structures, Structural Dynamics and Materials, 1990 [NASA-CP-3064] p 29 N91-10301

Effect of crash pulse shape on seat stroke requirements for limiting loads on occupants of aircraft [NASA-TP-3126] p 30 N92-18053

The effect of acceleration versus displacement methods on steady-state boundary forces [NASA-TP-3218] p 30 N92-21457

Stiffness and strength tailoring in uniform space-filling truss structures [NASA-TP-3210] p 30 N92-24546

Buckling behavior of long symmetrically laminated plates subjected to combined loadings [NASA-TP-3195] p 22 N92-25160

Effect of type of load on stress analysis of thin-walled ducts [NASA-TP-3248] p 31 N92-26669

LOGIC CIRCUITS

Proceedings of the Second Joint Technology Workshop on Neural Networks and Fuzzy Logic, volume 1 [NASA-CP-10061-VOL-1] p 43 N91-21778

LOGIC DESIGN

NASA Formal Methods Workshop, 1990 [NASA-CP-10052] p 42 N91-17559

LOGISTICS

Twenty-Second Annual NASA Supply and Equipment Management Conference [NASA-CP-10042] p 46 N91-11591

LONG DURATION EXPOSURE FACILITY

Long-term orbital lifetime predictions [NASA-TP-3058] p 13 N91-10092

First LDEF Post-Retrieval Symposium abstracts [NASA-CP-10072] p 52 N91-24972

LDEF: 69 Months in Space. First Post-Retrieval Symposium, part 1 [NASA-CP-3134-PT-1] p 52 N92-23280

LDEF: 69 Months in Space. First Post-Retrieval Symposium, part 2 [NASA-CP-3134-PT-2] p 52 N92-24806

LDEF: 69 Months in Space. First Post-Retrieval Symposium, part 3 [NASA-CP-3134-PT-3] p 52 N92-27083

Second LDEF Post-Retrieval Symposium abstracts [NASA-CP-10097] p 52 N92-27218

LONG DURATION SPACE FLIGHT

Workshop on Exercise Prescription for Long-Duration Space Flight [NASA-CP-3051] p 36 N91-10574

LONG TERM EFFECTS

Long-term orbital lifetime predictions [NASA-TP-3058] p 13 N91-10092

First LDEF Post-Retrieval Symposium abstracts [NASA-CP-10072] p 52 N91-24972

LONGITUDINAL STABILITY

Longitudinal aerodynamic characteristics of a subsonic, energy-efficient transport configuration in the National Transonic Facility [NASA-TP-2922] p 6 N91-28143

LOUDNESS

A loudness calculation procedure applied to shaped sonic booms [NASA-TP-3134] p 45 N92-11765

LOW SPEED

Low-speed, powered ground effects of a generic, hypersonic configuration [NASA-TP-3092] p 5 N91-25103

Full-scale semispan tests of a business-jet wing with a natural laminar flow airfoil [NASA-TP-3133] p 6 N91-30098

NACA 0015 wing pressure and trailing vortex measurements [NASA-TP-3151] p 6 N92-10981

Effect of low-speed impact damage and damage location on behavior of composite panels [NASA-TP-3196] p 22 N92-23981

LOW THRUST PROPULSION

Magnetoplasmadynamic Thruster Workshop [NASA-CP-10084] p 20 N92-10044

LUBRICANT TESTS

Development of a full-scale transmission testing procedure to evaluate advanced lubricants [NASA-TP-3265] p 28 N92-30396

LUBRICATING OILS

Development of a full-scale transmission testing procedure to evaluate advanced lubricants [NASA-TP-3265] p 28 N92-30396

LUBRICATION

Fundamentals of fluid lubrication [NASA-RP-1255] p 28 N91-30531

Development of a full-scale transmission testing procedure to evaluate advanced lubricants [NASA-TP-3265] p 28 N92-30396

LUMINAIRES

Long-term life testing of Geostationary Operational Environmental Satellite (GOES) encoder lamps [NASA-RP-1273] p 23 N92-20063

LUMINOSITY

Climate Impact of Solar Variability [NASA-CP-3086] p 50 N91-12456

LUNAR BASES

Lunar missions using chemical propulsion: System design issues [NASA-TP-3065] p 19 N91-15308

LUNAR SURFACE

Radiation protection for human missions to the Moon and Mars [NASA-TP-3079] p 50 N91-17999

M

MACH NUMBER

Experimental investigation of porous-floor effects on cavity flow fields at supersonic speeds [NASA-TP-3032] p 5 N91-19042

Effects of yaw angle and Reynolds number on rectangular-box cavities at subsonic and transonic speeds [NASA-TP-3099] p 5 N91-27124

Parametric investigation of single-expansion-ramp nozzles at Mach numbers from 0.60 to 1.20 [NASA-TP-3240] p 9 N92-34193

MAGNETIC BEARINGS

Aerospace Applications of Magnetic Suspension Technology, part 2 [NASA-CP-10066-PT-2] p 17 N91-21203

International Symposium on Magnetic Suspension Technology, part 1 [NASA-CP-3152-PT-1] p 18 N92-27721

International Symposium on Magnetic Suspension Technology, part 2 [NASA-CP-3152-PT-2] p 18 N92-27788

MAGNETIC CONTROL

International Symposium on Magnetic Suspension Technology, part 1 [NASA-CP-3152-PT-1] p 18 N92-27721

MAGNETIC EFFECTS

Steady induction effects in geomagnetism. Part 1A: Steady motional induction of geomagnetic chaos [NASA-TP-3272-PT-1A] p 34 N92-32655

MAGNETIC FLUX

Steady induction effects in geomagnetism. Part 1A: Steady motional induction of geomagnetic chaos [NASA-TP-3272-PT-1A] p 34 N92-32655

MAGNETIC INDUCTION

Steady induction effects in geomagnetism. Part 1A: Steady motional induction of geomagnetic chaos [NASA-TP-3272-PT-1A] p 34 N92-32655

MAGNETIC LEVITATION VEHICLES

International Symposium on Magnetic Suspension Technology, part 1 [NASA-CP-3152-PT-1] p 18 N92-27721

MAGNETIC MEASUREMENT

A scheme for bandpass filtering magnetometer measurements to reconstruct tethered satellite skiprope motion [NASA-TP-3123] p 42 N91-25629

MAGNETIC SUSPENSION

Aerospace Applications of Magnetic Suspension Technology, part 1 [NASA-CP-10066-PT-1] p 17 N91-21188

Aerospace Applications of Magnetic Suspension Technology, part 2 [NASA-CP-10066-PT-2] p 17 N91-21203

International Symposium on Magnetic Suspension Technology, part 1 [NASA-CP-3152-PT-1] p 18 N92-27721

International Symposium on Magnetic Suspension Technology, part 2 [NASA-CP-3152-PT-2] p 18 N92-27788

MAGNETOPLASMA DYNAMICS

Magnetoplasmadynamic Thruster Workshop [NASA-CP-10084] p 20 N92-10044

MAINTENANCE

Structural properties of laminated Douglas fir/epoxy composite material [NASA-RP-1236] p 20 N91-10127

Reliability training [NASA-RP-1253] p 15 N92-32456

MAN ENVIRONMENT INTERACTIONS

Climate Impact of Solar Variability [NASA-CP-3086] p 50 N91-12456

MAN MACHINE SYSTEMS

Aviation Safety/Automation Program Conference [NASA-CP-3090] p 9 N91-10936

Cable compliance [NASA-TP-3216] p 24 N92-30378

MAN-COMPUTER INTERFACE

Aviation Safety/Automation Program Conference [NASA-CP-3090] p 9 N91-10936

Fourth Annual Workshop on Space Operations Applications and Research (SOAR 90) [NASA-CP-3103-VOL-2] p 41 N91-20702

- Human Machine Interfaces for Teleoperators and Virtual Environments Conference
[NASA-CP-10071] p 40 N92-11638
- MANAGEMENT**
Management: A bibliography for NASA managers
[NASA-SP-7500(25)] p 46 N91-24936
Management: A bibliography for NASA managers
[NASA-SP-7500(26)] p 47 N92-27080
- MANAGEMENT METHODS**
Twenty-Second Annual NASA Supply and Equipment Management Conference
[NASA-CP-10042] p 46 N91-11591
Issues in NASA program and project management
[NASA-SP-6101(03)] p 46 N91-13347
Management: A bibliography for NASA managers
[NASA-SP-7500(25)] p 46 N91-24936
Proceedings of the Second Annual NASA Science Internet User Working Group Conference
[NASA-CP-3117] p 48 N91-27009
Issues in NASA program and project management
[NASA-SP-6101(04)] p 46 N91-28026
Management: A bibliography for NASA managers
[NASA-SP-7500(26)] p 47 N92-27080
Issues in NASA program and project management
[NASA-SP-6101(05)] p 47 N92-27609
- MANAGEMENT PLANNING**
Management: A bibliography for NASA managers
[NASA-SP-7500(25)] p 46 N91-24936
Management: A bibliography for NASA managers
[NASA-SP-7500(26)] p 47 N92-27080
- MANEUVERABILITY**
Prediction of effects of wing contour modifications on low-speed maximum lift and transonic performance for the EA-6B aircraft
[NASA-TP-3046] p 4 N91-10902
- MANIPULATORS**
A generalized method for multiple robotic manipulator programming applied to vertical-up welding
[NASA-TP-3163] p 24 N92-11218
- MANNED MARS MISSIONS**
Metalized propellants for the human exploration of Mars
[NASA-TP-3062] p 19 N91-11800
International exploration of Mars. A special bibliography
[NASA-SP-7091] p 49 N91-24965
Ongoing Progress in Spacecraft Controls
[NASA-CP-10099] p 19 N92-28730
- MANNED SPACE FLIGHT**
MIRACAL: A mission radiation calculation program for analysis of lunar and interplanetary missions
[NASA-TP-3211] p 51 N92-25100
- MANNED SPACECRAFT**
Ongoing Progress in Spacecraft Controls
[NASA-CP-10099] p 19 N92-28730
- MANUAL CONTROL**
Manual Control Aspects of Orbital Flight
[NASA-CP-10056] p 13 N91-20147
- MANUFACTURING**
Technology 2001: The Second National Technology Transfer Conference and Exposition, volume 1
[NASA-CP-3136-VOL-1] p 52 N92-22423
Technology 2001: The Second National Technology Transfer Conference and Exposition, volume 2
[NASA-CP-3136-VOL-2] p 52 N92-22676
- MARINE METEOROLOGY**
FIRE Science Results 1988
[NASA-CP-3083] p 34 N91-10448
- MARKOV PROCESSES**
Model reduction by trimming for a class of semi-Markov reliability models and the corresponding error bound
[NASA-TP-3089] p 43 N91-25741
Identification of linear systems by an asymptotically stable observer
[NASA-TP-3164] p 31 N92-26537
- MARS (PLANET)**
Exobiology on Mars
[NASA-CP-10055] p 41 N91-15691
- MARS ATMOSPHERE**
International exploration of Mars. A special bibliography
[NASA-SP-7091] p 49 N91-24965
- MARS ENVIRONMENT**
International exploration of Mars. A special bibliography
[NASA-SP-7091] p 49 N91-24965
- MARS SURFACE**
Radiation protection for human missions to the Moon and Mars
[NASA-TP-3079] p 50 N91-17999
Sand and Dust on Mars
[NASA-CP-10074] p 50 N91-27057
Electrical and chemical interactions at Mars Workshop, part 1
[NASA-CP-10093] p 50 N92-30302

MATERIALS HANDLING

- Space Station Freedom Toxic and Reactive Materials Handling
[NASA-CP-3085] p 48 N91-15930

MATERIALS SCIENCE

- The Federal Conference on Intelligent Processing Equipment
[NASA-CP-3138] p 52 N92-24987

MATHEMATICAL MODELS

- Structural properties of laminated Douglas fir/epoxy composite material
[NASA-RP-1236] p 20 N91-10127
NASA Computational Fluid Dynamics Conference. Volume 1: Sessions 1-6
[NASA-CP-10038-VOL-1] p 4 N91-10839
Failure behavior of generic metallic and composite aircraft structural components under crash loads
[NASA-RP-1239] p 29 N91-13751
The 5th Annual NASA Spacecraft Control Laboratory Experiment (SCOLE) Workshop, part 1
[NASA-CP-10057-PT-1] p 16 N91-18186
The 5th Annual NASA Spacecraft Control Laboratory Experiment (SCOLE) Workshop, part 2
[NASA-CP-10057-PT-2] p 17 N91-19122
Numerical studies of convective cooling for a locally heated skin
[NASA-TP-3100] p 26 N91-22509
Model reduction by trimming for a class of semi-Markov reliability models and the corresponding error bound
[NASA-TP-3089] p 43 N91-25741
Development of an integrated aeroservoelastic analysis program and correlation with test data
[NASA-TP-3120] p 2 N91-26113
Shock wave interaction with an abrupt area change
[NASA-TP-3113] p 6 N91-27140
A method for determining spiral-bevel gear tooth geometry for finite element analysis
[NASA-TP-3096] p 28 N92-10195
Seals Flow Code Development
[NASA-CP-10070] p 15 N92-15082
Multiple lesion track structure model
[NASA-TP-3185] p 39 N92-22186
An efficient HZETRN (a galactic cosmic ray transport code)
[NASA-TP-3147] p 51 N92-22218
Improved accuracy for finite element structural analysis via a new integrated force method
[NASA-TP-3204] p 30 N92-22227
The High Resolution Accelerometer Package (HiRAP) flight experiment summary for the first 10 flights
[NASA-RP-1267] p 3 N92-22505
Software Surface Modeling and Grid Generation Steering Committee
[NASA-CP-3143] p 42 N92-24397
MIRACAL: A mission radiation calculation program for analysis of lunar and interplanetary missions
[NASA-TP-3211] p 51 N92-25100
Computational Fluid Dynamics --- numerical methods and algorithm development
[NASA-CP-10078] p 12 N92-25808
Calculation of unsteady transonic flows with mild separation by viscous-inviscid interaction
[NASA-TP-3197] p 7 N92-28477
Trajectory fitting in function space with application to analytic modeling of surfaces
[NASA-TP-3232] p 8 N92-30747
Eighth DOD/NASA/FAA Conference on Fibrous Composites in Structural Design, part 1
[NASA-CP-3087-PT-1] p 22 N92-32513
Inertial oscillation of a vertical rotating draft with application to a supercell storm
[NASA-TP-3230] p 36 N92-33482
Advanced techniques in reliability model representation and solution
[NASA-TP-3242] p 43 N92-33483
Inertial oscillation of a vertical rotating draft with application to a supercell storm: Video supplement to NASA Technical Paper 3230
[NASA-TP-3230-VIDEO-SUPPL] p 36 N92-34246
- MATRICES (MATHEMATICS)**
Physically weighted approximations of unsteady aerodynamic forces using the minimum-state method
[NASA-TP-3025] p 4 N91-18031
On the formulation of a minimal uncertainty model for robust control with structured uncertainty
[NASA-TP-3094] p 13 N92-10027
- MAXIMUM LIKELIHOOD ESTIMATES**
User's guide: Nimbus-7 Earth radiation budget narrow-field-of-view products. Scene radiance tape products, sorting into angular bins products, and maximum likelihood cloud estimation products
[NASA-RP-1246] p 34 N91-13043
- MEASURE AND INTEGRATION**
Improved accuracy for finite element structural analysis via a new integrated force method
[NASA-TP-3204] p 30 N92-22227

MECHANICAL PROPERTIES

- Eighth DOD/NASA/FAA Conference on Fibrous Composites in Structural Design, part 1
[NASA-CP-3087-PT-1] p 22 N92-32513

MESOSPHERE

- Sixteenth International Laser Radar Conference, part 2
[NASA-CP-3158-PT-2] p 28 N92-31013

METAL AIR BATTERIES

- The 1991 NASA Aerospace Battery Workshop
[NASA-CP-3140] p 33 N92-22740

METAL HYDRIDES

- The interaction of hydrogen with metal alloys
[NASA-TP-3128] p 23 N91-29318

METAL PROPELLANTS

- Metalized propellants for the human exploration of Mars
[NASA-TP-3062] p 19 N91-11800
Lunar missions using chemical propulsion: System design issues
[NASA-TP-3065] p 19 N91-15308
Upper stages using liquid propulsion and metallized propellants
[NASA-TP-3191] p 20 N92-17151

METALLURGY

- National Educators' Workshop: Update 1991. Standard Experiments in Engineering Materials Science and Technology
[NASA-CP-3151] p 24 N92-30263

METALS

- Structural deterministic safety factors selection criteria and verification
[NASA-TP-3203] p 30 N92-19355

METEOROLOGICAL PARAMETERS

- West Antarctic Ice Sheet Initiative. Volume 1: Science and Implementation Plan
[NASA-CP-3115-VOL-1] p 32 N91-20541
NASA/MSFC FY91 Global Scale Atmospheric Processes Research Program Review
[NASA-CP-3126] p 35 N91-32660

METEOROLOGICAL RADAR

- Airborne Wind Shear Detection and Warning Systems: Third Combined Manufacturers' and Technologists' Conference, part 2
[NASA-CP-10060-PT-2] p 9 N91-24140

METEOROLOGY

- NASA/MSFC FY90 Global Scale Atmospheric Processes Research Program Review
[NASA-CP-3093] p 35 N91-16500
The 22nd Annual Precise Time and Time Interval (PTTI) Applications and Planning Meeting
[NASA-CP-3116] p 44 N91-25755
NASA/MSFC FY91 Global Scale Atmospheric Processes Research Program Review
[NASA-CP-3126] p 35 N91-32660

MICROBIOLOGY

- Microbiology on Space Station Freedom
[NASA-CP-3108] p 37 N91-18573

MICROBURSTS (METEOROLOGY)

- Airborne Wind Shear Detection and Warning Systems: Second Combined Manufacturers' and Technologists' Conference, part 2
[NASA-CP-10050-PT-2] p 9 N91-11695
Airborne Wind Shear Detection and Warning Systems: Third Combined Manufacturers' and Technologists' Conference, part 2
[NASA-CP-10060-PT-2] p 9 N91-24140
Airborne Wind Shear Detection and Warning Systems: Third Combined Manufacturers' and Technologists' Conference, part 1
[NASA-CP-10060-PT-1] p 9 N91-24166

MICROGRAVITY APPLICATIONS

- Space Station Freedom Toxic and Reactive Materials Handling
[NASA-CP-3085] p 48 N91-15930

MICROORGANISMS

- Microbiology on Space Station Freedom
[NASA-CP-3108] p 37 N91-18573

MICROSTRUCTURE

- An investigation of microstructural characteristics of contact-lens polymers
[NASA-TP-3034] p 21 N91-13492
Investigation of microstructural changes in polyetherether-ketone films at cryogenic temperatures by positron lifetime spectroscopy
[NASA-TP-3064] p 21 N91-18216
Low-energy positron flux generator for microstructural characterization of thin films
[NASA-TP-3074] p 27 N91-22538
- MICROWAVE RADIOMETERS**
On-orbit structural dynamic performance of a 15-meter microwave radiometer antenna
[NASA-TP-3041] p 16 N91-17114

MIMO (CONTROL SYSTEMS)

A methodology for computing uncertainty bounds of multivariable systems based on sector stability theory concepts
[NASA-TP-3166] p 13 N92-21410

MINERALOGY

Sand and Dust on Mars
[NASA-CP-10074] p 50 N91-27057

MISSION PLANNING

Metallized propellants for the human exploration of Mars
[NASA-TP-3062] p 19 N91-11800

Exobiology on Mars

[NASA-CP-10055] p 41 N91-15691

Vision-21: Space Travel for the Next Millennium
[NASA-CP-10059] p 13 N91-22139

First among equals: The selection of NASA space science experiments
[NASA-SP-4215] p 52 N91-28060

Resource envelope concepts for mission planning
[NASA-TP-3139] p 15 N91-29209

Flight Mechanics/Estimation Theory Symposium, 1991
[NASA-CP-3123] p 14 N92-14070

Beyond the Baseline 1991: Proceedings of the Space Station Evolution Symposium. Volume 2: Space Station Freedom, part 1
[NASA-CP-10083-VOL-2-PT-1] p 18 N92-17768

MIXING LAYERS (FLUIDS)

Direct simulation of high-speed mixing layers
[NASA-TP-3186] p 8 N92-30909

MODAL RESPONSE

On-orbit structural dynamic performance of a 15-meter microwave radiometer antenna
[NASA-TP-3041] p 16 N91-17114

A controls engineering approach for analyzing airplane input-output characteristics
[NASA-TP-3072] p 12 N91-20128

The effect of acceleration versus displacement methods on steady-state boundary forces
[NASA-TP-3218] p 30 N92-21457

MODELS

Comparison of a two-dimensional adaptive-wall technique with analytical wall interference correction techniques
[NASA-TP-3132] p 7 N92-20494

MODULATION

Advanced Modulation and Coding Technology Conference
[NASA-CP-10053] p 16 N92-22001

MOLECULAR CLOUDS

Interstellar Dust: Contributed Papers
[NASA-CP-3036] p 48 N91-14897

MOMENTS

Measurements of forces, moments, and pressures on a generic store separating from a box cavity at supersonic speeds
[NASA-TP-3110] p 6 N92-10005

MOMENTS OF INERTIA

Influence of mass moment of inertia on normal modes of preloaded solar array mast
[NASA-TP-3273] p 31 N92-33476

MOMENTUM TRANSFER

Inclusive inelastic scattering of heavy ions and nuclear correlations
[NASA-TP-3026] p 46 N91-13985

MULTIGRID METHODS

Workshop on Grid Generation and Related Areas
[NASA-CP-10089] p 12 N92-25712

MULTISENSOR APPLICATIONS

Multisource Data Integration in Remote Sensing
[NASA-CP-3099] p 32 N91-15615

MULTIVARIABLE CONTROL

A methodology for computing uncertainty bounds of multivariable systems based on sector stability theory concepts
[NASA-TP-3166] p 13 N92-21410

MUSCLES

Eccentric and concentric muscle performance following 7 days of simulated weightlessness
[NASA-TP-3182] p 39 N92-17645

MUSCULAR FUNCTION

Eccentric and concentric muscle performance following 7 days of simulated weightlessness
[NASA-TP-3182] p 39 N92-17645

MUSCULAR STRENGTH

The validation of a human force model to predict dynamic forces resulting from multi-joint motions
[NASA-TP-3206] p 40 N92-26538

MUSCULOSKELETAL SYSTEM

Workshop on Exercise Prescription for Long-Duration Space Flight
[NASA-CP-3051] p 36 N91-10574

Techniques for determination of impact forces during walking and running in a zero-G environment
[NASA-TP-3159] p 38 N92-17022

Eccentric and concentric muscle performance following 7 days of simulated weightlessness
[NASA-TP-3182] p 39 N92-17645

N**NACELLES**

Applications of a direct/iterative design method to complex transonic configurations
[NASA-TP-3234] p 8 N92-33484

NASA PROGRAMS

Issues in NASA program and project management
[NASA-SP-6101(03)] p 46 N91-13347

Engines and innovation: Lewis Laboratory and American propulsion technology
[NASA-SP-4306] p 51 N91-15975

NASA patent abstracts bibliography: A continuing bibliography. Section 1: Abstracts (supplement 38)
[NASA-SP-7039(38)-SECT-1] p 47 N91-17833

NASA patent abstracts bibliography: A continuing bibliography. Section 2: Indexes (supplement 38)
[NASA-SP-7039(38)-SECT-2] p 47 N91-17834

Proceedings of the X-15 First Flight 30th Anniversary Celebration
[NASA-CP-3105] p 10 N91-20071

Technology 2000, volume 2
[NASA-CP-3109-VOL-2] p 52 N91-24041

Issues in NASA program and project management
[NASA-SP-6101(04)] p 46 N91-28026

NASA patent abstracts bibliography: A continuing bibliography. Section 1: Abstracts (supplement 39)
[NASA-SP-7039(39)-SECT-1] p 48 N91-28042

NASA patent abstracts bibliography: A continuing bibliography. Section 1: Abstracts (supplement 40)
[NASA-SP-7039(40)-SECT-1] p 48 N92-22508

NASA Wallops Flight Facility Air-Sea Interaction Research Facility
[NASA-RP-1277] p 36 N92-25981

NASA patent abstracts bibliography: A continuing bibliography. Section 2: Indexes (supplement 40)
[NASA-SP-7039(40)-SECT-2] p 48 N92-27081

Issues in NASA program and project management
[NASA-SP-6101(05)] p 47 N92-27609

NASA Workshop on future directions in surface modeling and grid generation
[NASA-CP-10092] p 8 N92-29625

NASA patent abstracts bibliography: A continuing bibliography. Section 2: Indexes (supplement 41)
[NASA-SP-7039(41)-SECT-2] p 48 N92-31455

The development of the NASA aviation safety reporting system
[NASA-RP-1114] p 10 N91-70436

NASA SPACE PROGRAMS

Exobiology on Mars
[NASA-CP-10055] p 41 N91-15691

Technology for the Future: In-Space Technology Experiments Program, part 1
[NASA-CP-10073-PT-1] p 14 N91-27177

Technology for the Future: In-Space Technology Experiments Program, part 2
[NASA-CP-10073-PT-2] p 14 N91-27178

First among equals: The selection of NASA space science experiments
[NASA-SP-4215] p 52 N91-28060

Ongoing Progress in Spacecraft Controls
[NASA-CP-10099] p 19 N92-28730

NASTRAN

Nineteenth NASTRAN (R) Users' Colloquium
[NASA-CP-3111] p 29 N91-20506

Twentieth NASTRAN (R) Users' Colloquium
[NASA-CP-3145] p 30 N92-24324

NATIONAL AEROSPACE PLANE PROGRAM

Numerical studies of convective cooling for a locally heated skin
[NASA-TP-3100] p 26 N91-22509

NATIONAL AIRSPACE SYSTEM

Joint University Program for Air Transportation Research, 1990-1991
[NASA-CP-3131] p 3 N92-17984

NAVIER-STOKES EQUATION

Navier-Stokes and Euler solutions for lee-side flows over supersonic delta wings. A correlation with experiment
[NASA-TP-3035] p 4 N91-13401

Relative efficiency and accuracy of two Navier-Stokes codes for simulating attached transonic flow over wings
[NASA-TP-3061] p 26 N91-17310

An explicit upwind algorithm for solving the parabolized Navier-Stokes equations
[NASA-TP-3050] p 4 N91-18032

Stagnation-point heat-transfer rate predictions at aeroassist flight conditions
[NASA-TP-3208] p 27 N92-31281

A nozzle internal performance prediction method
[NASA-TP-3221] p 8 N92-33625

NAVIGATION

Joint University Program for Air Transportation Research, 1989-1990
[NASA-CP-3095] p 1 N91-19024

Joint University Program for Air Transportation Research, 1990-1991
[NASA-CP-3131] p 3 N92-17984

NAVIGATION SATELLITES

Proceedings of the 23rd Annual Precise Time and Time Interval (PTTI) Applications and Planning Meeting
[NASA-CP-3159] p 44 N92-33350

NEAR WAKES

A comparison of airborne wake vortex detection measurements with values predicted from potential theory
[NASA-TP-3125] p 10 N92-10994

NETWORK CONTROL

Space Network Control Conference on Resource Allocation Concepts and Approaches
[NASA-CP-3124] p 16 N92-11039

Space Communications Technology Conference: Onboard Processing and Switching
[NASA-CP-3132] p 25 N92-14202

NEURAL NETS

Proceedings of the Second Joint Technology Workshop on Neural Networks and Fuzzy Logic, volume 2
[NASA-CP-10061-VOL-2] p 43 N91-20811

Proceedings of the Second Joint Technology Workshop on Neural Networks and Fuzzy Logic, volume 1
[NASA-CP-10061-VOL-1] p 43 N91-21778

The 1991 Goddard Conference on Space Applications of Artificial Intelligence
[NASA-CP-3110] p 43 N91-22769

Fault tolerance of artificial neural networks with applications in critical systems
[NASA-TP-3187] p 42 N92-22285

The 1992 Goddard Conference on Space Applications of Artificial Intelligence
[NASA-CP-3141] p 43 N92-23356

NEUTRAL BUOYANCY SIMULATION

A method of evaluating efficiency during space-suited work in a neutral buoyancy environment
[NASA-TP-3153] p 40 N92-19772

NEUTRONS

Benchmark solutions for the galactic heavy-ion transport equations with energy and spatial coupling
[NASA-TP-3112] p 44 N92-13756

NEWTONIAN FLUIDS

Lewis icing research tunnel test of the aerodynamic effects of aircraft ground deicing/anti-icing fluids
[NASA-TP-3238] p 10 N92-30395

NICKEL CADMIUM BATTERIES

The 1991 NASA Aerospace Battery Workshop
[NASA-CP-3140] p 33 N92-22740

The 1990 NASA Aerospace Battery Workshop
[NASA-CP-3119] p 20 N92-27130

NICKEL HYDROGEN BATTERIES

The 1991 NASA Aerospace Battery Workshop
[NASA-CP-3140] p 33 N92-22740

The 1990 NASA Aerospace Battery Workshop
[NASA-CP-3119] p 20 N92-27130

NIMBUS 7 SATELLITE

User's guide: Nimbus-7 Earth radiation budget narrow-field-of-view products. Scene radiance tape products, sorting into angular bins products, and maximum likelihood cloud estimation products
[NASA-RP-1246] p 34 N91-13043

Nimbus-7 TOMS Antarctic ozone atlas: August - December 1990
[NASA-RP-1264] p 35 N91-26651

NIObIUM ALLOYS

Surface effects on hydrogen permeation through Ti-14Al-21Nb alloy
[NASA-TP-3109] p 23 N91-20266

NITRATES

Saturation point model for the formation of metal nitrate in nitrogen tetroxide oxidizer
[NASA-TP-3107] p 26 N91-24542

NITROGEN

Calculations and curve fits of thermodynamic and transport properties for equilibrium air to 30000 K
[NASA-RP-1260] p 26 N92-11285

NITROGEN DIOXIDE

SAGE 1 data user's guide
[NASA-RP-1275] p 34 N92-33097

NITROGEN OXIDES

The atmospheric effects of stratospheric aircraft: A current consensus
[NASA-RP-1251] p 33 N91-16467

NITROGEN TETROXIDE

Saturation point model for the formation of metal nitrate in nitrogen tetroxide oxidizer
[NASA-TP-3107] p 26 N91-24542

NOAA 10 SATELLITE

Mission description and in-flight operations of ERBE instruments on ERBS and NOAA 9 spacecraft, November 1984 - January 1986
[NASA-RP-1256] p 32 N92-10208

Mission description and in-flight operations of ERBE instruments on ERBS, NOAA 9, and NOAA 10 spacecraft
[NASA-RP-1279] p 32 N92-32127

NOAA 9 SATELLITE

Mission description and in-flight operations of ERBE instruments on ERBS and NOAA 9 spacecraft, November 1984 - January 1986
[NASA-RP-1256] p 32 N92-10208

Mission description and in-flight operations of ERBE instruments on ERBS, NOAA 9, and NOAA 10 spacecraft
[NASA-RP-1279] p 32 N92-32127

NOISE GENERATORS

Aeroacoustics of flight vehicles: Theory and practice. Volume 1: Noise sources
[NASA-RP-1258-VOL-1] p 45 N92-10598

NOISE INTENSITY

Fourth International Symposium on Long-Range Sound Propagation
[NASA-CP-3101] p 44 N91-16682

NOISE MEASUREMENT

Wind turbine acoustics
[NASA-TP-3057] p 44 N91-16679

Fourth Aircraft Interior Noise Workshop
[NASA-CP-10103] p 45 N92-32948

NOISE POLLUTION

The atmospheric effects of stratospheric aircraft: A first program report
[NASA-RP-1272] p 33 N92-19121

NOISE PREDICTION

Aeroacoustics of flight vehicles: Theory and practice. Volume 2: Noise control
[NASA-RP-1258-VOL-2] p 45 N92-14779

Fourth Aircraft Interior Noise Workshop
[NASA-CP-10103] p 45 N92-32948

NOISE PROPAGATION

Aeroacoustics of flight vehicles: Theory and practice. Volume 2: Noise control
[NASA-RP-1258-VOL-2] p 45 N92-14779

NOISE REDUCTION

Aeroacoustics of flight vehicles: Theory and practice. Volume 1: Noise sources
[NASA-RP-1258-VOL-1] p 45 N92-10598

Aeroacoustics of flight vehicles: Theory and practice. Volume 2: Noise control
[NASA-RP-1258-VOL-2] p 45 N92-14779

Fourth Aircraft Interior Noise Workshop
[NASA-CP-10103] p 45 N92-32948

NONADIABATIC CONDITIONS

Longitudinal aerodynamic characteristics of a subsonic, energy-efficient transport configuration in the National Transonic Facility
[NASA-TP-2922] p 6 N91-28143

NONDESTRUCTIVE TESTS

Second Conference on NDE for Aerospace Requirements
[NASA-CP-3091] p 16 N91-18189

The 1991 International Conference on Aging Aircraft and Structural Airworthiness
[NASA-CP-3160] p 31 N92-30106

NONEQUILIBRIUM THERMODYNAMICS

Aeroacoustic and aerodynamic applications of the theory of nonequilibrium thermodynamics
[NASA-TP-3118] p 26 N91-25352

NONLINEAR SYSTEMS

Application and flight test of linearizing transformations using measurement feedback to the nonlinear control problem
[NASA-TP-3154] p 12 N91-30154

A nonlinear estimator for reconstructing the angular velocity of a spacecraft without rate gyros
[NASA-TP-3178] p 24 N92-13343

NONLINEARITY

A weakly nonlinear theory for wave-vortex interactions in curved channel flow
[NASA-TP-3158] p 7 N92-19175

NOZZLE DESIGN

A nozzle internal performance prediction method
[NASA-TP-3221] p 8 N92-33625

Parametric investigation of single-expansion-ramp nozzles at Mach numbers from 0.60 to 1.20
[NASA-TP-3240] p 9 N92-34193

NOZZLE EFFICIENCY

A nozzle internal performance prediction method
[NASA-TP-3221] p 8 N92-33625

NOZZLE FLOW

A parametric experimental investigation of a scramjet nozzle at Mach 6 with Freon and argon or air used for exhaust simulation
[NASA-TP-3048] p 4 N91-16990

A nozzle internal performance prediction method
[NASA-TP-3221] p 8 N92-33625

Parametric investigation of single-expansion-ramp nozzles at Mach numbers from 0.60 to 1.20
[NASA-TP-3240] p 9 N92-34193

NOZZLE GEOMETRY

Static thrust-vectoring performance of nonaxisymmetric convergent-divergent nozzles with post-exit yaw vanes
[NASA-TP-3085] p 5 N91-21059

Aeropropulsive characteristics of canted twin pitch-vectoring nozzles at Mach 0.20 to 1.20
[NASA-TP-3060] p 5 N91-22069

NOZZLE THRUST COEFFICIENTS

A nozzle internal performance prediction method
[NASA-TP-3221] p 8 N92-33625

NUCLEAR ENGINE FOR ROCKET VEHICLES

Nuclear Thermal Propulsion: A Joint NASA/DOE/DOD Workshop
[NASA-CP-10079] p 20 N92-11088

NUCLEAR INTERACTIONS

Benchmark solutions for the galactic heavy-ion transport equations with energy and spatial coupling
[NASA-TP-3112] p 44 N92-13756

NUCLEAR PROPULSION

Vision-21: Space Travel for the Next Millennium
[NASA-CP-10059] p 13 N91-22139

Nuclear Thermal Propulsion: A Joint NASA/DOE/DOD Workshop
[NASA-CP-10079] p 20 N92-11088

NUCLEAR REACTORS

Vision-21: Space Travel for the Next Millennium
[NASA-CP-10059] p 13 N91-22139

NUCLEONS

Radiation protection for human missions to the Moon and Mars
[NASA-TP-3079] p 50 N91-17999

HZETRN: A heavy ion/nucleon transport code for space radiations
[NASA-TP-3146] p 51 N92-15959

NUMERICAL ANALYSIS

Shock wave interaction with an abrupt area change
[NASA-TP-3113] p 6 N91-27140

Computational Fluid Dynamics --- numerical methods and algorithm development
[NASA-CP-10078] p 12 N92-25808

NUMERICAL CONTROL

A generalized method for multiple robotic manipulator programming applied to vertical-up welding
[NASA-TP-3163] p 24 N92-11218

NUMERICAL STABILITY

Identification of linear systems by an asymptotically stable observer
[NASA-TP-3164] p 31 N92-26537

NUMERICAL WEATHER FORECASTING

NASA/MSC FY90 Global Scale Atmospheric Processes Research Program Review
[NASA-CP-3093] p 35 N91-16500

NUTRITIONAL REQUIREMENTS

Nutritional Requirements for Space Station Freedom Crews
[NASA-CP-3146] p 40 N92-25961



O RING SEALS

Axisymmetric shell analysis of the space shuttle solid rocket booster field joint
[NASA-TP-3033] p 28 N91-14618

Effect of temperature and gap opening rate on the resiliency of candidate solid rocket booster O-ring materials
[NASA-TP-3226] p 23 N92-27194

OCEAN SURFACE

A self-zeroing capacitance probe for water wave measurements
[NASA-RP-1278] p 36 N92-27930

ONBOARD DATA PROCESSING

Space Communications Technology Conference: Onboard Processing and Switching
[NASA-CP-3132] p 25 N92-14202

OPERATIONS RESEARCH

Fourth Annual Workshop on Space Operations Applications and Research (SOAR 90)
[NASA-CP-3103-VOL-1] p 41 N91-20641

OPERATORS (PERSONNEL)

Human Machine Interfaces for Teleoperators and Virtual Environments Conference
[NASA-CP-10071] p 40 N92-11638

OPTICAL ACTIVITY

Positron lifetime measurements in chiral nematic liquid crystals
[NASA-TP-3122] p 46 N92-10677

OPTICAL MEASUREMENT

Optical measurements on solid specimens of solid rocket motor exhaust and solid rocket motor slag
[NASA-TP-3177] p 20 N92-20949

Three-dimensional laser window formation
[NASA-RP-1280] p 14 N92-30307

OPTICAL RADAR

Airborne Wind Shear Detection and Warning Systems: Third Combined Manufacturers' and Technologists' Conference, part 2
[NASA-CP-10060-PT-2] p 9 N91-24140

Sixteenth International Laser Radar Conference, part 1
[NASA-CP-3158-PT-1] p 28 N92-29228

Sixteenth International Laser Radar Conference, part 2
[NASA-CP-3158-PT-2] p 28 N92-31013

OPTICAL TRACKING

Proceedings of the 23rd Annual Precise Time and Time Interval (PTTI) Applications and Planning Meeting
[NASA-CP-3159] p 44 N92-33350

OPTIMAL CONTROL

Fourth NASA Workshop on Computational Control of Flexible Aerospace Systems, part 2
[NASA-CP-10065-PT-2] p 17 N91-22331

OPTIMIZATION

Multidisciplinary optimization of controlled space structures with global sensitivity equations
[NASA-TP-3130] p 18 N92-11087

Optimization of composite sandwich cover panels subjected to compressive loadings
[NASA-TP-3173] p 21 N92-20679

ORBIT CALCULATION

Flight Mechanics/Estimation Theory Symposium, 1991
[NASA-CP-3123] p 14 N92-14070

ORBIT DECAY

Flight Mechanics/Estimation Theory Symposium, 1991
[NASA-CP-3123] p 14 N92-14070

ORBIT TRANSFER VEHICLES

Hypervelocity atmospheric flight: Real gas flow fields
[NASA-RP-1249] p 26 N91-20418

Launch vehicle integration options for a large Earth sciences geostationary platform concept
[NASA-TP-3083] p 15 N91-27180

Simulation of real-gas effects on pressure distributions for aerassist flight experiment vehicle and comparison with prediction
[NASA-TP-3157] p 27 N92-20677

ORBITAL ASSEMBLY

Launch vehicle integration options for a large Earth sciences geostationary platform concept
[NASA-TP-3083] p 15 N91-27180

Packaging, development, and on-orbit assembly options for large geostationary spacecraft
[NASA-TP-3088] p 17 N91-27182

Automation and Robotics for Space-Based Systems, 1991
[NASA-CP-10098] p 43 N92-27763

Development of a truss joint for robotic assembly of space structures
[NASA-TP-3214] p 31 N92-27974

Software design for automated assembly of truss structures
[NASA-TP-3198] p 43 N92-28375

ORBITAL LIFETIME

Long-term orbital lifetime predictions
[NASA-TP-3058] p 13 N91-10092

ORBITAL MANEUVERS

Manual Control Aspects of Orbital Flight
[NASA-CP-10056] p 13 N91-20147

OSCILLATIONS

Inertial oscillation of a vertical rotating draft with application to a supercell storm
[NASA-TP-3230] p 36 N92-33482

Inertial oscillation of a vertical rotating draft with application to a supercell storm: Video supplement to NASA Technical Paper 3230
[NASA-TP-3230-VIDEO-SUPPL] p 36 N92-34246

OUTGASSING

Outgassing data for selecting spacecraft materials, revision 2
[NASA-RP-1124-REV-2] p 21 N91-14437

OXIDATION

Oxidation characteristics of Ti-25Al-10Nb-3V-1Mo intermetallic alloy
[NASA-TP-3044] p 22 N91-13522

Fourth Annual Workshop on Space Operations Applications and Research (SOAR 90)
[NASA-CP-3103-VOL-2] p 41 N91-20702

OXIDES

AMS AHTS 1990: Advances in Materials Science and Applications of High Temperature Superconductors
[NASA-CP-3100] p 22 N92-21605

OXIDIZERS

Saturation point model for the formation of metal nitrate in nitrogen tetroxide oxidizer
[NASA-TP-3107] p 26 N91-24542

OXYGEN

Calculations and curve fits of thermodynamic and transport properties for equilibrium air to 30000 K
[NASA-RP-1260] p 26 N92-11285

OXYGENATION

Electrochemical studies of corrosion inhibitors
[NASA-TP-3066] p 22 N91-17208

OZONE

The atmospheric effects of stratospheric aircraft: A topical review
[NASA-RP-1250] p 33 N91-16466

The atmospheric effects of stratospheric aircraft: A current consensus
[NASA-RP-1251] p 33 N91-16467

Nimbus-7 TOMS Antarctic ozone atlas: August - December 1990
[NASA-RP-1264] p 35 N91-26651

Sixteenth International Laser Radar Conference, part 2
[NASA-CP-3158-PT-2] p 28 N92-31013

SAGE 1 data user's guide
[NASA-RP-1275] p 34 N92-33097

OZONE DEPLETION

Nimbus-7 TOMS Antarctic ozone atlas: August - December 1990
[NASA-RP-1264] p 35 N91-26651

The atmospheric effects of stratospheric aircraft: A first program report
[NASA-RP-1272] p 33 N92-19121

P**PACKET SWITCHING**

Destination-directed, packet-switching architecture for 30/20-GHz FDMA/TDM geostationary communications satellite network
[NASA-TP-3201] p 16 N92-19762

PALEOMAGNETISM

Steady induction effects in geomagnetism. Part 1A: Steady motional induction of geomagnetic chaos
[NASA-TP-3272-PT-1A] p 34 N92-32655

PANEL METHOD (FLUID DYNAMICS)

Prediction of effects of wing contour modifications on low-speed maximum lift and transonic performance for the EA-6B aircraft
[NASA-TP-3046] p 4 N91-10902

Panel methods: An introduction
[NASA-TP-2995] p 5 N91-19058

PANELS

Payload bay doors and radiator panels familiarization handbook
[NASA-TM-107793] p 15 N92-20676

PARABOLIC DIFFERENTIAL EQUATIONS

An explicit upwind algorithm for solving the parabolized Navier-Stokes equations
[NASA-TP-3050] p 4 N91-18032

PARALLEL PROCESSING (COMPUTERS)

Advanced techniques in reliability model representation and solution
[NASA-TP-3242] p 43 N92-33483

PARAMETER IDENTIFICATION

Flight characteristics of a modified Schweizer SGS1-36 sailplane at low and very high angles of attack
[NASA-TP-3022] p 12 N91-10079

PARAMETERIZATION

FIRE Science Results 1988
[NASA-CP-3083] p 34 N91-10448

Parametric study of afterbody/nozzle drag on twin two-dimensional convergent-divergent nozzles at Mach numbers from 0.60 to 1.20
[NASA-TP-2640] p 4 N91-14316

PARTICLE INTERACTIONS

HZETRN: A heavy ion/nucleon transport code for space radiations
[NASA-TP-3146] p 51 N92-15959

PARTICLE MOTION

Analysis of gravity-induced particle motion and fluid perfusion flow in the NASA-designed rotating zero-head-space tissue culture vessel
[NASA-TP-3143] p 24 N92-13340

PARTICLE SIZE DISTRIBUTION

Volcanism-Climate Interactions
[NASA-CP-10062] p 34 N91-21641

PATENT APPLICATIONS

NASA patent abstracts bibliography: A continuing bibliography. Section 2: Indexes (supplement 39)
[NASA-SP-7039(39)-SECT-2] p 48 N91-29088

NASA patent abstracts bibliography: A continuing bibliography. Section 2: Indexes (supplement 40)
[NASA-SP-7039(40)-SECT-2] p 48 N92-27081

PATENT POLICY

NASA patent abstracts bibliography: A continuing bibliography. Section 1: Abstracts (supplement 38)
[NASA-SP-7039(38)-SECT-1] p 47 N91-17833

NASA patent abstracts bibliography: A continuing bibliography. Section 2: Indexes (supplement 38)
[NASA-SP-7039(38)-SECT-2] p 47 N91-17834

NASA patent abstracts bibliography: A continuing bibliography. Section 1: Abstracts (supplement 39)
[NASA-SP-7039(39)-SECT-1] p 48 N91-28042

NASA patent abstracts bibliography: A continuing bibliography. Section 1: Abstracts (supplement 40)
[NASA-SP-7039(40)-SECT-1] p 48 N92-22508

NASA patent abstracts bibliography: A continuing bibliography. Section 2: Indexes (supplement 41)
[NASA-SP-7039(41)-SECT-2] p 48 N92-31455

PATENTS

NASA patent abstracts bibliography: A continuing bibliography. Section 2: Indexes (supplement 39)
[NASA-SP-7039(39)-SECT-2] p 48 N91-29088

NASA patent abstracts bibliography: A continuing bibliography. Section 2: Indexes (supplement 40)
[NASA-SP-7039(40)-SECT-2] p 48 N92-27081

PATTERN RECOGNITION

Proceedings of the Second Joint Technology Workshop on Neural Networks and Fuzzy Logic, volume 2
[NASA-CP-10061-VOL-2] p 43 N91-20811

PAYLOAD INTEGRATION

Launch vehicle integration options for a large Earth sciences geostationary platform concept
[NASA-TP-3083] p 15 N91-27180

Packaging, development, and on-orbit assembly options for large geostationary spacecraft
[NASA-TP-3088] p 17 N91-27182

PAYLOADS

Metallized propellants for the human exploration of Mars
[NASA-TP-3062] p 19 N91-11800

Lunar missions using chemical propulsion: System design issues
[NASA-TP-3065] p 19 N91-15308

Payload bay doors and radiator panels familiarization handbook
[NASA-TM-107793] p 15 N92-20676

Definition and design of an experiment to test raster scanning with rotating unbalanced-mass devices on gimbaled payloads
[NASA-TP-3249] p 24 N92-29677

PEEK

Investigation of microstructural changes in polyetherether-ketone films at cryogenic temperatures by positron lifetime spectroscopy
[NASA-TP-3064] p 21 N91-18216

PERFORMANCE PREDICTION

Long-term orbital lifetime predictions
[NASA-TP-3058] p 13 N91-10092

Prediction of effects of wing contour modifications on low-speed maximum lift and transonic performance for the EA-6B aircraft
[NASA-TP-3046] p 4 N91-10902

Shortcomings in ground testing, environment simulations, and performance predictions for space applications
[NASA-TP-3217] p 23 N92-22593

Wind tunnel aerodynamic characteristics of a transport-type airfoil in a simulated heavy rain environment
[NASA-TP-3184] p 8 N92-31532

A nozzle internal performance prediction method
[NASA-TP-3221] p 8 N92-33625

PERFORMANCE TESTS

Fault tolerance of artificial neural networks with applications in critical systems
[NASA-TP-3187] p 42 N92-22285

Static performance of a cruciform nozzle with multi-axis thrust-vectoring and reverse-thrust capabilities
[NASA-TP-3188] p 7 N92-23095

PERMANENT MAGNETS

The 23 to 300 C demagnetization resistance of samarium-cobalt permanent magnets
[NASA-TP-3119] p 25 N92-11252

PERMEABILITY

An investigation of microstructural characteristics of contact-lens polymers
[NASA-TP-3034] p 21 N91-13492

Surface effects on hydrogen permeation through Ti-14Al-21Nb alloy
[NASA-TP-3109] p 23 N91-20266

PERMEATING

Surface effects on hydrogen permeation through Ti-14Al-21Nb alloy
[NASA-TP-3109] p 23 N91-20266

PERSONNEL

NASA engineers and the age of Apollo
[NASA-SP-4104] p 52 N92-28344

PHASE SHIFT KEYING

Advanced Modulation and Coding Technology Conference
[NASA-CP-10053] p 16 N92-22001

PHOTOVOLTAIC CELLS

Space Photovoltaic Research and Technology, 1989
[NASA-CP-3107] p 19 N91-19182

PHOTOVOLTAIC CONVERSION

Space Photovoltaic Research and Technology, 1989
[NASA-CP-3107] p 19 N91-19182

Space Photovoltaic Research and Technology Conference
[NASA-CP-3121] p 19 N91-30203

PHYSICAL EXERCISE

Workshop on Exercise Prescription for Long-Duration Space Flight
[NASA-CP-3051] p 36 N91-10574

Responses of women to orthostatic and exercise stresses
[NASA-TP-3043] p 37 N91-19711

Fuel utilization during exercise after 7 days of bed rest
[NASA-TP-3175] p 38 N92-16554

A method of evaluating efficiency during space-suited work in a neutral buoyancy environment
[NASA-TP-3153] p 40 N92-19772

PHYSICAL FITNESS

Fuel utilization during exercise after 7 days of bed rest
[NASA-TP-3175] p 38 N92-16554

PHYSICS

Aeronautical engineering: A continuing bibliography with indexes (supplement 275)
[NASA-SP-7037(275)] p 3 N92-28679

PHYSIOLOGICAL EFFECTS

Radiation risk predictions for Space Station Freedom orbits
[NASA-TP-3098] p 51 N91-26107

PHYSIOLOGY

Responses of women to orthostatic and exercise stresses
[NASA-TP-3043] p 37 N91-19711

PILOT PERFORMANCE

Flight characteristics of a modified Schweizer SGS1-36 sailplane at low and very high angles of attack
[NASA-TP-3022] p 12 N91-10079

Effect of short-term exposure to stereoscopic three-dimensional flight displays on real-world depth perception
[NASA-TP-3117] p 11 N92-13065

PIPES (TUBES)

Effect of type of load on stress analysis of thin-walled ducts
[NASA-TP-3248] p 31 N92-26669

PITCHING MOMENTS

A nozzle internal performance prediction method
[NASA-TP-3221] p 8 N92-33625

PLANE STRAIN

Applications of FEM and BEM in two-dimensional fracture mechanics problems
[NASA-TP-3277] p 31 N92-31280

PLANETARY GEOLOGY

Planetary geosciences, 1989-1990
[NASA-SP-508] p 50 N92-28345

PLANFORMS

Planform curvature effects on flutter characteristics of a wing with 56 deg leading-edge sweep and panel aspect ratio of 1.14
[NASA-TP-3116] p 11 N92-13054

PLASMA ARC WELDING

A generalized method for multiple robotic manipulator programming applied to vertical-up welding
[NASA-TP-3163] p 24 N92-11218

PLASMA PHYSICS

Current Collection from Space Plasmas
[NASA-CP-3089] p 46 N91-17713

PLASMA PROBES

Current Collection from Space Plasmas
[NASA-CP-3089] p 46 N91-17713

PLASMA PROPULSION

Magnetoplasmadynamic Thruster Workshop
[NASA-CP-10084] p 20 N92-10044

PLATES (STRUCTURAL MEMBERS)

An examination of the damage tolerance enhancement of carbon/epoxy using an outer lamina of spectra (R)
[NASA-TP-3160] p 21 N92-11142

PLUMES

Comparison of jet plume shape predictions and plume influence on sonic boom signature
[NASA-TP-3172] p 7 N92-25133

POINCARE PROBLEM

Workshop on Squeezed States and Uncertainty Relations
[NASA-CP-3135] p 46 N92-22045

POINTING CONTROL SYSTEMS

Thermal-distortion analysis of a spacecraft box truss in geostationary orbit
[NASA-TP-3054] p 16 N91-11041

- Aerospace Applications of Magnetic Suspension Technology, part 2
[NASA-CP-10066-PT-2] p 17 N91-21203
Rigid-body-control subsystem sizing for an Earth science geostationary platform
[NASA-TP-3087] p 17 N91-22302
- POLAR METEOROLOGY**
SAM 2 measurements of the polar stratospheric aerosol. Volume 9: October 1982 - April 1983
[NASA-RP-1244] p 33 N91-18505
International Workshop on Stratospheric Aerosols: Measurements, Properties, and Effects
[NASA-CP-3114] p 32 N91-32528
- POLICIES**
Proceedings of the Second Annual NASA Science Internet User Working Group Conference
[NASA-CP-3117] p 48 N91-27009
- POLYETHYLENES**
An examination of the damage tolerance enhancement of carbon/epoxy using an outer lamina of spectra (R)
[NASA-TP-3160] p 21 N92-11142
- POLYGONS**
Two-dimensional aerodynamic characteristics of several polygon-shaped cross-sectional models applicable to helicopter fuselages
[NASA-TP-3233] p 8 N92-30394
- POLYMER MATRIX COMPOSITES**
NASA workshop on impact damage to composites
[NASA-CP-10075] p 21 N91-29240
- POROSITY**
Experimental investigation of porous-floor effects on cavity flow fields at supersonic speeds
[NASA-TP-3032] p 5 N91-19042
- POSITRON ANNIHILATION**
Investigation of microstructural changes in polyetherether-ketone films at cryogenic temperatures by positron lifetime spectroscopy
[NASA-TP-3064] p 21 N91-18216
Low-energy positron flux generator for microstructural characterization of thin films
[NASA-TP-3074] p 27 N91-22538
Positron lifetime measurements in chiral nematic liquid crystals
[NASA-TP-3122] p 46 N92-10677
- POSITRONS**
Positron lifetime measurements in chiral nematic liquid crystals
[NASA-TP-3122] p 46 N92-10677
- POSTFLIGHT ANALYSIS**
State estimation applications in aircraft flight-data analysis: A user's manual for SMACK
[NASA-RP-1252] p 10 N91-19082
LDEF: 69 Months in Space. First Post-Retrieval Symposium, part 1
[NASA-CP-3134-PT-1] p 52 N92-23280
- POTENTIAL FLOW**
Panel methods: An introduction
[NASA-TP-2995] p 5 N91-19058
- POWER LOSS**
Experimental and analytical evaluation of efficiency of helicopter planetary stage
[NASA-TP-3063] p 28 N91-12956
- PRECIPITATION (METEOROLOGY)**
The role of water vapor in climate. A strategic research plan for the proposed GEWEX water vapor project (GVaP)
[NASA-CP-3120] p 35 N91-25556
- PREDICTION ANALYSIS TECHNIQUES**
Wind turbine acoustics
[NASA-TP-3057] p 44 N91-16679
West Antarctic Ice Sheet Initiative. Volume 1: Science and Implementation Plan
[NASA-CP-3115-VOL-1] p 32 N91-20541
Structural Integrity and Durability of Reusable Space Propulsion Systems
[NASA-CP-10030] p 19 N91-24307
Modeling of the heat transfer in bypass transitional boundary-layer flows
[NASA-TP-3170] p 27 N92-11299
Correlation and prediction of dynamic human isolated joint strength from lean body mass
[NASA-TP-3207] p 40 N92-26682
- PREDICTIONS**
Comparison of jet plume shape predictions and plume influence on sonic boom signature
[NASA-TP-3172] p 7 N92-25133
- PREMIXED FLAMES**
Two-dimensional stability of laminar flames
[NASA-TP-3131] p 7 N92-17131
- PRESSES**
A statistical comparison of two carbon fiber/epoxy fabrication techniques
[NASA-TP-3179] p 22 N92-20950
- PRESSURE DEPENDENCE**
Gibbs free energy of reactions involving SiC, Si₃N₄, H₂, and H₂O as a function of temperature and pressure
[NASA-TP-3275] p 23 N92-31278
- PRESSURE DISTRIBUTION**
Relative efficiency and accuracy of two Navier-Stokes codes for simulating attached transonic flow over wings
[NASA-TP-3061] p 26 N91-17310
Effects of yaw angle and Reynolds number on rectangular-box cavities at subsonic and transonic speeds
[NASA-TP-3099] p 5 N91-27124
Transonic and supersonic Euler computations of vortex-dominated flow fields about a generic fighter
[NASA-TP-3156] p 6 N92-10011
Simulation of real-gas effects on pressure distributions for aeroassist flight experiment vehicle and comparison with prediction
[NASA-TP-3157] p 27 N92-20677
- PRESSURE MEASUREMENT**
Measurements of forces, moments, and pressures on a generic store separating from a box cavity at supersonic speeds
[NASA-TP-3110] p 6 N92-10005
NACA 0015 wing pressure and trailing vortex measurements
[NASA-TP-3151] p 6 N92-10981
- PRESSURE OSCILLATIONS**
Flow-induced resonance of screen-covered cavities
[NASA-TP-3052] p 25 N91-15499
- PROBABILITY THEORY**
Structural deterministic safety factors selection criteria and verification
[NASA-TP-3203] p 30 N92-19355
- PROCESS CONTROL (INDUSTRY)**
The Federal Conference on Intelligent Processing Equipment
[NASA-CP-3138] p 52 N92-24987
- PRODUCT DEVELOPMENT**
Technology 2000, volume 2
[NASA-CP-3109-VOL-2] p 52 N91-24041
- PROJECT MANAGEMENT**
Twenty-Second Annual NASA Supply and Equipment Management Conference
[NASA-CP-10042] p 46 N91-11591
Issues in NASA program and project management
[NASA-SP-6101(03)] p 46 N91-13347
Issues in NASA program and project management
[NASA-SP-6101(04)] p 46 N91-28026
Nuclear Thermal Propulsion: A Joint NASA/DOE/DOD Workshop
[NASA-CP-10079] p 20 N92-11088
Issues in NASA program and project management
[NASA-SP-6101(05)] p 47 N92-27609
- PROJECT PLANNING**
Vision-21: Space Travel for the Next Millennium
[NASA-CP-10059] p 13 N91-22139
Nuclear Thermal Propulsion: A Joint NASA/DOE/DOD Workshop
[NASA-CP-10079] p 20 N92-11088
Beyond the Baseline 1991: Proceedings of the Space Station Evolution Symposium. Volume 2: Space Station Freedom, part 2
[NASA-CP-10083-VOL-2-PT-2] p 18 N92-17348
Beyond the Baseline 1991: Proceedings of the Space Station Evolution Symposium. Volume 2: Space Station Freedom, part 1
[NASA-CP-10083-VOL-2-PT-1] p 18 N92-17768
- PROP-FAN TECHNOLOGY**
Annoyance caused by aircraft en route noise
[NASA-TP-3165] p 45 N92-20479
- PROPELLANT ADDITIVES**
Lunar missions using chemical propulsion: System design issues
[NASA-TP-3065] p 19 N91-15308
Upper stages using liquid propulsion and metallized propellants
[NASA-TP-3191] p 20 N92-17151
- PROPELLANT COMBUSTION**
Tenth Workshop for Computational Fluid Dynamic Applications in Rocket Propulsion, part 1
[NASA-CP-3163-PT-1] p 27 N92-32278
- PROPELLER BLADES**
Acoustic and aerodynamic study of a pusher-propeller aircraft model
[NASA-TP-3040] p 45 N91-21828
- PROPELLER NOISE**
Acoustic and aerodynamic study of a pusher-propeller aircraft model
[NASA-TP-3040] p 45 N91-21828
Annoyance caused by advanced turbo-prop aircraft flyover noise: Comparison of different propeller configurations
[NASA-TP-3104] p 45 N92-11758
- PROPELLERS**
Structural properties of laminated Douglas fir/epoxy composite material
[NASA-RP-1236] p 20 N91-10127
Annoyance caused by advanced turbo-prop aircraft flyover noise: Comparison of different propeller configurations
[NASA-TP-3104] p 45 N92-11758
- PROPULSION**
Space Transportation Propulsion Technology Symposium. Volume 1: Executive summary
[NASA-CP-3112] p 19 N91-25176
Large space structures and systems in the space station era: A bibliography with indexes (supplement 03)
[NASA-SP-7085(03)] p 18 N92-22317
Workshop on Engineering Turbulence Modeling
[NASA-CP-10088] p 27 N92-24514
LDEF: 69 Months in Space. First Post-Retrieval Symposium, part 3
[NASA-CP-3134-PT-3] p 52 N92-27083
- PROPULSION SYSTEM CONFIGURATIONS**
Lunar missions using chemical propulsion: System design issues
[NASA-TP-3065] p 19 N91-15308
Parametric trade studies on a Shuttle 2 launch system architecture
[NASA-TP-3059] p 14 N91-18180
Aeropropulsion 1991
[NASA-CP-10063] p 12 N91-20086
Structural Integrity and Durability of Reusable Space Propulsion Systems
[NASA-CP-10030] p 19 N91-24307
Space Transportation Propulsion Technology Symposium. Volume 1: Executive summary
[NASA-CP-3112] p 19 N91-25176
Space Transportation Propulsion Technology Symposium. Volume 2: Symposium proceedings
[NASA-CP-3112-VOL-2] p 19 N91-28193
Space Transportation Propulsion Technology Symposium. Volume 3: Panel Session Summaries and Presentations
[NASA-CP-3112-VOL-3] p 19 N91-28235
Static internal performance of ventral and rear nozzle concepts for short-takeoff and vertical-landing aircraft
[NASA-TP-3103] p 6 N92-10975
Nuclear Thermal Propulsion: A Joint NASA/DOE/DOD Workshop
[NASA-CP-10079] p 20 N92-11088
Aeropropulsion 1987
[NASA-CP-3049] p 12 N92-22510
Computational Structures Technology for Airframes and Propulsion Systems
[NASA-CP-3142] p 31 N92-25911
Supersonic Throughflow Fan Test Facility at NASA. Lewis Research Center
[NASA-TP-3038] p 13 N92-31640
Tenth Workshop for Computational Fluid Dynamic Applications in Rocket Propulsion, part 2
[NASA-CP-3163-PT-2] p 27 N92-32245
- PROPULSION SYSTEM PERFORMANCE**
Lunar missions using chemical propulsion: System design issues
[NASA-TP-3065] p 19 N91-15308
Computational Fluid Dynamics Symposium on Aeropropulsion
[NASA-CP-3078] p 5 N91-21062
Space Transportation Propulsion Technology Symposium. Volume 2: Symposium proceedings
[NASA-CP-3112-VOL-2] p 19 N91-28193
Nuclear Thermal Propulsion: A Joint NASA/DOE/DOD Workshop
[NASA-CP-10079] p 20 N92-11088
Aeropropulsion 1987
[NASA-CP-3049] p 12 N92-22510
Supersonic Throughflow Fan Test Facility at NASA. Lewis Research Center
[NASA-TP-3038] p 13 N92-31640
Parametric investigation of single-expansion-ramp nozzles at Mach numbers from 0.60 to 1.20
[NASA-TP-3240] p 9 N92-34193
- PROPULSIVE EFFICIENCY**
Aeropropulsive characteristics of canted twin pitch-vectoring nozzles at Mach 0.20 to 1.20
[NASA-TP-3060] p 5 N91-22069
- PROSTHETIC DEVICES**
Cable compliance
[NASA-TP-3216] p 24 N92-30378
- PROTEINS**
Fuel utilization during exercise after 7 days of bed rest
[NASA-TP-3175] p 38 N92-16554
- PROTON IRRADIATION**
Space Photovoltaic Research and Technology Conference
[NASA-CP-3121] p 19 N91-30203

PSYCHOACOUSTICS

Annoyance caused by advanced turboprop aircraft flyover noise: Comparison of different propeller configurations
[NASA-TP-3104] p 45 N92-11758

PULSE COMMUNICATION

Flight deck benefits of integrated data link communication
[NASA-TP-3219] p 10 N92-21459
The effects of video compression on acceptability of images for monitoring life sciences experiments
[NASA-TP-3239] p 16 N92-33933

PUMP SEALS

Seals Flow Code Development
[NASA-CP-10070] p 15 N92-15082

Q**QUALITY CONTROL**

NASA-LaRC Flight-Critical Digital Systems Technology Workshop
[NASA-CP-10028] p 11 N91-24200

QUANTUM MECHANICS

Workshop on Squeezed States and Uncertainty Relations
[NASA-CP-3135] p 46 N92-22045

QUANTUM OPTICS

Workshop on Squeezed States and Uncertainty Relations
[NASA-CP-3135] p 46 N92-22045

QUANTUM THEORY

Workshop on Squeezed States and Uncertainty Relations
[NASA-CP-3135] p 46 N92-22045

R**RADAR DETECTION**

Airborne Wind Shear Detection and Warning Systems: Third Combined Manufacturers' and Technologists' Conference, part 2
[NASA-CP-10060-PT-2] p 9 N91-24140

RADAR MEASUREMENT

Sixteenth International Laser Radar Conference, part 1
[NASA-CP-3158-PT-1] p 28 N92-29228

RADIATION COUNTERS

Improvements in computational accuracy of BRYNTRN (a baryon transport code)
[NASA-TP-3093] p 51 N91-23017
Development of the Burst and Transient Source Experiment (BATSE)
[NASA-PP-1268] p 49 N91-32006

RADIATION DAMAGE

Cellular track model of biological damage to mammalian cell cultures from galactic cosmic rays
[NASA-TP-3055] p 50 N91-16981
Space Photovoltaic Research and Technology Conference
[NASA-CP-3121] p 19 N91-30203
Multiple lesion track structure model
[NASA-TP-3185] p 39 N92-22186
Shortcomings in ground testing, environment simulations, and performance predictions for space applications
[NASA-TP-3217] p 23 N92-22593
Track structure model of cell damage in space flight
[NASA-TP-3235] p 39 N92-34154

RADIATION DOSAGE

Improvements in computational accuracy of BRYNTRN (a baryon transport code)
[NASA-TP-3093] p 51 N91-23017
First LDEF Post-Retrieval Symposium abstracts
[NASA-CP-10072] p 52 N91-24972
Analyses of risks associated with radiation exposure from past major solar particle events
[NASA-TP-3137] p 50 N91-31061
Benchmark solutions for the galactic heavy-ion transport equations with energy and spatial coupling
[NASA-TP-3112] p 44 N92-13756
MIRACAL: A mission radiation calculation program for analysis of lunar and interplanetary missions
[NASA-TP-3211] p 51 N92-25100

RADIATION EFFECTS

Radiation risk predictions for Space Station Freedom orbits
[NASA-TP-3098] p 51 N91-26107
Cellular repair/misrepair track model
[NASA-TP-3124] p 42 N92-11685
Transport methods and interactions for space radiations
[NASA-PP-1257] p 51 N92-15956
Multiple lesion track structure model
[NASA-TP-3185] p 39 N92-22186

LDEF: 69 Months in Space. First Post-Retrieval Symposium, part 2
[NASA-CP-3134-PT-2] p 52 N92-24806
Second LDEF Post-Retrieval Symposium abstracts
[NASA-CP-10097] p 52 N92-27218

RADIATION HAZARDS

Radiation risk predictions for Space Station Freedom orbits
[NASA-TP-3098] p 51 N91-26107
Analyses of risks associated with radiation exposure from past major solar particle events
[NASA-TP-3137] p 50 N91-31061

RADIATION PROTECTION

Cellular track model of biological damage to mammalian cell cultures from galactic cosmic rays
[NASA-TP-3055] p 50 N91-16981
Radiation protection for human missions to the Moon and Mars
[NASA-TP-3079] p 50 N91-17999
Transport methods and interactions for space radiations
[NASA-PP-1257] p 51 N92-15956

RADIATION SHIELDING

Radiation protection for human missions to the Moon and Mars
[NASA-TP-3079] p 50 N91-17999
Improvements in computational accuracy of BRYNTRN (a baryon transport code)
[NASA-TP-3093] p 51 N91-23017
Analyses of risks associated with radiation exposure from past major solar particle events
[NASA-TP-3137] p 50 N91-31061
Benchmark solutions for the galactic heavy-ion transport equations with energy and spatial coupling
[NASA-TP-3112] p 44 N92-13756
HZETRN: A heavy ion/nucleon transport code for space radiations
[NASA-TP-3146] p 51 N92-15959
An efficient HZETRN (a galactic cosmic ray transport code)
[NASA-TP-3147] p 51 N92-22218

RADIATION TOLERANCE

MIRACAL: A mission radiation calculation program for analysis of lunar and interplanetary missions
[NASA-TP-3211] p 51 N92-25100

RADIATION TRANSPORT

Improvements in computational accuracy of BRYNTRN (a baryon transport code)
[NASA-TP-3093] p 51 N91-23017

RADIATIVE HEAT TRANSFER

Stagnation-point heat-transfer rate predictions at aerassist flight conditions
[NASA-TP-3208] p 27 N92-31281

RADIO ASTRONOMY

The Interstellar Medium in External Galaxies: Summaries of contributed papers
[NASA-CP-3084] p 49 N91-14100
Paired and Interacting Galaxies: International Astronomical Union Colloquium No. 124
[NASA-CP-3098] p 49 N91-16858

RADIO EMISSION

The Interstellar Medium in External Galaxies: Summaries of contributed papers
[NASA-CP-3084] p 49 N91-14100

RADIO FREQUENCIES

Flight tests with a data link used for air traffic control information exchange
[NASA-TP-3135] p 11 N91-31143

RADIO WAVES

Propagation effects for land mobile satellite systems: Overview of experimental and modeling results
[NASA-PP-1274] p 25 N92-20404

RADIOGRAPHY

National Educators' Workshop: Update 1988. Standard Experiments in Engineering Materials Science and Technology
[NASA-CP-3060] p 20 N91-20207

RADIOMETERS

Limb-darkening functions as derived from along-track operation of the ERBE scanning radiometers for August 1985
[NASA-PP-1243] p 34 N91-14683
Mission description and in-flight operations of ERBE instruments on ERBS, NOAA 9, and NOAA 10 spacecraft
[NASA-PP-1279] p 32 N92-32127

RAIL TRANSPORTATION

Determination of the flight hardware configuration of an energy absorbing attenuator for the proposed Space Station crew and equipment translation aid cart
[NASA-TP-3084] p 29 N91-21556

RAIN

Airborne Wind Shear Detection and Warning Systems: Third Combined Manufacturers' and Technologists' Conference, part 1
[NASA-CP-10060-PT-1] p 9 N91-24166

Wind tunnel aerodynamic characteristics of a transport-type airfoil in a simulated heavy rain environment
[NASA-TP-3184] p 8 N92-31532

RASTER SCANNING

Definition and design of an experiment to test raster scanning with rotating unbalanced-mass devices on gimbaled payloads
[NASA-TP-3249] p 24 N92-29677

REACTING FLOW

Stagnation-point heat-transfer rate predictions at aerassist flight conditions
[NASA-TP-3208] p 27 N92-31281

REACTION KINETICS

Oxidation characteristics of Ti-25Al-10Nb-3V-1Mo intermetallic alloy
[NASA-TP-3044] p 22 N91-13522
AMSAHTS 1990: Advances in Materials Science and Applications of High Temperature Superconductors
[NASA-CP-3100] p 22 N92-21605
An analysis of combustion studies in shock expansion tunnels and reflected shock tunnels
[NASA-TP-3224] p 22 N92-28374

REACTION TIME

Reliability of a Shuttle reaction timer
[NASA-TP-3176] p 40 N92-16562

REACTION WHEELS

Rigid-body-control subsystem sizing for an Earth science geostationary platform
[NASA-TP-3087] p 17 N91-22302

REACTOR DESIGN

Vision-21: Space Travel for the Next Millennium
[NASA-CP-10059] p 13 N91-22139
Nuclear Thermal Propulsion: A Joint NASA/DOE/DOD Workshop
[NASA-CP-10079] p 20 N92-11088

REACTOR TECHNOLOGY

Vision-21: Space Travel for the Next Millennium
[NASA-CP-10059] p 13 N91-22139
Nuclear Thermal Propulsion: A Joint NASA/DOE/DOD Workshop
[NASA-CP-10079] p 20 N92-11088

REAL GASES

Hypervelocity atmospheric flight: Real gas flow fields
[NASA-PP-1249] p 26 N91-20418
Simulation of real-gas effects on pressure distributions for aerassist flight experiment vehicle and comparison with prediction
[NASA-TP-3157] p 27 N92-20677
Computational Fluid Dynamics --- numerical methods and algorithm development
[NASA-CP-10078] p 12 N92-25808

REAL TIME OPERATION

Fault tolerance of artificial neural networks with applications in critical systems
[NASA-TP-3187] p 42 N92-22285

REBREATHING

Evaluation of noninvasive cardiac output methods during exercise
[NASA-TP-3174] p 38 N92-16553

REDUCED GRAVITY

Measurement and Characterization of the Acceleration Environment on Board the Space Station
[NASA-CP-3088] p 48 N91-12401
Responses of women to orthostatic and exercise stresses
[NASA-TP-3043] p 37 N91-19711
Aerospace Applications of Magnetic Suspension Technology, part 1
[NASA-CP-10066-PT-1] p 17 N91-21188
The microgravity environment of the Space Shuttle Columbia middeck during STS-32
[NASA-TP-3140] p 48 N92-11930
The microgravity environment of the Space Shuttle Columbia payload bay during STS-32
[NASA-TP-3141] p 49 N92-11931
Analysis of gravity-induced particle motion and fluid perfusion flow in the NASA-designed rotating zero-head-space tissue culture vessel
[NASA-TP-3143] p 24 N92-13340
Techniques for determination of impact forces during walking and running in a zero-G environment
[NASA-TP-3159] p 38 N92-17022
International Workshop on Vibration Isolation Technology for Microgravity Science Applications
[NASA-CP-10094] p 24 N92-28436
Experimental measurement of the orbital paths of particles sedimenting within a rotating viscous fluid as influenced by gravity
[NASA-TP-3200] p 40 N92-28897

REFLECTOR ANTENNAS

A new fabrication method for precision antenna reflectors for space flight and ground test
[NASA-TP-3078] p 17 N91-21185

REFLECTORS

A new fabrication method for precision antenna reflectors for space flight and ground test
[NASA-TP-3078] p 17 N91-21185

REFRACTORY MATERIALS

High-temperature durability considerations for HSCST combustor
[NASA-TP-3162] p 23 N92-17070

REGENERATION (PHYSIOLOGY)

Biological Life Support Technologies: Commercial Opportunities
[NASA-CP-3094] p 36 N91-13842
Controlled Ecological Life Support Systems: Natural and Artificial Ecosystems
[NASA-CP-10040] p 40 N91-24744

REGRESSION ANALYSIS

Correlation and prediction of dynamic human isolated joint strength from lean body mass
[NASA-TP-3207] p 40 N92-26682

REGULATIONS

Twenty-Second Annual NASA Supply and Equipment Management Conference
[NASA-CP-10042] p 46 N91-11591

REINFORCED PLATES

Experimental behavior of graphite-epoxy Y-stiffened specimens loaded in compression
[NASA-TP-3171] p 30 N92-23115

RELATIVE BIOLOGICAL EFFECTIVENESS (RBE)

Cellular track model of biological damage to mammalian cell cultures from galactic cosmic rays
[NASA-TP-3055] p 50 N91-16981
Cellular repair/misrepair track model
[NASA-TP-3124] p 42 N92-11685
Track structure model of cell damage in space flight
[NASA-TP-3235] p 39 N92-34154

RELATIVISTIC PARTICLES

Inclusive inelastic scattering of heavy ions and nuclear correlations
[NASA-TP-3026] p 46 N91-13985

RELIABILITY

Reliability training
[NASA-RP-1253] p 15 N92-32456

RELIABILITY ANALYSIS

Model reduction by trimming for a class of semi-Markov reliability models and the corresponding error bound
[NASA-TP-3089] p 43 N91-25741
Structural deterministic safety factors selection criteria and verification
[NASA-TP-3203] p 30 N92-19355
Advanced techniques in reliability model representation and solution
[NASA-TP-3242] p 43 N92-33483

RELIABILITY ENGINEERING

NASA-LaRc Flight-Critical Digital Systems Technology Workshop
[NASA-CP-10028] p 11 N91-24200
Fault tolerance of artificial neural networks with applications in critical systems
[NASA-TP-3187] p 42 N92-22285

RELIEF MAPS

Atlas of wide-field-of-view outgoing longwave radiation derived from Nimbus 7 Earth radiation budget data set, November 1985 to October 1987
[NASA-RP-1261] p 35 N91-24719

REMOTE MANIPULATOR SYSTEM

Automation and Robotics for Space-Based Systems, 1991
[NASA-CP-10098] p 43 N92-27763

REMOTE SENSING

Multisource Data Integration in Remote Sensing
[NASA-CP-3099] p 32 N91-15615
NASA/MSFC FY90 Global Scale Atmospheric Processes Research Program Review
[NASA-CP-3093] p 35 N91-16500
Sixteenth International Laser Radar Conference, part 1
[NASA-CP-3158-PT-1] p 28 N92-29228
Sixteenth International Laser Radar Conference, part 2
[NASA-CP-3158-PT-2] p 28 N92-31013

REMOTE SENSORS

Multisource Data Integration in Remote Sensing
[NASA-CP-3099] p 32 N91-15615

RENE 41

Thermal and structural tests of Rene 41 honeycomb integral-tank concept for future space transportation systems
[NASA-TP-3145] p 30 N92-24205

REPORTS

NASA scientific and technical publications: A catalog of special publications, reference publications, conference publications, and technical papers, 1989
[NASA-SP-7063(04)] p 47 N91-13374

NASA scientific and technical publications: A catalog of special publications, reference publications, conference publications, and technical papers, 1987-1990
[NASA-SP-7063(05)] p 47 N91-24939

RESCUE OPERATIONS

Numerical analysis and simulation of an assured crew return vehicle flow field
[NASA-TP-3101] p 26 N92-10161

RESEARCH AND DEVELOPMENT

Microbiology on Space Station Freedom
[NASA-CP-3108] p 37 N91-18573
Proceedings of the X-15 First Flight 30th Anniversary Celebration
[NASA-CP-3105] p 10 N91-20071
National Educators' Workshop: Update 1988. Standard Experiments in Engineering Materials Science and Technology
[NASA-CP-3060] p 20 N91-20207
The Federal Conference on Intelligent Processing Equipment
[NASA-CP-3138] p 52 N92-24987
Computational Fluid Dynamics --- numerical methods and algorithm development
[NASA-CP-10078] p 12 N92-25808

RESEARCH FACILITIES

Engines and innovation: Lewis Laboratory and American propulsion technology
[NASA-SP-4306] p 51 N91-15975
NASA Wallops Flight Facility Air-Sea Interaction Research Facility
[NASA-RP-1277] p 36 N92-25981
Sixteenth International Laser Radar Conference, part 1
[NASA-CP-3158-PT-1] p 28 N92-29228

RESEARCH PROJECTS

Nuclear Thermal Propulsion: A Joint NASA/DOE/DOD Workshop
[NASA-CP-10079] p 20 N92-11088

RESIDUAL STRENGTH

An examination of the damage tolerance enhancement of carbon/epoxy using an outer lamina of spectra (R)
[NASA-TP-3160] p 21 N92-11142

RESILIENCY

Effect of temperature and gap opening rate on the resiliency of candidate solid rocket booster O-ring materials
[NASA-TP-3226] p 23 N92-27194

RESONANT VIBRATION

Flow-induced resonance of screen-covered cavities
[NASA-TP-3052] p 25 N91-15499

RESOURCE ALLOCATION

Space Network Control Conference on Resource Allocation Concepts and Approaches
[NASA-CP-3124] p 16 N92-11039

RESOURCES MANAGEMENT

Resource envelope concepts for mission planning
[NASA-TP-3139] p 15 N91-29209

REUSABLE ROCKET ENGINES

Structural Integrity and Durability of Reusable Space Propulsion Systems
[NASA-CP-10030] p 19 N91-24307

REYNOLDS NUMBER

Comparison of a two-dimensional adaptive-wall technique with analytical wall interference correction techniques
[NASA-TP-3132] p 7 N92-20494

RHEOLOGY

Lewis icing research tunnel test of the aerodynamic effects of aircraft ground deicing/anti-icing fluids
[NASA-TP-3238] p 10 N92-30395

RIGID STRUCTURES

Rigid-body-control subsystem sizing for an Earth science geostationary platform
[NASA-TP-3087] p 17 N91-22302

ROBOT ARMS

A generalized method for multiple robotic manipulator programming applied to vertical-up welding
[NASA-TP-3163] p 24 N92-11218
Automation and Robotics for Space-Based Systems, 1991
[NASA-CP-10098] p 43 N92-27763
Cable compliance
[NASA-TP-3216] p 24 N92-30378

ROBOT CONTROL

Fourth NASA Workshop on Computational Control of Flexible Aerospace Systems, part 1
[NASA-CP-10065-PT-1] p 17 N91-22307
The effect of bandwidth on telerobot system performance
[NASA-TP-3152] p 28 N91-30540
A generalized method for multiple robotic manipulator programming applied to vertical-up welding
[NASA-TP-3163] p 24 N92-11218
The Federal Conference on Intelligent Processing Equipment
[NASA-CP-3138] p 52 N92-24987

Automation and Robotics for Space-Based Systems, 1991

[NASA-CP-10098] p 43 N92-27763

ROBOT DYNAMICS

A generalized method for multiple robotic manipulator programming applied to vertical-up welding
[NASA-TP-3163] p 24 N92-11218

ROBOTICS

Fourth Annual Workshop on Space Operations Applications and Research (SOAR 90)
[NASA-CP-3103-VOL-1] p 41 N91-20641
Fourth NASA Workshop on Computational Control of Flexible Aerospace Systems, part 2
[NASA-CP-10065-PT-2] p 17 N91-22331
The 1991 Goddard Conference on Space Applications of Artificial Intelligence
[NASA-CP-3110] p 43 N91-22769
Technology 2000, volume 1
[NASA-CP-3109-VOL-1] p 52 N91-23021
The 25th Aerospace Mechanisms Symposium
[NASA-CP-3113] p 30 N91-24603
Large space structures and systems in the space station era: A bibliography with indexes (supplement 03)
[NASA-SP-7085(03)] p 18 N92-22317
Fifth Annual Workshop on Space Operations Applications and Research (SOAR 1991), volume 2
[NASA-CP-3127-VOL-2] p 41 N92-22324
Technology 2001: The Second National Technology Transfer Conference and Exposition, volume 1
[NASA-CP-3136-VOL-1] p 52 N92-22423
Technology 2001: The Second National Technology Transfer Conference and Exposition, volume 2
[NASA-CP-3136-VOL-2] p 52 N92-22676
Automation and Robotics for Space-Based Systems, 1991
[NASA-CP-10098] p 43 N92-27763
Ongoing Progress in Spacecraft Controls
[NASA-CP-10099] p 19 N92-28730
Cable compliance
[NASA-TP-3216] p 24 N92-30378

ROBOTS

Automation and Robotics for Space-Based Systems, 1991
[NASA-CP-10098] p 43 N92-27763
Development of a truss joint for robotic assembly of space structures
[NASA-TP-3214] p 31 N92-27974

ROBUSTNESS (MATHEMATICS)

On the formulation of a minimal uncertainty model for robust control with structured uncertainty
[NASA-TP-3094] p 13 N92-10027

ROCKET ENGINE DESIGN

Nuclear Thermal Propulsion: A Joint NASA/DOE/DOD Workshop
[NASA-CP-10079] p 20 N92-11088
Rocket-Based Combined-Cycle (RBCC) Propulsion Technology Workshop. Tutorial session
[NASA-CP-10090] p 20 N92-21517
Tenth Workshop for Computational Fluid Dynamic Applications in Rocket Propulsion, part 2
[NASA-CP-3163-PT-2] p 27 N92-32245

ROCKET ENGINES

Rocket-Based Combined-Cycle (RBCC) Propulsion Technology Workshop. Tutorial session
[NASA-CP-10090] p 20 N92-21517

ROCKET EXHAUST

Optical measurements on solid specimens of solid rocket motor exhaust and solid rocket motor slag
[NASA-TP-3177] p 20 N92-20949

ROCKET NOSE CONES

Computational methods for frictionless contact with application to Space Shuttle Orbiter nose-gear tires
[NASA-TP-3073] p 30 N91-22576

ROLLING CONTACT LOADS

Computational methods for frictionless contact with application to Space Shuttle Orbiter nose-gear tires
[NASA-TP-3073] p 30 N91-22576

ROLLING MOMENTS

A nozzle internal performance prediction method
[NASA-TP-3221] p 8 N92-33625

ROTARY WINGS

Development of a full-scale transmission testing procedure to evaluate advanced lubricants
[NASA-TP-3265] p 28 N92-30396

ROTATING BODIES

Definition and design of an experiment to test raster scanning with rotating unbalanced-mass devices on gimbaled payloads
[NASA-TP-3249] p 24 N92-29677

ROTATING FLUIDS

Experimental measurement of the orbital paths of particles sedimenting within a rotating viscous fluid as influenced by gravity
[NASA-TP-3200] p 40 N92-28897

ROTATION

- Reconfiguring the RUM experiment to test circular scanning with rotating unbalanced-mass devices on gimbaled payloads
[NASA-TP-3282] p 25 N92-33601
- Inertial oscillation of a vertical rotating draft with application to a supercell storm: Video supplement to NASA Technical Paper 3230
[NASA-TP-3230-VIDEO-SUPPL] p 36 N92-34246

ROTOR AERODYNAMICS

- Transonic flow analysis for rotors. Part 3: Three-dimensional, quasi-steady, Euler calculation
[NASA-TP-2375] p 3 N91-10007

ROTOR DYNAMICS

- Limit cycle vibrations in turbomachinery
[NASA-TP-3181] p 20 N92-14108
- Rotordynamic Instability Problems in High-Performance Turbomachinery, 1990
[NASA-CP-3122] p 28 N92-14346

ROTORS

- Limit cycle vibrations in turbomachinery
[NASA-TP-3181] p 20 N92-14108

RUNGE-KUTTA METHOD

- Validation of three-dimensional incompressible spatial direct numerical simulation code: A comparison with linear stability and parabolic stability equation theories for boundary-layer transition on a flat plate
[NASA-TP-3205] p 8 N92-30295

S**SAFETY**

- Twenty-Second Annual NASA Supply and Equipment Management Conference
[NASA-CP-10042] p 46 N91-11591

SAFETY FACTORS

- Plate and butt-weld stresses beyond elastic limit, material and structural modeling
[NASA-TP-3075] p 29 N91-16413
- Flight tests with a data link used for air traffic control information exchange
[NASA-TP-3135] p 11 N91-31143
- Structural deterministic safety factors selection criteria and verification
[NASA-TP-3203] p 30 N92-19355

SAFETY MANAGEMENT

- The development of the NASA aviation safety reporting system
[NASA-RP-1114] p 10 N91-70436

SAGE SATELLITE

- SAGE 1 data user's guide
[NASA-RP-1275] p 34 N92-33097

SAMARIUM

- The 23 to 300 C demagnetization resistance of samarium-cobalt permanent magnets
[NASA-TP-3119] p 25 N92-11252

SANDS

- Sand and Dust on Mars
[NASA-CP-10074] p 50 N91-27057

SANDWICH STRUCTURES

- Optimization of composite sandwich cover panels subjected to compressive loadings
[NASA-TP-3173] p 21 N92-20679
- Thermal and structural tests of Rene 41 honeycomb integral-tank concept for future space transportation systems
[NASA-TP-3145] p 30 N92-24205

SATELLITE ANTENNAS

- A new fabrication method for precision antenna reflectors for space flight and ground test
[NASA-TP-3078] p 17 N91-21185

SATELLITE ATTITUDE CONTROL

- Flight Mechanics/Estimation Theory Symposium, 1990
[NASA-CP-3102] p 14 N91-17073
- Rigid-body-control subsystem sizing for an Earth science geostationary platform
[NASA-TP-3087] p 17 N91-22302
- A nonlinear estimator for reconstructing the angular velocity of a spacecraft without rate gyros
[NASA-TP-3178] p 24 N92-13343

SATELLITE COMMUNICATION

- Space Communications Technology Conference: Onboard Processing and Switching
[NASA-CP-3132] p 25 N92-14202
- Destination-directed, packet-switching architecture for 30/20-GHz FDMA/TDM geostationary communications satellite network
[NASA-TP-3201] p 16 N92-19762
- Advanced Modulation and Coding Technology Conference
[NASA-CP-10053] p 16 N92-22001

SATELLITE CONTROL

- A scheme for bandpass filtering magnetometer measurements to reconstruct tethered satellite skiprope motion
[NASA-TP-3123] p 42 N91-25629

SATELLITE INSTRUMENTS

- The 22nd Annual Precise Time and Time Interval (PTTI) Applications and Planning Meeting
[NASA-CP-3116] p 44 N91-25755
- Advanced Modulation and Coding Technology Conference
[NASA-CP-10053] p 16 N92-22001
- SAGE 1 data user's guide
[NASA-RP-1275] p 34 N92-33097
- Proceedings of the 23rd Annual Precise Time and Time Interval (PTTI) Applications and Planning Meeting
[NASA-CP-3159] p 44 N92-33350

SATELLITE NETWORKS

- Space Communications Technology Conference: Onboard Processing and Switching
[NASA-CP-3132] p 25 N92-14202
- Destination-directed, packet-switching architecture for 30/20-GHz FDMA/TDM geostationary communications satellite network
[NASA-TP-3201] p 16 N92-19762

SATELLITE OBSERVATION

- FIRE Science Results 1988
[NASA-CP-3083] p 34 N91-10448
- Atlas of wide-field-of-view outgoing longwave radiation derived from Nimbus 7 Earth radiation budget data set, November 1985 to October 1987
[NASA-RP-1261] p 35 N91-24719
- Atlas of the Earth's radiation budget as measured by Nimbus-7: May 1979 to May 1980
[NASA-RP-1263] p 35 N91-24720
- NASA/MSFC FY91 Global Scale Atmospheric Processes Research Program Review
[NASA-CP-3126] p 35 N91-32660

SATELLITE TEMPERATURE

- LEDF: 69 Months in Space. First Post-Retrieval Symposium, part 3
[NASA-CP-3134-PT-3] p 52 N92-27083

SATELLITES

- Shortcomings in ground testing, environment simulations, and performance predictions for space applications
[NASA-TP-3217] p 23 N92-22593

SATURATION (CHEMISTRY)

- Saturation point model for the formation of metal nitrate in nitrogen tetroxide oxidizer
[NASA-TP-3107] p 26 N91-24542

SATURN 5 LAUNCH VEHICLES

- The role of failure/problems in engineering: A commentary of failures experienced - lessons learned
[NASA-TP-3213] p 24 N92-22235

SCALE MODELS

- Low-speed, powered ground effects of a generic, hypersonic configuration
[NASA-TP-3092] p 5 N91-25103
- Wind tunnel aerodynamic characteristics of a transport-type airfoil in a simulated heavy rain environment
[NASA-TP-3184] p 8 N92-31532

SCANNERS

- Reconfiguring the RUM experiment to test circular scanning with rotating unbalanced-mass devices on gimbaled payloads
[NASA-TP-3282] p 25 N92-33601

SCANNING

- Reconfiguring the RUM experiment to test circular scanning with rotating unbalanced-mass devices on gimbaled payloads
[NASA-TP-3282] p 25 N92-33601

SCIENTISTS

- NASA engineers and the age of Apollo
[NASA-SP-4104] p 52 N92-28344

SCREENS

- Flow-induced resonance of screen-covered cavities
[NASA-TP-3052] p 25 N91-15499

SEA LEVEL

- West Antarctic Ice Sheet Initiative. Volume 2: Discipline Reviews
[NASA-CP-3115-VOL-2] p 32 N91-26573

SEALING

- Effect of temperature and gap opening rate on the resiliency of candidate solid rocket booster O-ring materials
[NASA-TP-3226] p 23 N92-27194

SEATS

- Effect of crash pulse shape on seat stroke requirements for limiting loads on occupants of aircraft
[NASA-TP-3126] p 30 N92-18053

SEDIMENTS

- Experimental measurement of the orbital paths of particles sedimenting within a rotating viscous fluid as influenced by gravity
[NASA-TP-3200] p 40 N92-28897

SELECTION

- First among equals: The selection of NASA space science experiments
[NASA-SP-4215] p 52 N91-28060

SEMISPAN MODELS

- Full-scale semispan tests of a business-jet wing with a natural laminar flow airfoil
[NASA-TP-3133] p 6 N91-30098
- NACA 0015 wing pressure and trailing vortex measurements
[NASA-TP-3151] p 6 N92-10981

SENSORY PERCEPTION

- Human Machine Interfaces for Teleoperators and Virtual Environments Conference
[NASA-CP-10071] p 40 N92-11638

SERVICE LIFE

- Long-term life testing of Geostationary Operational Environmental Satellite (GOES) encoder lamps
[NASA-RP-1273] p 23 N92-20063
- Reliability training
[NASA-RP-1253] p 15 N92-32456

SERVOCONTROL

- Development of an integrated aeroservoelastic analysis program and correlation with test data
[NASA-TP-3120] p 2 N91-26113

SERVOMECHANISMS

- Definition and design of an experiment to test raster scanning with rotating unbalanced-mass devices on gimbaled payloads
[NASA-TP-3249] p 24 N92-29677
- Reconfiguring the RUM experiment to test circular scanning with rotating unbalanced-mass devices on gimbaled payloads
[NASA-TP-3282] p 25 N92-33601

SERVOMOTORS

- Definition and design of an experiment to test raster scanning with rotating unbalanced-mass devices on gimbaled payloads
[NASA-TP-3249] p 24 N92-29677
- Reconfiguring the RUM experiment to test circular scanning with rotating unbalanced-mass devices on gimbaled payloads
[NASA-TP-3282] p 25 N92-33601

SET THEORY

- Proceedings of the Second Joint Technology Workshop on Neural Networks and Fuzzy Logic, volume 2
[NASA-CP-10061-VOL-2] p 43 N91-20811

SHAPES

- Effect of crash pulse shape on seat stroke requirements for limiting loads on occupants of aircraft
[NASA-TP-3126] p 30 N92-18053
- Comparison of jet plume shape predictions and plume influence on sonic boom signature
[NASA-TP-3172] p 7 N92-25133

SHEAR STRENGTH

- A novel method of testing the shear strength of thick honeycomb composites
[NASA-TP-3108] p 21 N91-21242

SHOCK ABSORBERS

- Determination of the flight hardware configuration of an energy absorbing attenuator for the proposed Space Station crew and equipment translation aid cart
[NASA-TP-3084] p 29 N91-21556

SHOCK LAYERS

- Stagnation-point heat-transfer rate predictions at aeroassist flight conditions
[NASA-TP-3208] p 27 N92-31281

SHOCK TUNNELS

- An analysis of combustion studies in shock expansion tunnels and reflected shock tunnels
[NASA-TP-3224] p 22 N92-28374

SHOCK WAVE INTERACTION

- Shock wave interaction with an abrupt area change
[NASA-TP-3113] p 6 N91-27140

SHOCK WAVE PROPAGATION

- High-Speed Research: Sonic Boom, volume 1
[NASA-CP-3172] p 11 N92-33874

SHOCK WAVES

- Shock wave interaction with an abrupt area change
[NASA-TP-3113] p 6 N91-27140
- A simplified method for thermal analysis of a cowl leading edge subject to intense local shock-wave-interference heating
[NASA-TP-3167] p 27 N92-24797

SHORT TAKEOFF AIRCRAFT

- NASA Computational Fluid Dynamics Conference. Volume 2: Sessions 7-12
[NASA-CP-10038-VOL-2] p 4 N91-10868
- Static internal performance of ventral and rear nozzle concepts for short-takeoff and vertical-landing aircraft
[NASA-TP-3103] p 6 N92-10975

SHOULDERS

- The validation of a human force model to predict dynamic forces resulting from multi-joint motions
[NASA-TP-3206] p 40 N92-26538
- SIGNAL ANALYSIS**
Time-frequency representation of a highly nonstationary signal via the modified Wigner distribution
[NASA-TP-3215] p 25 N92-20492
- SIGNAL PROCESSING**
Proceedings of the Second Joint Technology Workshop on Neural Networks and Fuzzy Logic, volume 1
[NASA-CP-10061-VOL-1] p 43 N91-21778
Space and Earth Science Data Compression Workshop
[NASA-CP-3130] p 41 N92-12425
Time-frequency representation of a highly nonstationary signal via the modified Wigner distribution
[NASA-TP-3215] p 25 N92-20492
- SIGNATURES**
Comparison of jet plume shape predictions and plume influence on sonic boom signature
[NASA-TP-3172] p 7 N92-25133
- SILICON CARBIDES**
Gibbs free energy of reactions involving SiC, Si₃N₄, H₂, and H₂O as a function of temperature and pressure
[NASA-TP-3275] p 23 N92-31278
- SILICON NITRIDES**
Gibbs free energy of reactions involving SiC, Si₃N₄, H₂, and H₂O as a function of temperature and pressure
[NASA-TP-3275] p 23 N92-31278
- SILVER ZINC BATTERIES**
The 1991 NASA Aerospace Battery Workshop
[NASA-CP-3140] p 33 N92-22740
The 1990 NASA Aerospace Battery Workshop
[NASA-CP-3119] p 20 N92-27130
- SIMULATION**
NASA Computational Fluid Dynamics Conference, Volume 1: Sessions 1-6
[NASA-CP-10038-VOL-1] p 4 N91-10839
Simulation of real-gas effects on pressure distributions for aerassist flight experiment vehicle and comparison with prediction
[NASA-TP-3157] p 27 N92-20677
- SINGLE EVENT UPSETS**
Shortcomings in ground testing, environment simulations, and performance predictions for space applications
[NASA-TP-3217] p 23 N92-22593
- SKIN TEMPERATURE (NON-BIOLOGICAL)**
Numerical studies of convective cooling for a locally heated skin
[NASA-TP-3100] p 26 N91-22509
- SLAGS**
Optical measurements on solid specimens of solid rocket motor exhaust and solid rocket motor slag
[NASA-TP-3177] p 20 N92-20949
- SLENDER WINGS**
Wind tunnel investigation of the interaction and breakdown characteristics of slender wing vortices at subsonic, transonic, and supersonic speeds
[NASA-TP-3114] p 6 N92-12994
The natural flow wing-design concept
[NASA-TP-3193] p 7 N92-25202
- SLUSH HYDROGEN**
Feasibility study of a low-energy gamma ray system for measuring quantity and flow rate of slush hydrogen
[NASA-TP-3150] p 19 N92-25147
- SMALL SCIENTIFIC SATELLITES**
Small Explorer Data System MIL-STD-1773 fiber optic bus
[NASA-TP-3227] p 16 N92-26667
- SMOOTHING**
Trajectory fitting in function space with application to analytic modeling of surfaces
[NASA-TP-3232] p 8 N92-30747
- SODIUM SULFUR BATTERIES**
The 1991 NASA Aerospace Battery Workshop
[NASA-CP-3140] p 33 N92-22740
- SOFTWARE ENGINEERING**
Space Transportation Avionics Technology Symposium, Volume 2: Conference Proceedings
[NASA-CP-3081-VOL-2] p 11 N91-17020
Proceedings of the Second Annual NASA Science Internet User Working Group Conference
[NASA-CP-3117] p 48 N91-27009
Beyond the Baseline 1991: Proceedings of the Space Station Evolution Symposium, Volume 2: Space Station Freedom, part 2
[NASA-CP-10083-VOL-2-PT-2] p 18 N92-17348
Software Surface Modeling and Grid Generation Steering Committee
[NASA-CP-3143] p 42 N92-24397
Software design for automated assembly of truss structures
[NASA-TP-3198] p 43 N92-28375

SOFTWARE TOOLS

- Second CLIPS Conference Proceedings, volume 2
[NASA-CP-10085-VOL-2] p 42 N92-16590
Advanced techniques in reliability model representation and solution
[NASA-TP-3242] p 43 N92-33483
- SOLAR ACTIVITY EFFECTS**
Climate Impact of Solar Variability
[NASA-CP-3086] p 50 N91-12456
- SOLAR ARRAYS**
Space Photovoltaic Research and Technology, 1989
[NASA-CP-3107] p 19 N91-19182
MILSTAR's flexible substrate solar array: Lessons learned, addendum
[NASA-CP-3147-ADD] p 33 N92-26895
Influence of mass moment of inertia on normal modes of preloaded solar array mast
[NASA-TP-3273] p 31 N92-33476
- SOLAR CELLS**
Space Photovoltaic Research and Technology, 1989
[NASA-CP-3107] p 19 N91-19182
Space Photovoltaic Research and Technology Conference
[NASA-CP-3121] p 19 N91-30203
- SOLAR CORPUSCULAR RADIATION**
Analyses of risks associated with radiation exposure from past major solar particle events
[NASA-TP-3137] p 50 N91-31061
- SOLAR RADIATION**
Climate Impact of Solar Variability
[NASA-CP-3086] p 50 N91-12456
- SOLAR SYSTEM**
Planetary geosciences, 1989-1990
[NASA-SP-508] p 50 N92-28345
- SOLID MECHANICS**
Improved accuracy for finite element structural analysis via a new integrated force method
[NASA-TP-3204] p 30 N92-22227
- SOLID PROPELLANT ROCKET ENGINES**
Axisymmetric shell analysis of the space shuttle solid rocket booster field joint
[NASA-TP-3033] p 28 N91-14618
Optical measurements on solid specimens of solid rocket motor exhaust and solid rocket motor slag
[NASA-TP-3177] p 20 N92-20949
Tenth Workshop for Computational Fluid Dynamic Applications in Rocket Propulsion, part 2
[NASA-CP-3163-PT-2] p 27 N92-32245
Tenth Workshop for Computational Fluid Dynamic Applications in Rocket Propulsion, part 1
[NASA-CP-3163-PT-1] p 27 N92-32278
- SOLID ROCKET PROPELLANTS**
Optical measurements on solid specimens of solid rocket motor exhaust and solid rocket motor slag
[NASA-TP-3177] p 20 N92-20949
- SONIC BOOMS**
A loudness calculation procedure applied to shaped sonic booms
[NASA-TP-3134] p 45 N92-11765
The atmospheric effects of stratospheric aircraft: A first program report
[NASA-RP-1272] p 33 N92-19121
Comparison of jet plume shape predictions and plume influence on sonic boom signature
[NASA-TP-3172] p 7 N92-25133
High-Speed Research: Sonic Boom, volume 1
[NASA-CP-3172] p 11 N92-33874
- SOOT**
International Workshop on Stratospheric Aerosols: Measurements, Properties, and Effects
[NASA-CP-3114] p 32 N91-32528
- SOUND FIELDS**
J-85 jet engine noise measured in the ONERA S1 wind tunnel and extrapolated to far field
[NASA-TP-3053] p 45 N91-19823
- SOUND PROPAGATION**
Monograph on propagation of sound waves in curved ducts
[NASA-RP-1248] p 44 N91-15848
Fourth International Symposium on Long-Range Sound Propagation
[NASA-CP-3101] p 44 N91-16682
- SOUND WAVES**
Monograph on propagation of sound waves in curved ducts
[NASA-RP-1248] p 44 N91-15848
Wind turbine acoustics
[NASA-TP-3057] p 44 N91-16679
- SPACE CHARGE**
Current Collection from Space Plasmas
[NASA-CP-3089] p 46 N91-17713
- SPACE COMMERCIALIZATION**
Measurement and Characterization of the Acceleration Environment on Board the Space Station
[NASA-CP-3088] p 48 N91-12401

- Biological Life Support Technologies: Commercial Opportunities
[NASA-CP-3094] p 36 N91-13842
Large space structures and systems in the space station era: A bibliography with indexes (supplement 03)
[NASA-SP-7085(03)] p 18 N92-22317
Development of a truss joint for robotic assembly of space structures
[NASA-TP-3214] p 31 N92-27974
- SPACE COMMUNICATION**
Space Network Control Conference on Resource Allocation Concepts and Approaches
[NASA-CP-3124] p 16 N92-11039
Space Communications Technology Conference: Onboard Processing and Switching
[NASA-CP-3132] p 25 N92-14202
- SPACE DEBRIS**
Optical measurements on solid specimens of solid rocket motor exhaust and solid rocket motor slag
[NASA-TP-3177] p 20 N92-20949
Fifth Annual Workshop on Space Operations Applications and Research (SOAR 1991), volume 2
[NASA-CP-3127-VOL-2] p 41 N92-22324
Orbital debris: Technical issues and future directions
[NASA-CP-10077] p 49 N92-33478
- SPACE ENVIRONMENT SIMULATION**
Sixteenth Space Simulation Conference Confirming Spaceworthiness Into the Next Millennium
[NASA-CP-3096] p 17 N91-19126
- SPACE ERECTABLE STRUCTURES**
Launch vehicle integration options for a large Earth sciences geostationary platform concept
[NASA-TP-3083] p 15 N91-27180
Packaging, development, and on-orbit assembly options for large geostationary spacecraft
[NASA-TP-3088] p 17 N91-27182
Development of a truss joint for robotic assembly of space structures
[NASA-TP-3214] p 31 N92-27974
Software design for automated assembly of truss structures
[NASA-TP-3198] p 43 N92-28375
- SPACE EXPLORATION**
Exobiology on Mars
[NASA-CP-10055] p 41 N91-15691
Vision-21: Space Travel for the Next Millennium
[NASA-CP-10059] p 13 N91-22139
International exploration of Mars. A special bibliography
[NASA-SP-7091] p 49 N91-24965
MIRACAL: A mission radiation calculation program for analysis of lunar and interplanetary missions
[NASA-TP-3211] p 51 N92-25100
Ongoing Progress in Spacecraft Controls
[NASA-CP-10099] p 19 N92-28730
Electrical and chemical interactions at Mars Workshop, part 1
[NASA-CP-10093] p 50 N92-30302
- SPACE FLIGHT**
Proceedings of the X-15 First Flight 30th Anniversary Celebration
[NASA-CP-3105] p 10 N91-20071
- SPACE FLIGHT FEEDING**
Nutritional Requirements for Space Station Freedom Crews
[NASA-CP-3146] p 40 N92-25961
- SPACE LABORATORIES**
Exobiology in Earth orbit: The results of science workshops held at NASA, Ames Research Center
[NASA-SP-500] p 41 N91-14725
- SPACE MANUFACTURING**
International Workshop on Vibration Isolation Technology for Microgravity Science Applications
[NASA-CP-10094] p 24 N92-28436
- SPACE MISSIONS**
Upper stages using liquid propulsion and metallized propellants
[NASA-TP-3191] p 20 N92-17151
- SPACE OBSERVATIONS (FROM EARTH)**
Space and Earth Science Data Compression Workshop
[NASA-CP-3130] p 41 N92-12425
- SPACE PERCEPTION**
Effect of short-term exposure to stereoscopic three-dimensional flight displays on real-world depth perception
[NASA-TP-3117] p 11 N92-13065
Visually Guided Control of Movement
[NASA-CP-3118] p 39 N92-21467
- SPACE PLASMAS**
Current Collection from Space Plasmas
[NASA-CP-3089] p 46 N91-17713
Fifth Annual Workshop on Space Operations Applications and Research (SOAR 1991), volume 2
[NASA-CP-3127-VOL-2] p 41 N92-22324

SPACE PROCESSING

- Measurement and Characterization of the Acceleration Environment on Board the Space Station
[NASA-CP-3088] p 48 N91-12401
- Space Station Freedom Toxic and Reactive Materials Handling
[NASA-CP-3085] p 48 N91-15930

SPACE SHUTTLE BOOSTERS

- Axisymmetric shell analysis of the space shuttle solid rocket booster field joint
[NASA-TP-3033] p 28 N91-14618
- Optical measurements on solid specimens of solid rocket motor exhaust and solid rocket motor slag
[NASA-TP-3177] p 20 N92-20949
- The role of failure/problems in engineering: A commentary of failures experienced - lessons learned
[NASA-TP-3213] p 24 N92-22235

SPACE SHUTTLE MAIN ENGINE

- Limit cycle vibrations in turbomachinery
[NASA-TP-3181] p 20 N92-14108
- Time-frequency representation of a highly nonstationary signal via the modified Wigner distribution
[NASA-TP-3215] p 25 N92-20492
- The role of failure/problems in engineering: A commentary of failures experienced - lessons learned
[NASA-TP-3213] p 24 N92-22235
- Effect of type of load on stress analysis of thin-walled ducts
[NASA-TP-3248] p 31 N92-26669
- Tenth Workshop for Computational Fluid Dynamic Applications in Rocket Propulsion, part 2
[NASA-CP-3163-PT-2] p 27 N92-32245

SPACE SHUTTLE MISSION 61-C

- The microgravity environment of the Space Shuttle Columbia payload bay during STS-32
[NASA-TP-3141] p 49 N92-11931

SPACE SHUTTLE ORBITERS

- Fourth Annual Workshop on Space Operations Applications and Research (SOAR 90)
[NASA-CP-3103-VOL-2] p 41 N91-20702
- Computational methods for frictionless contact with application to Space Shuttle Orbiter nose-gear tires
[NASA-TP-3073] p 30 N91-22576

SPACE SHUTTLE PAYLOADS

- The microgravity environment of the Space Shuttle Columbia middeck during STS-32
[NASA-TP-3140] p 48 N92-11930
- The microgravity environment of the Space Shuttle Columbia payload bay during STS-32
[NASA-TP-3141] p 49 N92-11931
- Graphite/epoxy composite adapters for the Space Shuttle/Centaur vehicle
[NASA-TP-3014] p 15 N92-31251

SPACE SHUTTLES

- Reliability of a Shuttle reaction timer
[NASA-TP-3176] p 40 N92-16562
- Payload bay doors and radiator panels familiarization handbook
[NASA-TM-107793] p 15 N92-20676
- The role of failure/problems in engineering: A commentary of failures experienced - lessons learned
[NASA-TP-3213] p 24 N92-22235

- Fifth Annual Workshop on Space Operations Applications and Research (SOAR 1991), volume 2
[NASA-CP-3127-VOL-2] p 41 N92-22324
- International Workshop on Vibration Isolation Technology for Microgravity Science Applications
[NASA-CP-10094] p 24 N92-28436

SPACE STATION FREEDOM

- Space Station Freedom Toxic and Reactive Materials Handling
[NASA-CP-3085] p 48 N91-15930
- Microbiology on Space Station Freedom
[NASA-CP-3108] p 37 N91-18573
- Radiation risk predictions for Space Station Freedom orbits
[NASA-TP-3098] p 51 N91-26107
- Resource envelope concepts for mission planning
[NASA-TP-3139] p 15 N91-29209
- Numerical analysis and simulation of an assured crew return vehicle flow field
[NASA-TP-3101] p 26 N92-10161
- Automating a spacecraft electrical power system using expert systems
[NASA-TP-3161] p 20 N92-12052
- Beyond the Baseline 1991: Proceedings of the Space Station Evolution Symposium. Volume 1: Space Station Freedom, part 1
[NASA-CP-10083-VOL-1-PT-1] p 18 N92-17098
- Beyond the Baseline 1991: Proceedings of the Space Station Evolution Symposium. Volume 2: Space Station Freedom, part 2
[NASA-CP-10083-VOL-2-PT-2] p 18 N92-17348

- Beyond the Baseline 1991: Proceedings of the Space Station Evolution Symposium. Volume 1: Space Station Freedom, part 2
[NASA-CP-10083-VOL-1-PT-2] p 18 N92-17409
- Beyond the Baseline 1991: Proceedings of the Space Station Evolution Symposium. Volume 2: Space Station Freedom, part 1
[NASA-CP-10083-VOL-2-PT-1] p 18 N92-17768
- Nutritional Requirements for Space Station Freedom Crews
[NASA-CP-3146] p 40 N92-25961
- MILSTAR's flexible substrate solar array: Lessons learned, addendum
[NASA-CP-3147-ADD] p 33 N92-26895
- International Workshop on Vibration Isolation Technology for Microgravity Science Applications
[NASA-CP-10094] p 24 N92-28436

SPACE STATION PAYLOADS

- Space Station Freedom Toxic and Reactive Materials Handling
[NASA-CP-3085] p 48 N91-15930

SPACE STATIONS

- Measurement and Characterization of the Acceleration Environment on Board the Space Station
[NASA-CP-3088] p 48 N91-12401
- Radiation protection for human missions to the Moon and Mars
[NASA-TP-3079] p 50 N91-17999
- Large space structures and systems in the space station era: A bibliography with indexes
[NASA-SP-7085(01)] p 17 N91-18199
- Microbiology on Space Station Freedom
[NASA-CP-3108] p 37 N91-18573
- Manual Control Aspects of Orbital Flight
[NASA-CP-10056] p 13 N91-20147
- Benefits from synergies and advanced technologies for an advanced-technology space station
[NASA-TP-3067] p 14 N91-20177
- Fourth Annual Workshop on Space Operations Applications and Research (SOAR 90)
[NASA-CP-3103-VOL-2] p 41 N91-20702
- Determination of the flight hardware configuration of an energy absorbing attenuator for the proposed Space Station crew and equipment translation aid cart
[NASA-TP-3084] p 29 N91-21556
- Radiation risk predictions for Space Station Freedom orbits
[NASA-TP-3098] p 51 N91-26107
- Technology for the Future: In-Space Technology Experiments Program, part 1
[NASA-CP-10073-PT-1] p 14 N91-27177
- Technology for the Future: In-Space Technology Experiments Program, part 2
[NASA-CP-10073-PT-2] p 14 N91-27178
- Launch vehicle integration options for a large Earth sciences geostationary platform concept
[NASA-TP-3083] p 15 N91-27180
- Large space structures and systems in the space station era: A bibliography with indexes
[NASA-SP-7085(02)] p 18 N91-28191
- Resource envelope concepts for mission planning
[NASA-TP-3139] p 15 N91-29209
- Large space structures and systems in the space station era: A bibliography with indexes (supplement 03)
[NASA-SP-7085(03)] p 18 N92-22317
- Fifth Annual Workshop on Space Operations Applications and Research (SOAR 1991), volume 2
[NASA-CP-3127-VOL-2] p 41 N92-22324

SPACE SUITS

- A method of evaluating efficiency during space-suited work in a neutral buoyancy environment
[NASA-TP-3153] p 40 N92-19772

SPACE TRANSPORTATION

- Metallized propellants for the human exploration of Mars
[NASA-TP-3062] p 19 N91-11800
- Lunar missions using chemical propulsion: System design issues
[NASA-TP-3065] p 19 N91-15308
- Space Transportation Propulsion Technology Symposium. Volume 1: Executive summary
[NASA-CP-3112] p 19 N91-25176
- Space Transportation Propulsion Technology Symposium. Volume 2: Symposium proceedings
[NASA-CP-3112-VOL-2] p 19 N91-28193
- Space Transportation Propulsion Technology Symposium. Volume 3: Panel Session Summaries and Presentations
[NASA-CP-3112-VOL-3] p 19 N91-28235
- Upper stages using liquid propulsion and metallized propellants
[NASA-TP-3191] p 20 N92-17151
- Space Transportation Materials and Structures Technology Workshop. Volume 1: Executive summary
[NASA-CP-3148-VOL-1] p 15 N92-22660

SPACE TRANSPORTATION SYSTEM

- Space Transportation Avionics Technology Symposium. Volume 2: Conference Proceedings
[NASA-CP-3081-VOL-2] p 11 N91-17020
- Manual Control Aspects of Orbital Flight
[NASA-CP-10056] p 13 N91-20147
- Space Transportation Propulsion Technology Symposium. Volume 1: Executive summary
[NASA-CP-3112] p 19 N91-25176
- Space Transportation Propulsion Technology Symposium. Volume 2: Symposium proceedings
[NASA-CP-3112-VOL-2] p 19 N91-28193
- Space Transportation Propulsion Technology Symposium. Volume 3: Panel Session Summaries and Presentations
[NASA-CP-3112-VOL-3] p 19 N91-28235
- Upper stages using liquid propulsion and metallized propellants
[NASA-TP-3191] p 20 N92-17151
- The High Resolution Accelerometer Package (HiRAP) flight experiment summary for the first 10 flights
[NASA-RP-1267] p 3 N92-22505

SPACEBORNE EXPERIMENTS

- Exobiology in Earth orbit: The results of science workshops held at NASA, Ames Research Center
[NASA-SP-500] p 41 N91-14725
- First among equals: The selection of NASA space science experiments
[NASA-SP-4215] p 52 N91-28060
- Development of the Burst and Transient Source Experiment (BATSE)
[NASA-RP-1268] p 49 N91-32006
- The microgravity environment of the Space Shuttle Columbia middeck during STS-32
[NASA-TP-3140] p 48 N92-11930
- The microgravity environment of the Space Shuttle Columbia payload bay during STS-32
[NASA-TP-3141] p 49 N92-11931
- LDEF: 69 Months in Space. First Post-Retrieval Symposium, part 1
[NASA-CP-3134-PT-1] p 52 N92-23280
- LDEF: 69 Months in Space. First Post-Retrieval Symposium, part 2
[NASA-CP-3134-PT-2] p 52 N92-24806
- Second LDEF Post-Retrieval Symposium abstracts
[NASA-CP-10097] p 52 N92-27218

SPACEBORNE TELESCOPES

- Exobiology in Earth orbit: The results of science workshops held at NASA, Ames Research Center
[NASA-SP-500] p 41 N91-14725

SPACECRAFT

- Shortcomings in ground testing, environment simulations, and performance predictions for space applications
[NASA-TP-3217] p 23 N92-22593

SPACECRAFT ANTENNAS

- Influence of mass moment of inertia on normal modes of preloaded solar array mast
[NASA-TP-3273] p 31 N92-33476

SPACECRAFT CABINS

- Benefits from synergies and advanced technologies for an advanced-technology space station
[NASA-TP-3067] p 14 N91-20177

SPACECRAFT CHARGING

- Current Collection from Space Plasmas
[NASA-CP-3089] p 46 N91-17713

SPACECRAFT CONFIGURATIONS

- Parametric trade studies on a Shuttle 2 launch system architecture
[NASA-TP-3059] p 14 N91-18180
- Benefits from synergies and advanced technologies for an advanced-technology space station
[NASA-TP-3067] p 14 N91-20177

- Beyond the Baseline 1991: Proceedings of the Space Station Evolution Symposium. Volume 1: Space Station Freedom, part 1
[NASA-CP-10083-VOL-1-PT-1] p 18 N92-17098

SPACECRAFT CONSTRUCTION MATERIALS

- Outgassing data for selecting spacecraft materials, revision 2
[NASA-RP-1124-REV-2] p 21 N91-14437
- Fourth Annual Workshop on Space Operations Applications and Research (SOAR 90)
[NASA-CP-3103-VOL-2] p 41 N91-20702
- Space Transportation Materials and Structures Technology Workshop. Volume 1: Executive summary
[NASA-CP-3148-VOL-1] p 15 N92-22660
- Graphite/epoxy composite adapters for the Space Shuttle/Centaur vehicle
[NASA-TP-3014] p 15 N92-31251

SPACECRAFT CONTAMINATION

- Sixteenth Space Simulation Conference Confirming Spacworthiness Into the Next Millennium
[NASA-CP-3096] p 17 N91-19126

SPACECRAFT CONTROL

- The 5th Annual NASA Spacecraft Control Laboratory Experiment (SCOLE) Workshop, part 1
[NASA-CP-10057-PT-1] p 16 N91-18186
- The 5th Annual NASA Spacecraft Control Laboratory Experiment (SCOLE) Workshop, part 2
[NASA-CP-10057-PT-2] p 17 N91-19122
- Rigid-body-control subsystem sizing for an Earth science geostationary platform
[NASA-TP-3087] p 17 N91-22302
- Fourth NASA Workshop on Computational Control of Flexible Aerospace Systems, part 1
[NASA-CP-10065-PT-1] p 17 N91-22307
- Multidisciplinary optimization of controlled space structures with global sensitivity equations
[NASA-TP-3130] p 18 N92-11087
- Fifth Annual Workshop on Space Operations Applications and Research (SOAR 1991), volume 2
[NASA-CP-3127-VOL-2] p 41 N92-22324
- Ongoing Progress in Spacecraft Controls
[NASA-CP-10099] p 19 N92-28730
- SPACECRAFT DESIGN**
- NASA Computational Fluid Dynamics Conference. Volume 2: Sessions 7-12
[NASA-CP-10038-VOL-2] p 4 N91-10868
- Parametric trade studies on a Shuttle 2 launch system architecture
[NASA-TP-3059] p 14 N91-18180
- Guidance, navigation, and control subsystem equipment selection algorithm using expert system methods
[NASA-TP-3082] p 42 N91-25624
- Packaging, development, and on-orbit assembly options for large geostationary spacecraft
[NASA-TP-3088] p 17 N91-27182
- Multidisciplinary optimization of controlled space structures with global sensitivity equations
[NASA-TP-3130] p 18 N92-11087
- Beyond the Baseline 1991: Proceedings of the Space Station Evolution Symposium. Volume 1: Space Station Freedom, part 1
[NASA-CP-10083-VOL-1-PT-1] p 18 N92-17098
- Beyond the Baseline 1991: Proceedings of the Space Station Evolution Symposium. Volume 2: Space Station Freedom, part 1
[NASA-CP-10083-VOL-2-PT-1] p 18 N92-17768
- Computational Structures Technology for Airframes and Propulsion Systems
[NASA-CP-3142] p 31 N92-25911
- Graphite/epoxy composite adapters for the Space Shuttle/Centaur vehicle
[NASA-TP-3014] p 15 N92-31251
- SPACECRAFT ENVIRONMENTS**
- Measurement and Characterization of the Acceleration Environment on Board the Space Station
[NASA-CP-3088] p 48 N91-12401
- SPACECRAFT EQUIPMENT**
- Small Explorer Data System MIL-STD-1773 fiber optic bus
[NASA-TP-3227] p 16 N92-26667
- SPACECRAFT INSTRUMENTS**
- Guidance, navigation, and control subsystem equipment selection algorithm using expert system methods
[NASA-TP-3082] p 42 N91-25624
- Mission description and in-flight operation of ERBE instruments on ERBS, NOAA 9, and NOAA 10 spacecraft
[NASA-RP-1279] p 32 N92-32127
- SPACECRAFT LAUNCHING**
- Launch vehicle integration options for a large Earth sciences geostationary platform concept
[NASA-TP-3083] p 15 N91-27180
- SPACECRAFT MOTION**
- A scheme for bandpass filtering magnetometer measurements to reconstruct tethered satellite skiprope motion
[NASA-TP-3123] p 42 N91-25629
- SPACECRAFT ORBITS**
- Flight Mechanics/Estimation Theory Symposium, 1990
[NASA-CP-3102] p 14 N91-17073
- SPACECRAFT POWER SUPPLIES**
- Space Photovoltaic Research and Technology, 1989
[NASA-CP-3107] p 19 N91-19182
- Space Transportation Propulsion Technology Symposium. Volume 2: Symposium proceedings
[NASA-CP-3112-VOL-2] p 19 N91-28193
- Space Photovoltaic Research and Technology Conference
[NASA-CP-3121] p 19 N91-30203
- Automating a spacecraft electrical power system using expert systems
[NASA-TP-3161] p 20 N92-12052
- Large space structures and systems in the space station era: A bibliography with indexes (supplement 03)
[NASA-SP-7085(03)] p 18 N92-22317
- The 1991 NASA Aerospace Battery Workshop
[NASA-CP-3140] p 33 N92-22740

- The 1990 NASA Aerospace Battery Workshop
[NASA-CP-3119] p 20 N92-27130
- SPACECRAFT PROPULSION**
- Engines and innovation: Lewis Laboratory and American propulsion technology
[NASA-SP-4306] p 51 N91-15975
- Vision-21: Space Travel for the Next Millennium
[NASA-CP-10059] p 13 N91-22139
- Space Transportation Propulsion Technology Symposium. Volume 3: Panel Session Summaries and Presentations
[NASA-CP-3112-VOL-3] p 19 N91-28235
- Upper stages using liquid propulsion and metallized propellants
[NASA-TP-3191] p 20 N92-17151
- Tenth Workshop for Computational Fluid Dynamic Applications in Rocket Propulsion, part 2
[NASA-CP-3163-PT-2] p 27 N92-32245
- Tenth Workshop for Computational Fluid Dynamic Applications in Rocket Propulsion, part 1
[NASA-CP-3163-PT-1] p 27 N92-32278
- SPACECRAFT SHIELDING**
- HZETRN: A heavy ion/nucleon transport code for space radiations
[NASA-TP-3146] p 51 N92-15959
- Orbital debris: Technical issues and future directions
[NASA-CP-10077] p 49 N92-33478
- SPACECRAFT STRUCTURES**
- Multidisciplinary optimization of controlled space structures with global sensitivity equations
[NASA-TP-3130] p 18 N92-11087
- Space Transportation Materials and Structures Technology Workshop. Volume 1: Executive summary
[NASA-CP-3148-VOL-1] p 15 N92-22660
- Stiffness and strength tailoring in uniform space-filling truss structures
[NASA-TP-3210] p 30 N92-24546
- Computational Structures Technology for Airframes and Propulsion Systems
[NASA-CP-3142] p 31 N92-25911
- Graphite/epoxy composite adapters for the Space Shuttle/Centaur vehicle
[NASA-TP-3014] p 15 N92-31251
- Influence of mass moment of inertia on normal modes of preloaded solar array mast
[NASA-TP-3273] p 31 N92-33476
- SPACECRAFT TRAJECTORIES**
- Flight Mechanics/Estimation Theory Symposium, 1990
[NASA-CP-3102] p 14 N91-17073
- SPACECREWS**
- Microbiology on Space Station Freedom
[NASA-CP-3108] p 37 N91-18573
- SPACELAB**
- Measurement and Characterization of the Acceleration Environment on Board the Space Station
[NASA-CP-3088] p 48 N91-12401
- SPACELAB PAYLOADS**
- Measurement and Characterization of the Acceleration Environment on Board the Space Station
[NASA-CP-3088] p 48 N91-12401
- SPATIAL MARCHING**
- An upwind-biased space marching algorithm for superersonic viscous flow
[NASA-TP-3068] p 26 N91-18381
- An efficient HZETRN (a galactic cosmic ray transport code)
[NASA-TP-3147] p 51 N92-22218
- SPECTRA**
- Wind turbine acoustics
[NASA-TP-3057] p 44 N91-16679
- SPECTROSCOPY**
- Investigation of microstructural changes in polyetheretherketone films at cryogenic temperatures by positron lifetime spectroscopy
[NASA-TP-3064] p 21 N91-18216
- Low-energy positron flux generator for microstructural characterization of thin films
[NASA-TP-3074] p 27 N91-22538
- SPEECH RECOGNITION**
- Proceedings of the Second Joint Technology Workshop on Neural Networks and Fuzzy Logic, volume 2
[NASA-CP-10061-VOL-2] p 43 N91-20811
- SQUEEZED STATES (QUANTUM THEORY)**
- Workshop on Squeezed States and Uncertainty Relations
[NASA-CP-3135] p 46 N92-22045
- STAGNATION POINT**
- Stagnation-point heat-transfer rate predictions at aerassist flight conditions
[NASA-TP-3208] p 27 N92-31281
- STANDARD DEVIATION**
- Structural deterministic safety factors selection criteria and verification
[NASA-TP-3203] p 30 N92-19355

STAR FORMATION

- The Interstellar Medium in External Galaxies: Summaries of contributed papers
[NASA-CP-3084] p 49 N91-14100
- Interstellar Dust: Contributed Papers
[NASA-CP-3036] p 48 N91-14897
- Paired and Interacting Galaxies: International Astronomical Union Colloquium No. 124
[NASA-CP-3098] p 49 N91-16858
- STARBURST GALAXIES**
- Paired and Interacting Galaxies: International Astronomical Union Colloquium No. 124
[NASA-CP-3098] p 49 N91-16858
- STATE ESTIMATION**
- State estimation applications in aircraft flight-data analysis: A user's manual for SMACK
[NASA-RP-1252] p 10 N91-19082
- STATIC ELECTRICITY**
- The 1991 International Aerospace and Ground Conference on Lightning and Static Electricity, volume 1
[NASA-CP-3106-VOL-1] p 35 N91-32599
- The 1991 International Aerospace and Ground Conference on Lightning and Static Electricity, volume 2
[NASA-CP-3106-VOL-2] p 36 N91-32693
- STATIC TESTS**
- Static thrust-vectoring performance of nonaxisymmetric convergent-divergent nozzles with post-exit yaw vanes
[NASA-TP-3085] p 5 N91-21059
- Wind-tunnel static and free-flight investigation of high-angle-of-attack stability and control characteristics of a model of the EA-6B airplane
[NASA-TP-3194] p 7 N92-25276
- STATIC THRUST**
- Static thrust-vectoring performance of nonaxisymmetric convergent-divergent nozzles with post-exit yaw vanes
[NASA-TP-3085] p 5 N91-21059
- STATISTICAL CORRELATION**
- Responses of women to orthostatic and exercise stresses
[NASA-TP-3043] p 37 N91-19711
- Correlation and prediction of dynamic human isolated joint strength from lean body mass
[NASA-TP-3207] p 40 N92-26682
- STATOR BLADES**
- Design and performance of controlled-diffusion stator compared with original double-circular-arc stator
[NASA-TP-2852] p 12 N92-22863
- STATORS**
- Design and performance of controlled-diffusion stator compared with original double-circular-arc stator
[NASA-TP-2852] p 12 N92-22863
- STEADY STATE**
- The effect of acceleration versus displacement methods on steady-state boundary forces
[NASA-TP-3218] p 30 N92-21457
- STEREOSCOPIC VISION**
- Effect of short-term exposure to stereoscopic three-dimensional flight displays on real-world depth perception
[NASA-TP-3117] p 11 N92-13065
- STIFFENING**
- Experimental behavior of graphite-epoxy Y-stiffened specimens loaded in compression
[NASA-TP-3171] p 30 N92-23115
- STIFFNESS**
- Stiffness and strength tailoring in uniform space-filling truss structures
[NASA-TP-3210] p 30 N92-24546
- Buckling behavior of long symmetrically laminated plates subjected to combined loadings
[NASA-TP-3195] p 22 N92-25160
- STOCHASTIC PROCESSES**
- Structural factoring approach for analyzing stochastic networks
[NASA-TP-3069] p 43 N91-18753
- STRAIN MEASUREMENT**
- Thermal and structural tests of Rene 41 honeycomb integral-tank concept for future space transportation systems
[NASA-TP-3145] p 30 N92-24205
- STRATOCUMULUS CLOUDS**
- FIRE Science Results 1988
[NASA-CP-3083] p 34 N91-10448
- STRATOSPHERE**
- The atmospheric effects of stratospheric aircraft: A topical review
[NASA-RP-1250] p 33 N91-16466
- The atmospheric effects of stratospheric aircraft: A current consensus
[NASA-RP-1251] p 33 N91-16467
- SAM 2 measurements of the polar stratospheric aerosol. Volume 9: October 1982 - April 1983
[NASA-RP-1244] p 33 N91-18505
- International Workshop on Stratospheric Aerosols: Measurements, Properties, and Effects
[NASA-CP-3114] p 32 N91-32528

- The atmospheric effects of stratospheric aircraft: A first program report
[NASA-RP-1272] p 33 N92-19121
Sixteenth International Laser Radar Conference, part 1
[NASA-CP-3158-PT-1] p 28 N92-29228
SAGE 1 data user's guide
[NASA-RP-1275] p 34 N92-33097
- STRESS ANALYSIS**
Plate and butt-weld stresses beyond elastic limit, material and structural modeling
[NASA-TP-3075] p 29 N91-16413
Development of an integrated aerosevovlastic analysis program and correlation with test data
[NASA-TP-3120] p 2 N91-26113
Structural deterministic safety factors selection criteria and verification
[NASA-TP-3203] p 30 N92-19355
Thermal and structural tests of Rene 41 honeycomb integral-tank concept for future space transportation systems
[NASA-TP-3145] p 30 N92-24205
Effect of type of load on stress analysis of thin-walled ducts
[NASA-TP-3248] p 31 N92-26669
- STRESS CONCENTRATION**
Stress concentrations for straight-shank and countersunk holes in plates subjected to tension, bending, and pin loading
[NASA-TP-3192] p 31 N92-25997
- STRESS INTENSITY FACTORS**
Analysis and prediction of Multiple-Site Damage (MSD) fatigue crack growth
[NASA-TP-3231] p 31 N92-31279
Applications of FEM and BEM in two-dimensional fracture mechanics problems
[NASA-TP-3277] p 31 N92-31280
- STRESS-STRAIN RELATIONSHIPS**
Plate and butt-weld stresses beyond elastic limit, material and structural modeling
[NASA-TP-3075] p 29 N91-16413
Improved accuracy for finite element structural analysis via a new integrated force method
[NASA-TP-3204] p 30 N92-22227
- STRUCTURAL ANALYSIS**
Free vibrations of thin-walled semicircular graphite-epoxy composite frames
[NASA-TP-3010] p 29 N91-13750
Plate and butt-weld stresses beyond elastic limit, material and structural modeling
[NASA-TP-3075] p 29 N91-16413
Nineteenth NASTRAN (R) Users' Colloquium
[NASA-CP-3111] p 29 N91-20506
Improved accuracy for finite element structural analysis via a new integrated force method
[NASA-TP-3204] p 30 N92-22227
Twentieth NASTRAN (R) Users' Colloquium
[NASA-CP-3145] p 30 N92-24324
Buckling behavior of long symmetrically laminated plates subjected to combined loadings
[NASA-TP-3195] p 22 N92-25160
Computational Structures Technology for Airframes and Propulsion Systems
[NASA-CP-3142] p 31 N92-25911
National Educators' Workshop: Update 1991. Standard Experiments in Engineering Materials Science and Technology
[NASA-CP-3151] p 24 N92-30263
Graphite/epoxy composite adapters for the Space Shuttle/Centaur vehicle
[NASA-TP-3014] p 15 N92-31251
Eighth DOD/NASA/FAA Conference on Fibrous Composites in Structural Design, part 2
[NASA-CP-3087-PT-2] p 22 N92-32574
- STRUCTURAL DESIGN**
On-orbit structural dynamic performance of a 15-meter microwave radiometer antenna
[NASA-TP-3041] p 16 N91-17114
Aeropropulsion 1991
[NASA-CP-10063] p 12 N91-20086
Optimization of composite sandwich cover panels subjected to compressive loadings
[NASA-TP-3173] p 21 N92-20679
Large space structures and systems in the space station era: A bibliography with indexes (supplement 03)
[NASA-SP-7085(03)] p 18 N92-22317
Stiffness and strength tailoring in uniform space-filling truss structures
[NASA-TP-3210] p 30 N92-24546
Computational Structures Technology for Airframes and Propulsion Systems
[NASA-CP-3142] p 31 N92-25911
Eighth DOD/NASA/FAA Conference on Fibrous Composites in Structural Design, part 1
[NASA-CP-3087-PT-1] p 22 N92-32513
Eighth DOD/NASA/FAA Conference on Fibrous Composites in Structural Design, part 2
[NASA-CP-3087-PT-2] p 22 N92-32574
- STRUCTURAL DESIGN CRITERIA**
Stiffness and strength tailoring in uniform space-filling truss structures
[NASA-TP-3210] p 30 N92-24546
- STRUCTURAL ENGINEERING**
Space Transportation Materials and Structures Technology Workshop, Volume 1: Executive Summary
[NASA-CP-3148-VOL-1] p 15 N92-22660
- STRUCTURAL FAILURE**
A three-dimensional finite-element thermal/mechanical analytical technique for high-performance traveling wave tubes
[NASA-TP-3081] p 25 N91-27436
Structural deterministic safety factors selection criteria and verification
[NASA-TP-3203] p 30 N92-19355
- STRUCTURAL RELIABILITY**
Structural deterministic safety factors selection criteria and verification
[NASA-TP-3203] p 30 N92-19355
- STRUCTURAL STABILITY**
Buckling and vibration analysis of a simply supported column with a piecewise constant cross section
[NASA-TP-3090] p 29 N91-20503
- STRUCTURAL VIBRATION**
Free vibrations of thin-walled semicircular graphite-epoxy composite frames
[NASA-TP-3010] p 29 N91-13750
Buckling and vibration analysis of a simply supported column with a piecewise constant cross section
[NASA-TP-3090] p 29 N91-20503
Rotordynamic Instability Problems in High-Performance Turbomachinery, 1990
[NASA-CP-3122] p 28 N92-14346
- SUBDIVISIONS**
Earth observations and global change decision making: A special bibliography, 1991
[NASA-SP-7092] p 32 N91-30588
- SUBSONIC FLOW**
J-85 jet engine noise measured in the ONERA S1 wind tunnel and extrapolated to far field
[NASA-TP-3053] p 45 N91-19823
Numerical study of the aerodynamic effects of using sulfur hexafluoride as a test gas in wind tunnels
[NASA-TP-3086] p 5 N91-22070
Effects of yaw angle and Reynolds number on rectangular-box cavities at subsonic and transonic speeds
[NASA-TP-3099] p 5 N91-27124
- SUBSONIC SPEED**
Panel methods: An introduction
[NASA-TP-2995] p 5 N91-19058
Longitudinal aerodynamic characteristics of a subsonic, energy-efficient transport configuration in the National Transonic Facility
[NASA-TP-2922] p 6 N91-28143
- SULFUR FLUORIDES**
Numerical study of the aerodynamic effects of using sulfur hexafluoride as a test gas in wind tunnels
[NASA-TP-3086] p 5 N91-22070
- SUN**
Climate Impact of Solar Variability
[NASA-CP-3086] p 50 N91-12456
Atlas of the Earth's radiation budget as measured by Nimbus-7: May 1979 to May 1980
[NASA-RP-1263] p 35 N91-24720
- SUPERCOMPUTERS**
NASA Computational Fluid Dynamics Conference, Volume 1: Sessions 1-6
[NASA-CP-10038-VOL-1] p 4 N91-10839
NASA Computational Fluid Dynamics Conference, Volume 2: Sessions 7-12
[NASA-CP-10038-VOL-2] p 4 N91-10868
- SUPERCONDUCTING MAGNETS**
International Symposium on Magnetic Suspension Technology, part 1
[NASA-CP-3152-PT-1] p 18 N92-27721
International Symposium on Magnetic Suspension Technology, part 2
[NASA-CP-3152-PT-2] p 18 N92-27788
- SUPERCONDUCTIVITY**
Aerospace Applications of Magnetic Suspension Technology, part 1
[NASA-CP-10066-PT-1] p 17 N91-21188
Aerospace Applications of Magnetic Suspension Technology, part 2
[NASA-CP-10066-PT-2] p 17 N91-21203
International Symposium on Magnetic Suspension Technology, part 2
[NASA-CP-3152-PT-2] p 18 N92-27788
- SUPERCritical WINGS**
Longitudinal aerodynamic characteristics of a subsonic, energy-efficient transport configuration in the National Transonic Facility
[NASA-TP-2922] p 6 N91-28143
Installation effects of wing-mounted turbofan nacelle-pylons on a 1/17-scale, twin-engine, low-wing transport model
[NASA-TP-3168] p 7 N92-19002
- SUPERSONIC AIRCRAFT**
The atmospheric effects of stratospheric aircraft: A current consensus
[NASA-RP-1251] p 33 N91-16467
A method for designing blended wing-body configurations for low wave drag
[NASA-TP-3261] p 8 N92-32480
Survey and analysis of research on supersonic drag-due-to-lift minimization with recommendations for wing design
[NASA-TP-3202] p 9 N92-33656
- SUPERSONIC COMBUSTION RAMJET ENGINES**
A parametric experimental investigation of a scramjet nozzle at Mach 6 with Freon and argon or air used for exhaust simulation
[NASA-TP-3048] p 4 N91-16990
- SUPERSONIC DRAG**
Survey and analysis of research on supersonic drag-due-to-lift minimization with recommendations for wing design
[NASA-TP-3202] p 9 N92-33656
- SUPERSONIC FLOW**
Navier-Stokes and Euler solutions for lee-side flows over supersonic delta wings. A correlation with experiment
[NASA-TP-3035] p 4 N91-13401
An upwind-biased space marching algorithm for supersonic viscous flow
[NASA-TP-3068] p 26 N91-18381
Evaluation of a technique to generate artificially thickened boundary layers in supersonic and hypersonic flows
[NASA-TP-3142] p 6 N91-28136
The natural flow wing-design concept
[NASA-TP-3193] p 7 N92-25202
Supersonic Throughflow Fan Test Facility at NASA, Lewis Research Center
[NASA-TP-3038] p 13 N92-31640
- SUPERSONIC SPEED**
Experimental investigation of porous-floor effects on cavity flow fields at supersonic speeds
[NASA-TP-3032] p 5 N91-19042
Panel methods: An introduction
[NASA-TP-2995] p 5 N91-19058
Measurements of forces, moments, and pressures on a generic store separating from a box cavity at supersonic speeds
[NASA-TP-3110] p 6 N92-10005
Influence of airfoil geometry on delta wing leading-edge vortices and vortex-induced aerodynamics at supersonic speeds
[NASA-TP-3105] p 7 N92-20038
Supersonic Throughflow Fan Test Facility at NASA, Lewis Research Center
[NASA-TP-3038] p 13 N92-31640
- SUPERSONIC TEST APPARATUS**
Supersonic Throughflow Fan Test Facility at NASA, Lewis Research Center
[NASA-TP-3038] p 13 N92-31640
- SUPERSONIC TRANSPORTS**
The atmospheric effects of stratospheric aircraft: A topical review
[NASA-RP-1250] p 33 N91-16466
Span reduction effects on the flutter characteristics of arrow-wing supersonic transport configurations
[NASA-TP-3077] p 11 N91-21127
A loudness calculation procedure applied to shaped sonic booms
[NASA-TP-3134] p 45 N92-11765
Computational Structures Technology for Airframes and Propulsion Systems
[NASA-CP-3142] p 31 N92-25911
- SUPERSONIC TURBINES**
Supersonic Throughflow Fan Test Facility at NASA, Lewis Research Center
[NASA-TP-3038] p 13 N92-31640
- SUPERSONIC WIND TUNNELS**
Supersonic Throughflow Fan Test Facility at NASA, Lewis Research Center
[NASA-TP-3038] p 13 N92-31640
- SURFACE GEOMETRY**
A method for determining spiral-bevel gear tooth geometry for finite element analysis
[NASA-TP-3096] p 28 N92-10195
- SURFACE PROPERTIES**
Software Surface Modeling and Grid Generation Steering Committee
[NASA-CP-3143] p 42 N92-24397

SURFACE REACTIONS

- AMSATS 1990: Advances in Materials Science and Applications of High Temperature Superconductors [NASA-CP-3100] p 22 N92-21605
Gibbs free energy of reactions involving SiC, Si₃N₄, H₂, and H₂O as a function of temperature and pressure [NASA-TP-3275] p 23 N92-31278
- SURFACE WAVES**
Diffracted and head waves associated with waves on nonseparable surfaces [NASA-TP-3169] p 7 N92-20545
- SURFACES**
Workshop on Grid Generation and Related Areas [NASA-CP-10089] p 12 N92-25712
- SURVEYS**
Survey and analysis of research on supersonic drag-due-to-lift minimization with recommendations for wing design [NASA-TP-3202] p 9 N92-33656
- SURVIVAL**
Track structure model of cell damage in space flight [NASA-TP-3235] p 39 N92-34154
- SWEEP WINGS**
Detailed flow-field measurements over a 75 deg swept delta wing [NASA-TP-2997] p 4 N91-18030
Planform curvature effects on flutter characteristics of a wing with 56 deg leading-edge sweep and panel aspect ratio of 1.14 [NASA-TP-3116] p 11 N92-13054
The natural flow wing-design concept [NASA-TP-3193] p 7 N92-25202
- SWITCHES**
Reliability of a Shuttle reaction timer [NASA-TP-3176] p 40 N92-16562
- SWITCHING**
Space Communications Technology Conference: Onboard Processing and Switching [NASA-CP-3132] p 25 N92-14202
- SYNCHRONISM**
Experimental validation of clock synchronization algorithms [NASA-TP-3209] p 42 N92-27589
- SYNCHRONOUS PLATFORMS**
Thermal-distortion analysis of a spacecraft box truss in geostationary orbit [NASA-TP-3054] p 16 N91-11041
On-orbit structural dynamic performance of a 15-meter microwave radiometer antenna [NASA-TP-3041] p 16 N91-17114
Rigid-body-control subsystem sizing for an Earth science geostationary platform [NASA-TP-3087] p 17 N91-22302
Launch vehicle integration options for a large Earth sciences geostationary platform concept [NASA-TP-3083] p 15 N91-27180
- SYNCHRONOUS SATELLITES**
Packaging, development, and on-orbit assembly options for large geostationary spacecraft [NASA-TP-3088] p 17 N91-27182
- SYSTEM EFFECTIVENESS**
Experimental and analytical evaluation of efficiency of helicopter planetary stage [NASA-TP-3063] p 28 N91-12956
- SYSTEM IDENTIFICATION**
Identification of linear systems by an asymptotically stable observer [NASA-TP-3164] p 31 N92-26537
- SYSTEMS ANALYSIS**
Benefits from synergies and advanced technologies for an advanced-technology space station [NASA-TP-3067] p 14 N91-20177
- SYSTEMS ENGINEERING**
Space Transportation Avionics Technology Symposium. Volume 2: Conference Proceedings [NASA-CP-3081-VOL-2] p 11 N91-17020
The 1991 Goddard Conference on Space Applications of Artificial Intelligence [NASA-CP-3110] p 43 N91-22769
NASA-LaRc Flight-Critical Digital Systems Technology Workshop [NASA-CP-10028] p 11 N91-24200
Flight tests with a data link used for air traffic control information exchange [NASA-TP-3135] p 11 N91-31143
Beyond the Baseline 1991: Proceedings of the Space Station Evolution Symposium. Volume 2: Space Station Freedom, part 2 [NASA-CP-10083-VOL-2-PT-2] p 18 N92-17348
- SYSTEMS INTEGRATION**
Space Transportation Avionics Technology Symposium. Volume 2: Conference Proceedings [NASA-CP-3081-VOL-2] p 11 N91-17020

SYSTEMS STABILITY

- A methodology for computing uncertainty bounds of multivariable systems based on sector stability theory concepts [NASA-TP-3166] p 13 N92-21410

T

TABLES (DATA)

- SAGE 1 data user's guide [NASA-RP-1275] p 34 N92-33097

TAKEOFF

- Annoyance caused by aircraft en route noise [NASA-TP-3165] p 45 N92-20479

TAPERING

- Buckling and vibration analysis of a simply supported column with a piecewise constant cross section [NASA-TP-3090] p 29 N91-20503

TECHNOLOGIES

- National Educators' Workshop: Update 1988. Standard Experiments in Engineering Materials Science and Technology [NASA-CP-3060] p 20 N91-20207

TECHNOLOGY ASSESSMENT

- NASA-LaRc Flight-Critical Digital Systems Technology Workshop [NASA-CP-10028] p 11 N91-24200
Advanced Hypervelocity Aerophysics Facility Workshop [NASA-CP-10031] p 13 N91-24211
The 1990 NASA Aerospace Battery Workshop [NASA-CP-3119] p 20 N92-27130

TECHNOLOGY TRANSFER

- Technology 2000, volume 2 [NASA-CP-3109-VOL-2] p 52 N91-24041
Technology 2001: The Second National Technology Transfer Conference and Exposition, volume 1 [NASA-CP-3136-VOL-1] p 52 N92-22423
Technology 2001: The Second National Technology Transfer Conference and Exposition, volume 2 [NASA-CP-3136-VOL-2] p 52 N92-22676

TECHNOLOGY UTILIZATION

- Aerospace Applications of Magnetic Suspension Technology, part 1 [NASA-CP-10066-PT-1] p 17 N91-21188
Technology 2000, volume 1 [NASA-CP-3109-VOL-1] p 52 N91-23021
Technology 2000, volume 2 [NASA-CP-3109-VOL-2] p 52 N91-24041

TELECOMMUNICATION

- The 22nd Annual Precise Time and Time Interval (PTTI) Applications and Planning Meeting [NASA-CP-3116] p 44 N91-25755

TELEOPERATORS

- Human Machine Interfaces for Teleoperators and Virtual Environments Conference [NASA-CP-10071] p 40 N92-11638

TELEROBOTICS

- The effect of bandwidth on telerobot system performance [NASA-TP-3152] p 28 N91-30540
Automation and Robotics for Space-Based Systems, 1991 [NASA-CP-10098] p 43 N92-27763

TEMPERATURE CONTROL

- LDEF: 69 Months in Space. First Post-Retrieval Symposium, part 3 [NASA-CP-3134-PT-3] p 52 N92-27083

TEMPERATURE DEPENDENCE

- Gibbs free energy of reactions involving SiC, Si₃N₄, H₂, and H₂O as a function of temperature and pressure [NASA-TP-3275] p 23 N92-31278

TEMPERATURE EFFECTS

- Oxidation characteristics of Ti-25Al-10Nb-3V-1Mo intermetallic alloy [NASA-TP-3044] p 22 N91-13522
Investigation of microstructural changes in polyetherether-ketone films at cryogenic temperatures by positron lifetime spectroscopy [NASA-TP-3064] p 21 N91-18216
The 23 to 300 C demagnetization resistance of samarium-cobalt permanent magnets [NASA-TP-3119] p 25 N92-11252
Effect of temperature and gap opening rate on the resiliency of candidate solid rocket booster O-ring materials [NASA-TP-3226] p 23 N92-27194

TEMPERATURE PROFILES

- SAM 2 measurements of the polar stratospheric aerosol. Volume 9: October 1982 - April 1983 [NASA-RP-1244] p 33 N91-18505

TENSILE TESTS

- Stress concentrations for straight-shank and countersunk holes in plates subjected to tension, bending, and pin loading [NASA-TP-3192] p 31 N92-25997

TERMINOLOGY

- NASA Thesaurus supplement: A four part cumulative supplement to the 1988 edition of the NASA Thesaurus (supplement 4) [NASA-SP-7064-SUPPL-4] p 47 N91-10804
NASA Thesaurus supplement: A four part cumulative supplement to the 1988 edition of the NASA Thesaurus (supplement 5) [NASA-SP-7064-SUPPL-5] p 47 N91-19962

TEST FACILITIES

- Aviation Safety/Automation Program Conference [NASA-CP-3090] p 9 N91-10936

TEST STANDS

- Development of a full-scale transmission testing procedure to evaluate advanced lubricants [NASA-TP-3265] p 28 N92-30396

TESTS

- NASA Wallops Flight Facility Air-Sea Interaction Research Facility [NASA-RP-1277] p 36 N92-25981

THERMAL ANALYSIS

- Thermal-distortion analysis of a spacecraft box truss in geostationary orbit [NASA-TP-3054] p 16 N91-11041
A three-dimensional finite-element thermal/mechanical analytical technique for high-performance traveling wave tubes [NASA-TP-3081] p 25 N91-27436
Thermal and structural tests of Rene 41 honeycomb integral-tank concept for future space transportation systems [NASA-TP-3145] p 30 N92-24205
A simplified method for thermal analysis of a cowl leading edge subject to intense local shock-wave-interference heating [NASA-TP-3167] p 27 N92-24797

THERMAL CONDUCTIVITY

- Calculations and curve fits of thermodynamic and transport properties for equilibrium air to 30000 K [NASA-RP-1260] p 26 N92-11285

THERMAL CONTROL COATINGS

- LDEF: 69 Months in Space. First Post-Retrieval Symposium, part 3 [NASA-CP-3134-PT-3] p 52 N92-27083

THERMAL EMISSION

- Optical measurements on solid specimens of solid rocket motor exhaust and solid rocket motor slag [NASA-TP-3177] p 20 N92-20949

THERMAL PROTECTION

- Numerical studies of convective cooling for a locally heated skin [NASA-TP-3100] p 26 N91-22509
Payload bay doors and radiator panels familiarization handbook [NASA-TM-107793] p 15 N92-20676

THERMAL SIMULATION

- Sixteenth Space Simulation Conference Confirming Spaceworthiness Into the Next Millennium [NASA-CP-3096] p 17 N91-19126

THERMAL STABILITY

- High-temperature durability considerations for HSCT combustor [NASA-TP-3162] p 23 N92-17070

THERMODYNAMIC EQUILIBRIUM

- Aeroacoustic and aerodynamic applications of the theory of nonequilibrium thermodynamics [NASA-TP-3118] p 26 N91-25352
Calculations and curve fits of thermodynamic and transport properties for equilibrium air to 30000 K [NASA-RP-1260] p 26 N92-11285

THERMODYNAMIC PROPERTIES

- Electrochemical studies of corrosion inhibitors [NASA-TP-3066] p 22 N91-17208
AMSATS 1990: Advances in Materials Science and Applications of High Temperature Superconductors [NASA-CP-3100] p 22 N92-21605

THERMODYNAMICS

- Gibbs free energy of reactions involving SiC, Si₃N₄, H₂, and H₂O as a function of temperature and pressure [NASA-TP-3275] p 23 N92-31278

THERMOPLASTIC RESINS

- Compression behavior of graphite-thermoplastic and graphite-epoxy panels with circular holes or impact damage [NASA-TP-3071] p 21 N91-18215

THESAURI

- NASA Thesaurus supplement: A four part cumulative supplement to the 1988 edition of the NASA Thesaurus (supplement 4) [NASA-SP-7064-SUPPL-4] p 47 N91-10804

- NASA Thesaurus supplement: A four part cumulative supplement to the 1988 edition of the NASA Thesaurus (supplement 5)
[NASA-SP-7064-SUPPL-5] p 47 N91-19962
- THIN FILMS**
Low-energy positron flux generator for microstructural characterization of thin films
[NASA-TP-3074] p 27 N91-22538
- THIN WALLED SHELLS**
Diffracted and head waves associated with waves on nonseparable surfaces
[NASA-TP-3169] p 7 N92-20545
- THIN WALLS**
Effect of type of load on stress analysis of thin-walled ducts
[NASA-TP-3248] p 31 N92-26669
- THREE DIMENSIONAL BODIES**
Three-dimensional laser window formation
[NASA-RP-1280] p 14 N92-30307
- THREE DIMENSIONAL FLOW**
Three-component laser anemometer measurement systems
[NASA-TP-3080] p 5 N91-19057
Calculation of unsteady transonic flows with mild separation by viscous-inviscid interaction
[NASA-TP-3197] p 7 N92-28477
- THREE DIMENSIONAL MODELS**
A three-dimensional finite-element thermal/mechanical analytical technique for high-performance traveling wave tubes
[NASA-TP-3081] p 25 N91-27436
A method for determining spiral-bevel gear tooth geometry for finite element analysis
[NASA-TP-3096] p 28 N92-10195
Stress concentrations for straight-shank and countersunk holes in plates subjected to tension, bending, and pin loading
[NASA-TP-3192] p 31 N92-25997
- THRUST REVERSAL**
Static performance of a cruciform nozzle with multiaxis thrust-vectoring and reverse-thrust capabilities
[NASA-TP-3188] p 7 N92-23095
- THRUST VECTOR CONTROL**
Static thrust-vectoring performance of nonaxisymmetric convergent-divergent nozzles with post-exit yaw vanes
[NASA-TP-3085] p 5 N91-21059
Aeropropulsive characteristics of canted twin pitch-vectoring nozzles at Mach 0.20 to 1.20
[NASA-TP-3060] p 5 N91-22069
Static performance of a cruciform nozzle with multiaxis thrust-vectoring and reverse-thrust capabilities
[NASA-TP-3188] p 7 N92-23095
- THRUST-WEIGHT RATIO**
Parametric trade studies on a Shuttle 2 launch system architecture
[NASA-TP-3059] p 14 N91-18180
- THUNDERSTORMS**
Inertial oscillation of a vertical rotating draft with application to a supercell storm
[NASA-TP-3230] p 36 N92-33482
Inertial oscillation of a vertical rotating draft with application to a supercell storm: Video supplement to NASA Technical Paper 3230
[NASA-TP-3230-VIDEO-SUPPL] p 36 N92-34246
- TIME**
The 22nd Annual Precise Time and Time Interval (PTTI) Applications and Planning Meeting
[NASA-CP-3116] p 44 N91-25755
- TIME DIVISION MULTIPLEXING**
Destination-directed, packet-switching architecture for 30/20-GHz FDMA/TDM geostationary communications satellite network
[NASA-TP-3201] p 16 N92-19762
- TIME MEASUREMENT**
The 22nd Annual Precise Time and Time Interval (PTTI) Applications and Planning Meeting
[NASA-CP-3116] p 44 N91-25755
Positron lifetime measurements in chiral nematic liquid crystals
[NASA-TP-3122] p 46 N92-10677
Experimental validation of clock synchronization algorithms
[NASA-TP-3209] p 42 N92-27589
Proceedings of the 23rd Annual Precise Time and Time Interval (PTTI) Applications and Planning Meeting
[NASA-CP-3159] p 44 N92-33350
- TIMING DEVICES**
Reliability of a Shuttle reaction timer
[NASA-TP-3176] p 40 N92-16562
- TISSUES (BIOLOGY)**
Analysis of gravity-induced particle motion and fluid perfusion flow in the NASA-designed rotating zero-head-space tissue culture vessel
[NASA-TP-3143] p 24 N92-13340
- Experimental measurement of the orbital paths of particles sedimenting within a rotating viscous fluid as influenced by gravity
[NASA-TP-3200] p 40 N92-28897
- TITANIUM ALLOYS**
Oxidation characteristics of Ti-25Al-10Nb-3V-1Mo intermetallic alloy
[NASA-TP-3044] p 22 N91-13522
Surface effects on hydrogen permeation through Ti-14Al-21Nb alloy
[NASA-TP-3109] p 23 N91-20266
- TOLERANCES (MECHANICS)**
An examination of the damage tolerance enhancement of carbon/epoxy using an outer lamina of spectra (R)
[NASA-TP-3160] p 21 N92-11142
- TOLLMIEN-SCHLICHTING WAVES**
A weakly nonlinear theory for wave-vortex interactions in curved channel flow
[NASA-TP-3158] p 7 N92-19175
- TORQUE**
The validation of a human force model to predict dynamic forces resulting from multi-joint motions
[NASA-TP-3206] p 40 N92-26538
Correlation and prediction of dynamic human isolated joint strength from lean body mass
[NASA-TP-3207] p 40 N92-26682
- TOTAL OZONE MAPPING SPECTROMETER**
Nimbus-7 TOMS Antarctic ozone atlas: August - December 1990
[NASA-RP-1264] p 35 N91-26651
- TOTAL QUALITY MANAGEMENT**
The role of failure/problems in engineering: A commentary of failures experienced - lessons learned
[NASA-TP-3213] p 24 N92-22235
- TOXICITY**
Space Station Freedom Toxic and Reactive Materials Handling
[NASA-CP-3085] p 48 N91-15930
- TRACKING NETWORKS**
Proceedings of the 23rd Annual Precise Time and Time Interval (PTTI) Applications and Planning Meeting
[NASA-CP-3159] p 44 N92-33350
- TRAILING EDGES**
NACA 0015 wing pressure and trailing vortex measurements
[NASA-TP-3151] p 6 N92-10981
- TRAJECTORIES**
Trajectory fitting in function space with application to analytic modeling of surfaces
[NASA-TP-3232] p 8 N92-30747
- TRAJECTORY CONTROL**
Application and flight test of linearizing transformations using measurement feedback to the nonlinear control problem
[NASA-TP-3154] p 12 N91-30154
- TRANSFER FUNCTIONS**
On the formulation of a minimal uncertainty model for robust control with structured uncertainty
[NASA-TP-3094] p 13 N92-10027
- TRANSITION FLOW**
Modeling of the heat transfer in bypass transitional boundary-layer flows
[NASA-TP-3170] p 27 N92-11299
- TRANSMISSIONS (MACHINE ELEMENTS)**
Experimental and analytical evaluation of efficiency of helicopter planetary stage
[NASA-TP-3063] p 28 N91-12956
Development of a full-scale transmission testing procedure to evaluate advanced lubricants
[NASA-TP-3265] p 28 N92-30396
- TRANSMITTERS**
Propagation effects for land mobile satellite systems: Overview of experimental and modeling results
[NASA-RP-1274] p 25 N92-20404
- TRANSONIC FLOW**
Transonic flow analysis for rotors. Part 3: Three-dimensional, quasi-steady, Euler calculation
[NASA-TP-2375] p 3 N91-10007
Prediction of effects of wing contour modifications on low-speed maximum lift and transonic performance for the EA-6B aircraft
[NASA-TP-3046] p 4 N91-10902
Relative efficiency and accuracy of two Navier-Stokes codes for simulating attached transonic flow over wings
[NASA-TP-3061] p 26 N91-17310
Wall-interference assessment and corrections for transonic NACA 0012 airfoil data from various wind tunnels
[NASA-TP-3070] p 5 N91-20043
Numerical study of the aerodynamic effects of using sulfur hexafluoride as a test gas in wind tunnels
[NASA-TP-3086] p 5 N91-22070
Transonic Symposium: Theory, Application and Experiment, volume 2
[NASA-CP-3020-VOL-2] p 5 N91-24132
- Effects of yaw angle and Reynolds number on rectangular-box cavities at subsonic and transonic speeds
[NASA-TP-3099] p 5 N91-27124
Calculation of unsteady transonic flows with mild separation by viscous-inviscid interaction
[NASA-TP-3197] p 7 N92-28477
- TRANSONIC FLUTTER**
Span reduction effects on the flutter characteristics of arrow-wing supersonic transport configurations
[NASA-TP-3077] p 11 N91-21127
Planform curvature effects on flutter characteristics of a wing with 56 deg leading-edge sweep and panel aspect ratio of 1.14
[NASA-TP-3116] p 11 N92-13054
- TRANSONIC SPEED**
A method for the design of transonic flexible wings
[NASA-TP-3045] p 10 N91-14323
- TRANSONIC WIND TUNNELS**
Comparison of a two-dimensional adaptive-wall technique with analytical wall interference correction techniques
[NASA-TP-3132] p 7 N92-20494
- TRANSPORT AIRCRAFT**
Effect of location of aft-mounted nacelles on the longitudinal aerodynamic characteristics of a high-wing transport airplane
[NASA-TP-3047] p 4 N91-13402
The atmospheric effects of stratospheric aircraft: A first program report
[NASA-RP-1272] p 33 N92-19121
Applications of a direct/iterative design method to complex transonic configurations
[NASA-TP-3234] p 8 N92-33484
- TRANSPORT PROPERTIES**
Calculations and curve fits of thermodynamic and transport properties for equilibrium air to 30000 K
[NASA-RP-1260] p 26 N92-11285
- TRANSPORT THEORY**
Benchmark solutions for the galactic heavy-ion transport equations with energy and spatial coupling
[NASA-TP-3112] p 44 N92-13756
Transport methods and interactions for space radiations
[NASA-RP-1257] p 51 N92-15956
An efficient HZETRN (a galactic cosmic ray transport code)
[NASA-TP-3147] p 51 N92-22218
- TRAPPED PARTICLES**
Proceedings of the 23rd Annual Precise Time and Time Interval (PTTI) Applications and Planning Meeting
[NASA-CP-3159] p 44 N92-33350
- TRAVELING WAVE TUBES**
A three-dimensional finite-element thermal/mechanical analytical technique for high-performance traveling wave tubes
[NASA-TP-3081] p 25 N91-27436
- TRIBOLOGY**
The 25th Aerospace Mechanisms Symposium
[NASA-CP-3113] p 30 N91-24603
Fundamentals of fluid lubrication
[NASA-RP-1255] p 28 N91-30531
- TROPOSPHERE**
Sixteenth International Laser Radar Conference, part 2
[NASA-CP-3158-PT-2] p 28 N92-31013
- TRUNCATION ERRORS**
The effect of acceleration versus displacement methods on steady-state boundary forces
[NASA-TP-3218] p 30 N92-21457
- TRUSSES**
Thermal-distortion analysis of a spacecraft box truss in geostationary orbit
[NASA-TP-3054] p 16 N91-11041
Stiffness and strength tailoring in uniform space-filling truss structures
[NASA-TP-3210] p 30 N92-24546
Development of a truss joint for robotic assembly of space structures
[NASA-TP-3214] p 31 N92-27974
Software design for automated assembly of truss structures
[NASA-TP-3198] p 43 N92-28375
- TUNGSTEN**
Low-energy positron flux generator for microstructural characterization of thin films
[NASA-TP-3074] p 27 N91-22538
- TURBINE BLADES**
Laser anemometer measurements and computations in an annular cascade of high turning core turbine vanes
[NASA-TP-3252] p 8 N92-28980
- TURBINE PUMPS**
Limit cycle vibrations in turbomachinery
[NASA-TP-3181] p 20 N92-14108

TURBOFAN AIRCRAFT

- Annoyance caused by advanced turboprop aircraft flyover noise: Comparison of different propeller configurations
[NASA-TP-3104] p 45 N92-11758
- Annoyance caused by aircraft en route noise
[NASA-TP-3165] p 45 N92-20479
- TURBOFAN ENGINES**
Installation effects of wing-mounted turbofan nacelle-pylons on a 1/17-scale, twin-engine, low-wing transport model
[NASA-TP-3168] p 7 N92-19002
- TURBOFANS**
Installation effects of wing-mounted turbofan nacelle-pylons on a 1/17-scale, twin-engine, low-wing transport model
[NASA-TP-3168] p 7 N92-19002
- Supersonic Throughflow Fan Test Facility at NASA, Lewis Research Center
[NASA-TP-3038] p 13 N92-31640
- TURBOMACHINERY**
Three-component laser anemometer measurement systems
[NASA-TP-3080] p 5 N91-19057
- Computational Fluid Dynamics Symposium on Aeropropulsion
[NASA-CP-3078] p 5 N91-21062
- Limit cycle vibrations in turbomachinery
[NASA-TP-3181] p 20 N92-14108
- Rotordynamic Instability Problems in High-Performance Turbomachinery, 1990
[NASA-CP-3122] p 28 N92-14346
- Laser anemometer measurements and computations in an annular cascade of high turning core turbine vanes
[NASA-TP-3252] p 8 N92-28980
- Tenth Workshop for Computational Fluid Dynamic Applications in Rocket Propulsion, part 1
[NASA-CP-3163-PT-1] p 27 N92-32278
- TURBOPROP AIRCRAFT**
Annoyance caused by advanced turboprop aircraft flyover noise: Comparison of different propeller configurations
[NASA-TP-3104] p 45 N92-11758
- Annoyance caused by aircraft en route noise
[NASA-TP-3165] p 45 N92-20479
- TURBULENCE**
State estimation applications in aircraft flight-data analysis: A user's manual for SMACK
[NASA-RP-1252] p 10 N91-19082
- Workshop on Engineering Turbulence Modeling
[NASA-CP-10088] p 27 N92-24514
- Laser anemometer measurements and computations in an annular cascade of high turning core turbine vanes
[NASA-TP-3252] p 8 N92-28980
- Direct simulation of high-speed mixing layers
[NASA-TP-3186] p 8 N92-30909
- TURBULENCE EFFECTS**
High-Speed Research: Sonic Boom, volume 1
[NASA-CP-3172] p 11 N92-33874
- TURBULENCE MODELS**
NASA Computational Fluid Dynamics Conference, Volume 1: Sessions 1-6
[NASA-CP-10038-VOL-1] p 4 N91-10839
- Computational Fluid Dynamics Symposium on Aeropropulsion
[NASA-CP-3078] p 5 N91-21062
- Workshop on Engineering Turbulence Modeling
[NASA-CP-10088] p 27 N92-24514
- TURBULENCE BOUNDARY LAYER**
Evaluation of a technique to generate artificially thickened boundary layers in supersonic and hypersonic flows
[NASA-TP-3142] p 6 N91-28136
- TURBULENCE FLOW**
Numerical study of the aerodynamic effects of using sulfur hexafluoride as a test gas in wind tunnels
[NASA-TP-3086] p 5 N91-22070
- Laser anemometer measurements and computations in an annular cascade of high turning core turbine vanes
[NASA-TP-3252] p 8 N92-28980
- TWISTED WINGS**
Survey and analysis of research on supersonic drag-due-to-lift minimization with recommendations for wing design
[NASA-TP-3202] p 9 N92-33656
- TWO DIMENSIONAL FLOW**
Static performance of a cruciform nozzle with multi-axis thrust-vectoring and reverse-thrust capabilities
[NASA-TP-3188] p 7 N92-23095

U

U.S.S.R. SPACE PROGRAM

- Exobiology on Mars
[NASA-CP-10055] p 41 N91-15691

ULTRAHIGH FREQUENCIES

- Propagation effects for land mobile satellite systems: Overview of experimental and modeling results
[NASA-RP-1274] p 25 N92-20404
- ULTRAHIGH VACUUM**
Surface effects on hydrogen permeation through Ti-14Al-21Nb alloy
[NASA-TP-3109] p 23 N91-20266
- ULTRASONIC FLAW DETECTION**
Second Conference on NDE for Aerospace Requirements
[NASA-CP-3091] p 16 N91-18189
- UNIQUENESS THEOREM**
Shock wave interaction with an abrupt area change
[NASA-TP-3113] p 6 N91-27140
- UNITED STATES**
The Federal Conference on Intelligent Processing Equipment
[NASA-CP-3138] p 52 N92-24987
- UNIVERSITY PROGRAM**
Joint University Program for Air Transportation Research, 1989-1990
[NASA-CP-3095] p 1 N91-19024
- Technology for the Future: In-Space Technology Experiments Program, part 1
[NASA-CP-10073-PT-1] p 14 N91-27177
- Technology for the Future: In-Space Technology Experiments Program, part 2
[NASA-CP-10073-PT-2] p 14 N91-27178
- Joint University Program for Air Transportation Research, 1990-1991
[NASA-CP-3131] p 3 N92-17984
- UNSTEADY AERODYNAMICS**
Physically weighted approximations of unsteady aerodynamic forces using the minimum-state method
[NASA-TP-3025] p 4 N91-18031
- UNSTEADY FLOW**
Calculation of unsteady transonic flows with mild separation by viscous-inviscid interaction
[NASA-TP-3197] p 7 N92-28477
- UPPER ATMOSPHERE**
The High Resolution Accelerometer Package (HiRAP) flight experiment summary for the first 10 flights
[NASA-RP-1267] p 3 N92-22505
- UPPER STAGE ROCKET ENGINES**
Graphite/epoxy composite adapters for the Space Shuttle/Centaur vehicle
[NASA-TP-3014] p 15 N92-31251
- USER MANUALS (COMPUTER PROGRAMS)**
State estimation applications in aircraft flight-data analysis: A user's manual for SMACK
[NASA-RP-1252] p 10 N91-19082
- USER REQUIREMENTS**
Beyond the Baseline 1991: Proceedings of the Space Station Evolution Symposium, Volume 1: Space Station Freedom, part 1
[NASA-CP-10083-VOL-1-PT-1] p 18 N92-17098
- Beyond the Baseline 1991: Proceedings of the Space Station Evolution Symposium, Volume 2: Space Station Freedom, part 1
[NASA-CP-10083-VOL-2-PT-1] p 18 N92-17768

V

VACUUM

- The 25th Aerospace Mechanisms Symposium
[NASA-CP-3113] p 30 N91-24603

VACUUM PUMPS

- Venturi air-jet vacuum ejectors for high-volume atmospheric sampling on aircraft platforms
[NASA-TP-3183] p 11 N92-20546

VACUUM TESTS

- Outgassing data for selecting spacecraft materials, revision 2
[NASA-RP-1124-REV-2] p 21 N91-14437

VANES

- Laser anemometer measurements and computations in an annular cascade of high turning core turbine vanes
[NASA-TP-3252] p 8 N92-28980

VARIATIONAL PRINCIPLES

- Computational methods for frictionless contact with application to Space Shuttle Orbiter nose-gear tires
[NASA-TP-3073] p 30 N91-22576

VEHICULAR TRACKS

- Static footprint local forces, areas, and aspect ratios for three type 7 aircraft tires
[NASA-TP-2983] p 10 N91-17014

VELOCITY MEASUREMENT

- NACA 0015 wing pressure and trailing vortex measurements
[NASA-TP-3151] p 6 N92-10981

VENTS

- Experimental investigation of porous-floor effects on cavity flow fields at supersonic speeds
[NASA-TP-3032] p 5 N91-19042

VENTURI TUBES

- Venturi air-jet vacuum ejectors for high-volume atmospheric sampling on aircraft platforms
[NASA-TP-3183] p 11 N92-20546

VERTICAL AIR CURRENTS

- Inertial oscillation of a vertical rotating draft with application to a supercell storm: Video supplement to NASA Technical Paper 3230
[NASA-TP-3230-VIDEO-SUPPL.] p 36 N92-34246

VERTICAL LANDING

- Static internal performance of ventral and rear nozzle concepts for short-takeoff and vertical-landing aircraft
[NASA-TP-3103] p 6 N92-10975

VIBRATION

- Limit cycle vibrations in turbomachinery
[NASA-TP-3181] p 20 N92-14108

VIBRATION DAMPING

- Design of control laws for flutter suppression based on the aerodynamic energy concept and comparisons with other design methods
[NASA-TP-3056] p 29 N91-10328

- Fourth NASA Workshop on Computational Control of Flexible Aerospace Systems, part 2
[NASA-CP-10065-PT-2] p 17 N91-22331

- A scheme for bandpass filtering magnetometer measurements to reconstruct tethered satellite skiprope motion
[NASA-TP-3123] p 42 N91-25629

- Rotordynamic Instability Problems in High-Performance Turbomachinery, 1990
[NASA-CP-3122] p 28 N92-14346

VIBRATION EFFECTS

- Free vibrations of thin-walled semicircular graphite-epoxy composite frames
[NASA-TP-3010] p 29 N91-13750

VIBRATION ISOLATORS

- International Workshop on Vibration Isolation Technology for Microgravity Science Applications
[NASA-CP-10094] p 24 N92-28436

VIBRATION MODE

- Influence of mass moment of inertia on normal modes of preloaded solar array mast
[NASA-TP-3273] p 31 N92-33476

VIDEO DATA

- High Resolution, High Frame Rate Video Technology
[NASA-CP-3080] p 27 N91-14574

- The effects of video compression on acceptability of images for monitoring life sciences experiments
[NASA-TP-3239] p 16 N92-33933

VISCOS FLOW

- Flow-induced resonance of screen-covered cavities
[NASA-TP-3052] p 25 N91-15499

- An upwind-biased space marching algorithm for supersonic viscous flow
[NASA-TP-3068] p 26 N91-18381

- Aeroacoustic and aerodynamic applications of the theory of nonequilibrium thermodynamics
[NASA-TP-3118] p 26 N91-25352

- Calculation of unsteady transonic flows with mild separation by viscous-inviscid interaction
[NASA-TP-3197] p 7 N92-28477

- Stagnation-point heat-transfer rate predictions at aeroassist flight conditions
[NASA-TP-3208] p 27 N92-31281

VISCOS FLUIDS

- Experimental measurement of the orbital paths of particles sedimenting within a rotating viscous fluid as influenced by gravity
[NASA-TP-3200] p 40 N92-28897

VISUAL CONTROL

- Visually Guided Control of Movement
[NASA-CP-3118] p 39 N92-21467

VISUAL PERCEPTION

- Visually Guided Control of Movement
[NASA-CP-3118] p 39 N92-21467

VISUAL STIMULI

- Reliability of a Shuttle reaction timer
[NASA-TP-3176] p 40 N92-16562

VOICE COMMUNICATION

- Flight tests with a data link used for air traffic control information exchange
[NASA-TP-3135] p 11 N91-31143

VOLCANOES

- International Workshop on Stratospheric Aerosols: Measurements, Properties, and Effects
[NASA-CP-3114] p 32 N91-32528

- Sixteenth International Laser Radar Conference, part 1
[NASA-CP-3158-PT-1] p 28 N92-29228

VOLCANOLOGY

- Volcanism-Climate Interactions
[NASA-CP-10062] p 34 N91-21641

VOLUME

- An investigation of microstructural characteristics of contact-lens polymers
[NASA-TP-3034] p 21 N91-13492

VORTEX BREAKDOWN

Wind tunnel investigation of vortex flows on F/A-18 configuration at subsonic through transonic speed
[NASA-TP-3111] p 6 N92-14968

VORTEX SHEDDING

Flow-induced resonance of screen-covered cavities
[NASA-TP-3052] p 25 N91-15499

VORTICES

Detailed flow-field measurements over a 75 deg swept delta wing
[NASA-TP-2997] p 4 N91-18030

NACA 0015 wing pressure and trailing vortex measurements
[NASA-TP-3151] p 6 N92-10981

A comparison of airborne wake vortex detection measurements with values predicted from potential theory
[NASA-TP-3125] p 10 N92-10994

Wind tunnel investigation of the interaction and breakdown characteristics of slender wing vortices at subsonic, transonic, and supersonic speeds
[NASA-TP-3114] p 6 N92-12994

Wind tunnel investigation of vortex flows on F/A-18 configuration at subsonic through transonic speed
[NASA-TP-3111] p 6 N92-14968

A weakly nonlinear theory for wave-vortex interactions in curved channel flow
[NASA-TP-3158] p 7 N92-19175

Influence of airfoil geometry on delta wing leading-edge vortices and vortex-induced aerodynamics at supersonic speeds
[NASA-TP-3105] p 7 N92-20038

W**WAKES**

Wake geometry effects on rotor blade-vortex interaction noise directivity
[NASA-TP-3015] p 44 N91-12315

A comparison of airborne wake vortex detection measurements with values predicted from potential theory
[NASA-TP-3125] p 10 N92-10994

WALKING

Techniques for determination of impact forces during walking and running in a zero-G environment
[NASA-TP-3159] p 38 N92-17022

WALL FLOW

Wall-interference assessment and corrections for transonic NACA 0012 airfoil data from various wind tunnels
[NASA-TP-3070] p 5 N91-20043

Comparison of a two-dimensional adaptive-wall technique with analytical wall interference correction techniques
[NASA-TP-3132] p 7 N92-20494

WALL TEMPERATURE

Longitudinal aerodynamic characteristics of a subsonic, energy-efficient transport configuration in the National Transonic Facility
[NASA-TP-2922] p 6 N91-28143

WALLOPS ISLAND

NASA Wallops Flight Facility Air-Sea Interaction Research Facility
[NASA-RP-1277] p 36 N92-25981

WALLS

Large-scale aeroacoustic research feasibility and conceptual design of test-section inserts for the Ames 80-by 120-foot wind tunnel
[NASA-TP-3020] p 45 N91-19824

WARNING SYSTEMS

Airborne Wind Shear Detection and Warning Systems. Second Combined Manufacturers' and Technologists' Conference, part 1
[NASA-CP-10050-PT-1] p 9 N91-11682

Airborne Wind Shear Detection and Warning Systems. Second Combined Manufacturers' and Technologists' Conference, part 2
[NASA-CP-10050-PT-2] p 9 N91-11695

Airborne Wind Shear Detection and Warning Systems: Third Combined Manufacturers' and Technologists' Conference, part 2
[NASA-CP-10060-PT-2] p 9 N91-24140

Airborne Wind Shear Detection and Warning Systems: Third Combined Manufacturers' and Technologists' Conference, part 1
[NASA-CP-10060-PT-1] p 9 N91-24166

WASTE TREATMENT

Controlled Ecological Life Support Systems: Natural and Artificial Ecosystems
[NASA-CP-10040] p 40 N91-24744

WATER

Gibbs free energy of reactions involving SiC, Si₃N₄, H₂, and H₂O as a function of temperature and pressure
[NASA-TP-3275] p 23 N92-31278

WATER VAPOR

The role of water vapor in climate. A strategic research plan for the proposed GEWEX water vapor project (GvAP)
[NASA-CP-3120] p 35 N91-25556

WATER WAVES

A self-zeroing capacitance probe for water wave measurements
[NASA-RP-1278] p 36 N92-27930

WAVE DIFFRACTION

Diffraction and head waves associated with waves on nonseparable surfaces
[NASA-TP-3169] p 7 N92-20545

WAVE DRAG

A method for designing blended wing-body configurations for low wave drag
[NASA-TP-3261] p 8 N92-32480

WAVE EQUATIONS

Monograph on propagation of sound waves in curved ducts
[NASA-RP-1248] p 44 N91-15848

WAVE PROPAGATION

Propagation effects for land mobile satellite systems: Overview of experimental and modeling results
[NASA-RP-1274] p 25 N92-20404

WAVE REFLECTION

Validation of three-dimensional incompressible spatial direct numerical simulation code: A comparison with linear stability and parabolic stability equation theories for boundary-layer transition on a flat plate
[NASA-TP-3205] p 8 N92-30295

WEAR TESTS

Development of a full-scale transmission testing procedure to evaluate advanced lubricants
[NASA-TP-3265] p 28 N92-30396

WEATHER

NASA/MSFC FY90 Global Scale Atmospheric Processes Research Program Review
[NASA-CP-3093] p 35 N91-16500

WEATHER FORECASTING

NASA/MSFC FY91 Global Scale Atmospheric Processes Research Program Review
[NASA-CP-3126] p 35 N91-32660

The 1991 International Aerospace and Ground Conference on Lightning and Static Electricity, volume 2
[NASA-CP-3106-VOL-2] p 36 N91-32693

WEBS (SUPPORTS)

Experimental behavior of graphite-epoxy Y-stiffened specimens loaded in compression
[NASA-TP-3171] p 30 N92-23115

WEDGES

Large-scale aeroacoustic research feasibility and conceptual design of test-section inserts for the Ames 80-by 120-foot wind tunnel
[NASA-TP-3020] p 45 N91-19824

WEIGHT REDUCTION

Multidisciplinary optimization of controlled space structures with global sensitivity equations
[NASA-TP-3130] p 18 N92-11087

WEIGHTLESSNESS

Workshop on Exercise Prescription for Long-Duration Space Flight
[NASA-CP-3051] p 36 N91-10574

WEIGHTLESSNESS SIMULATION

Techniques for determination of impact forces during walking and running in a zero-G environment
[NASA-TP-3159] p 38 N92-17022

Excentric and concentric muscle performance following 7 days of simulated weightlessness
[NASA-TP-3182] p 39 N92-17645

WELDED JOINTS

Plate and butt-weld stresses beyond elastic limit, material and structural modeling
[NASA-TP-3075] p 29 N91-16413

WIND SHEAR

Airborne Wind Shear Detection and Warning Systems. Second Combined Manufacturers' and Technologists' Conference, part 1
[NASA-CP-10050-PT-1] p 9 N91-11682

Airborne Wind Shear Detection and Warning Systems. Second Combined Manufacturers' and Technologists' Conference, part 2
[NASA-CP-10050-PT-2] p 9 N91-11695

Wind turbine acoustics
[NASA-TP-3057] p 44 N91-16679

Airborne Wind Shear Detection and Warning Systems: Third Combined Manufacturers' and Technologists' Conference, part 2
[NASA-CP-10060-PT-2] p 9 N91-24140

Airborne Wind Shear Detection and Warning Systems: Third Combined Manufacturers' and Technologists' Conference, part 1
[NASA-CP-10060-PT-1] p 9 N91-24166

Inertial oscillation of a vertical rotating draft with application to a supercell storm
[NASA-TP-3230] p 36 N92-33482

WIND TUNNEL APPARATUS

Large-scale aeroacoustic research feasibility and conceptual design of test-section inserts for the Ames 80-by 120-foot wind tunnel
[NASA-TP-3020] p 45 N91-19824

WIND TUNNEL DRIVES

Supersonic Throughflow Fan Test Facility at NASA. Lewis Research Center
[NASA-TP-3038] p 13 N92-31640

WIND TUNNEL MODELS

Experimental investigation of porous-floor effects on cavity flow fields at supersonic speeds
[NASA-TP-3032] p 5 N91-19042

Evaluation of a technique to generate artificially thickened boundary layers in supersonic and hypersonic flows
[NASA-TP-3142] p 6 N91-28136

Planform curvature effects on flutter characteristics of a wing with 56 deg leading-edge sweep and panel aspect ratio of 1.14
[NASA-TP-3116] p 11 N92-13054

Effect of afterbody geometry on aerodynamic characteristics of isolated nonaxisymmetric afterbodies at transonic Mach numbers
[NASA-TP-3236] p 9 N92-33706

WIND TUNNEL TESTS

Prediction of effects of wing contour modifications on low-speed maximum lift and transonic performance for the EA-6B aircraft
[NASA-TP-3046] p 4 N91-10902

Wake geometry effects on rotor blade-vortex interaction noise directivity
[NASA-TP-3015] p 44 N91-12315

J-85 jet engine noise measured in the ONERA S1 wind tunnel and extrapolated to far field
[NASA-TP-3053] p 45 N91-19823

Large-scale aeroacoustic research feasibility and conceptual design of test-section inserts for the Ames 80-by 120-foot wind tunnel
[NASA-TP-3020] p 45 N91-19824

Span reduction effects on the flutter characteristics of arrow-wing supersonic transport configurations
[NASA-TP-3077] p 11 N91-21127

Numerical study of the aerodynamic effects of using sulfur hexafluoride as a test gas in wind tunnels
[NASA-TP-3086] p 5 N91-22070

Transonic Symposium: Theory, Application and Experiment, volume 2
[NASA-CP-3020-VOL-2] p 5 N91-24132

Low-speed, powered ground effects of a generic, hypersonic configuration
[NASA-TP-3092] p 5 N91-25103

Sand and Dust on Mars
[NASA-CP-10074] p 50 N91-27057

Full-scale semispan tests of a business-jet wing with a natural laminar flow airfoil
[NASA-TP-3133] p 6 N91-30098

Planform curvature effects on flutter characteristics of a wing with 56 deg leading-edge sweep and panel aspect ratio of 1.14
[NASA-TP-3116] p 11 N92-13054

Wind tunnel investigation of vortex flows on F/A-18 configuration at subsonic through transonic speed
[NASA-TP-3111] p 6 N92-14968

Influence of airfoil geometry on delta wing leading-edge vortices and vortex-induced aerodynamics at supersonic speeds
[NASA-TP-3105] p 7 N92-20038

Static performance of a cruciform nozzle with multiaxis thrust-vectoring and reverse-thrust capabilities
[NASA-TP-3188] p 7 N92-23095

Wind-tunnel static and free-flight investigation of high-angle-of-attack stability and control characteristics of a model of the EA-6B airplane
[NASA-TP-3194] p 7 N92-25276

Two-dimensional aerodynamic characteristics of several polygon-shaped cross-sectional models applicable to helicopter fuselages
[NASA-TP-3233] p 8 N92-30394

Lewis icing research tunnel test of the aerodynamic effects of aircraft ground deicing/anti-icing fluids
[NASA-TP-3238] p 10 N92-30395

Wind tunnel aerodynamic characteristics of a transport-type airfoil in a simulated heavy rain environment
[NASA-TP-3184] p 8 N92-31532

Effect of afterbody geometry on aerodynamic characteristics of isolated nonaxisymmetric afterbodies at transonic Mach numbers
[NASA-TP-3236] p 9 N92-33706

Parametric investigation of single-expansion-ramp nozzles at Mach numbers from 0.60 to 1.20
[NASA-TP-3240] p 9 N92-34193

WIND TUNNEL WALLS

WIND TUNNEL WALLS

Calibration of the 13- by 13-inch adaptive wall test section for the Langley 0.3-meter transonic cryogenic tunnel

[NASA-TP-3049] p 13 N91-13461

Wall-interference assessment and corrections for transonic NACA 0012 airfoil data from various wind tunnels

[NASA-TP-3070] p 5 N91-20043

Comparison of a two-dimensional adaptive-wall technique with analytical wall interference correction techniques

[NASA-TP-3132] p 7 N92-20494

WIND TURBINES

Wind turbine acoustics

[NASA-TP-3057] p 44 N91-16679

WING NACELLE CONFIGURATIONS

Effect of location of aft-mounted nacelles on the longitudinal aerodynamic characteristics of a high-wing transport airplane

[NASA-TP-3047] p 4 N91-13402

Installation effects of wing-mounted turbofan nacelle-pylons on a 1/17-scale, twin-engine, low-wing transport model

[NASA-TP-3168] p 7 N92-19002

WING PANELS

Optimization of composite sandwich cover panels subjected to compressive loadings

[NASA-TP-3173] p 21 N92-20679

WING PROFILES

Prediction of effects of wing contour modifications on low-speed maximum lift and transonic performance for the EA-6B aircraft

[NASA-TP-3046] p 4 N91-10902

Relative efficiency and accuracy of two Navier-Stokes codes for simulating attached transonic flow over wings

[NASA-TP-3061] p 26 N91-17310

WING SPAN

Span reduction effects on the flutter characteristics of arrow-wing supersonic transport configurations

[NASA-TP-3077] p 11 N91-21127

WING TIPS

NACA 0015 wing pressure and trailing vortex measurements

[NASA-TP-3151] p 6 N92-10981

WINGS

NACA 0015 wing pressure and trailing vortex measurements

[NASA-TP-3151] p 6 N92-10981

Wind tunnel investigation of vortex flows on F/A-18 configuration at subsonic through transonic speed

[NASA-TP-3111] p 6 N92-14968

Survey and analysis of research on supersonic drag-due-to-lift minimization with recommendations for wing design

[NASA-TP-3202] p 9 N92-33656

WOOD

Structural properties of laminated Douglas fir/epoxy composite material

[NASA-RP-1236] p 20 N91-10127

WORK CAPACITY

A method of evaluating efficiency during space-suited work in a neutral buoyancy environment

[NASA-TP-3153] p 40 N92-19772

WORKSTATIONS

Report of the workshop on Aviation Safety/Automation Program

[NASA-CP-10054] p 9 N91-15141

WRIST

The validation of a human force model to predict dynamic forces resulting from multi-joint motions

[NASA-TP-3206] p 40 N92-26538

X

X RAYS

Multiple lesion track structure model

[NASA-TP-3185] p 39 N92-22186

Feasibility study of a low-energy gamma ray system for measuring quantity and flow rate of slush hydrogen

[NASA-TP-3150] p 19 N92-25147

X-15 AIRCRAFT

Proceedings of the X-15 First Flight 30th Anniversary Celebration

[NASA-CP-3105] p 10 N91-20071

Y

YAW

Static thrust-vectoring performance of nonaxisymmetric convergent-divergent nozzles with post-exit yaw vanes

[NASA-TP-3085] p 5 N91-21059

Effects of yaw angle and Reynolds number on rectangular-box cavities at subsonic and transonic speeds

[NASA-TP-3099] p 5 N91-27124

YAWING MOMENTS

A nozzle internal performance prediction method

[NASA-TP-3221] p 8 N92-33625

Z

ZINC-OXYGEN BATTERIES

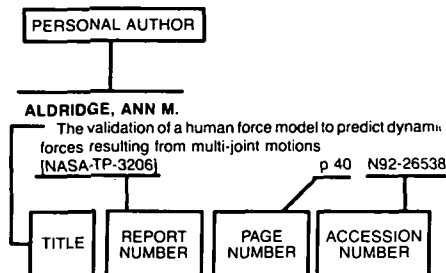
The 1991 NASA Aerospace Battery Workshop

[NASA-CP-3140] p 33 N92-22740

PERSONAL AUTHOR INDEX

NASA Scientific and Technical Publications 1991-1992

Typical Personal Author Index Listing



Listings in this index are arranged alphabetically by personal author. The title of the document provides the user with a brief description of the subject matter. The report number helps to indicate the type of document listed (e.g., NASA report, translation, NASA contractor report). The page and accession numbers are located beneath and to the right of the title. Under any one author's name the accession numbers are arranged in sequence.

A

- ABEYOUNIS, WILLIAM K.**
Effect of location of aft-mounted nacelles on the longitudinal aerodynamic characteristics of a high-wing transport airplane
[NASA-TP-3047] p 4 N91-13402
- ADDY, HAROLD E., JR.**
Lewis icing research tunnel test of the aerodynamic effects of aircraft ground deicing/anti-icing fluids
[NASA-TP-3238] p 10 N92-30395
- AGGARWAL, P. K.**
Effect of type of load on stress analysis of thin-walled ducts
[NASA-TP-3248] p 31 N92-26669
- AIELLO, ROBERT A.**
Improved accuracy for finite element structural analysis via a new integrated force method
[NASA-TP-3204] p 30 N92-22227
- ALDRIDGE, ANN M.**
The validation of a human force model to predict dynamic forces resulting from multi-joint motions
[NASA-TP-3206] p 40 N92-26538
Correlation and prediction of dynamic human isolated joint strength from lean body mass
[NASA-TP-3207] p 40 N92-26682
- ALHORN, D. C.**
Definition and design of an experiment to test raster scanning with rotating unbalanced-mass devices on gimballed payloads
[NASA-TP-3249] p 24 N92-29677
Reconfiguring the RUM experiment to test circular scanning with rotating unbalanced-mass devices on gimballed payloads
[NASA-TP-3282] p 25 N92-33601
- ALI, MICHAEL S.**
The effect of bandwidth on telerobot system performance
[NASA-TP-3152] p 28 N91-30540
- ALLAMANDOLA, LOUIS J.**
Interstellar Dust: Contributed Papers
[NASA-CP-3036] p 48 N91-14897
- ALLEN, CHERYL L.**
Guidance, navigation, and control subsystem equipment selection algorithm using expert system methods
[NASA-TP-3082] p 42 N91-25624

- Software design for automated assembly of truss structures
[NASA-TP-3198] p 43 N92-28375
- ALLISON, DENNIS O.**
Prediction of effects of wing contour modifications on low-speed maximum lift and transonic performance for the EA-6B aircraft
[NASA-TP-3046] p 4 N91-10902
- ANDERSEN, D.**
Exobiology on Mars
[NASA-CP-10055] p 41 N91-15691
- ANDERSEN, DALE T.**
Fourth Symposium on Chemical Evolution and the Origin and Evolution of Life
[NASA-CP-3129] p 41 N92-13588
- ANDERSEN, KRISTINN**
A generalized method for multiple robotic manipulator programming applied to vertical-up welding
[NASA-TP-3163] p 24 N92-11218
- ANDERSON, MELVIN S.**
Axisymmetric shell analysis of the space shuttle solid rocket booster field joint
[NASA-TP-3033] p 28 N91-14618
- ANDERSON, W. KYLE**
Numerical study of the aerodynamic effects of using sulfur hexafluoride as a test gas in wind tunnels
[NASA-TP-3086] p 5 N91-22070
- ANTONIEWICZ, ROBERT F.**
Application and flight test of linearizing transformations using measurement feedback to the nonlinear control problem
[NASA-TP-3154] p 12 N91-30154
- ARBUCKLE, P. DOUGLAS**
A controls engineering approach for analyzing airplane input-output characteristics
[NASA-TP-3072] p 12 N91-20128
- ARKING, ALBERT**
Climate Impact of Solar Variability
[NASA-CP-3086] p 50 N91-12456
- ARMAND, SASAN C.**
Influence of mass moment of inertia on normal modes of preloaded solar array mast
[NASA-TP-3273] p 31 N92-33476
- ARRAS, MICHAEL K.**
Fault tolerance of artificial neural networks with applications in critical systems
[NASA-TP-3187] p 42 N92-22285
- ASBURY, SCOTT C.**
Static performance of a cruciform nozzle with multiaxis thrust-vectoring and reverse-thrust capabilities
[NASA-TP-3188] p 7 N92-23095
- ATENCIO, ADOLPH, JR.**
J-85 jet engine noise measured in the ONERA S1 wind tunnel and extrapolated to far field
[NASA-TP-3053] p 45 N91-19823
- ATWELL, WILLIAM**
Radiation risk predictions for Space Station Freedom orbits
[NASA-TP-3098] p 51 N91-26107
Analyses of risks associated with radiation exposure from past major solar particle events
[NASA-TP-3137] p 50 N91-31061
- AVIS, LEE M.**
Limb-darkening functions as derived from along-track operation of the ERBE scanning radiometers for August 1985
[NASA-RP-1243] p 34 N91-14683
- BACH, RALPH E., JR.**
State estimation applications in aircraft flight-data analysis: A user's manual for SMACK
[NASA-RP-1252] p 10 N91-19082
- BADAVI, FOROOZ F.**
HZETRN: A heavy ion/nucleon transport code for space radiations
[NASA-TP-3146] p 51 N92-15959

B

- BAKER, J. T.**
Responses of women to orthostatic and exercise stresses
[NASA-TP-3043] p 37 N91-19711
- BALDWIN, R. T.**
Types and Characteristics of Data for Geomagnetic Field Modeling
[NASA-CP-3153] p 31 N92-28620
- BANGERT, LINDA S.**
Effect of afterbody geometry on aerodynamic characteristics of isolated nonaxisymmetric afterbodies at transonic Mach numbers
[NASA-TP-3236] p 9 N92-33706
- BARBER, FRANK J.**
Reliability training
[NASA-RP-1253] p 15 N92-32456
- BARE, E. ANN**
Parametric study of afterbody/nozzle drag on twin two-dimensional convergent-divergent nozzles at Mach numbers from 0.60 to 1.20
[NASA-TP-2640] p 4 N91-14316
Parametric investigation of single-expansion-ramp nozzles at Mach numbers from 0.60 to 1.20
[NASA-TP-3240] p 9 N92-34193
- BARGER, RAYMOND L.**
Diffracted and head waves associated with waves on nonseparable surfaces
[NASA-TP-3169] p 7 N92-20545
Comparison of jet plume shape predictions and plume influence on sonic boom signature
[NASA-TP-3172] p 7 N92-25133
Trajectory fitting in function space with application to analytic modeling of surfaces
[NASA-TP-3232] p 8 N92-30747
A method for designing blended wing-body configurations for low wave drag
[NASA-TP-3261] p 8 N92-32480
- BARINA, FRANK J.**
Reliability training
[NASA-RP-1253] p 15 N92-32456
- BARNETT, ROBERT JOEL**
A generalized method for multiple robotic manipulator programming applied to vertical-up welding
[NASA-TP-3163] p 24 N92-11218
- BARRETT, M.**
The High Resolution Accelerometer Package (HiRAP) flight experiment summary for the first 10 flights
[NASA-RP-1267] p 3 N92-22505
- BARROWS, LINDA H.**
Evaluation of noninvasive cardiac output methods during exercise
[NASA-TP-3174] p 38 N92-16553
Fuel utilization during exercise after 7 days of bed rest
[NASA-TP-3175] p 38 N92-16554
Eccentric and concentric muscle performance following 7 days of simulated weightlessness
[NASA-TP-3182] p 39 N92-17645
- BARTHELEMY, JEAN-FRANCOIS M.**
Research in Structures, Structural Dynamics and Materials, 1990
[NASA-CP-3064] p 29 N91-10301
- BARTOS, KAREN F.**
A three-dimensional finite-element thermal/mechanical analytical technique for high-performance traveling wave tubes
[NASA-TP-3081] p 25 N91-27436
- BAUER, STEVEN X. S.**
The natural flow wing-design concept
[NASA-TP-3193] p 7 N92-25202
- BAUGHER, CHARLES R.**
Measurement and Characterization of the Acceleration Environment on Board the Space Station
[NASA-CP-3088] p 48 N91-12401
Space Station Freedom Toxic and Reactive Materials Handling
[NASA-CP-3085] p 48 N91-15930
- BECK, SHERWIN M.**
Technology for the Future: In-Space Technology Experiments Program, part 1
[NASA-CP-10073-PT-1] p 14 N91-27177

C

- Technology for the Future: In-Space Technology Experiments Program, part 2
[NASA-CP-10073-PT-2] p 14 N91-27178
- BELCASTRO, CHRISTINE M.**
On the formulation of a minimal uncertainty model for robust control with structured uncertainty
[NASA-TP-3094] p 13 N92-10027
- BENNETT, LARRY H.**
AMSAAHS 1990: Advances in Materials Science and Applications of High Temperature Superconductors
[NASA-CP-3100] p 22 N92-21605
- BERKE, LASZLO**
Improved accuracy for finite element structural analysis via a new integrated force method
[NASA-TP-3204] p 30 N92-22227
- BESS, T. DALE**
Atlas of wide-field-of-view outgoing longwave radiation derived from Nimbus 7 Earth radiation budget data set, November 1985 to October 1987
[NASA-RP-1261] p 35 N91-24719
- BEZOS, GAUDY M.**
Wind tunnel aerodynamic characteristics of a transport-type airfoil in a simulated heavy rain environment
[NASA-TP-3184] p 8 N92-31532
- BILLINGS, C. E.**
The development of the NASA aviation safety reporting system
[NASA-RP-1114] p 10 N91-70436
- BINDSCHADLER, ROBERT A.**
West Antarctic Ice Sheet Initiative. Volume 1: Science and Implementation Plan
[NASA-CP-3115-VOL-1] p 32 N91-20541
West Antarctic Ice Sheet Initiative. Volume 2: Discipline Reviews
[NASA-CP-3115-VOL-2] p 32 N91-26573
- BIRCKELBAW, L. D.**
NASA Workshop on future directions in surface modeling and grid generation
[NASA-CP-10092] p 8 N92-29625
- BISHOP, PHILLIP**
Techniques for determination of impact forces during walking and running in a zero-G environment
[NASA-TP-3159] p 38 N92-17022
- BLAIR, A. B., JR.**
Evaluation of a technique to generate artificially thickened boundary layers in supersonic and hypersonic flows
[NASA-TP-3142] p 6 N91-28136
- BLANCHARD, ROBERT C.**
The High Resolution Accelerometer Package (HiRAP) flight experiment summary for the first 10 flights
[NASA-RP-1267] p 3 N92-22505
- BOHON, HERMAN L.**
Eighth DOD/NASA/FAA Conference on Fibrous Composites in Structural Design, part 1
[NASA-CP-3087-PT-1] p 22 N92-32513
Eighth DOD/NASA/FAA Conference on Fibrous Composites in Structural Design, part 2
[NASA-CP-3087-PT-2] p 22 N92-32574
- BONHAUS, DARYL L.**
Relative efficiency and accuracy of two Navier-Stokes codes for simulating attached transonic flow over wings
[NASA-TP-3061] p 26 N91-17310
- BOWLES, ROLAND L.**
Airborne Wind Shear Detection and Warning Systems. Second Combined Manufacturers' and Technologists' Conference, part 1
[NASA-CP-10050-PT-1] p 9 N91-11682
Airborne Wind Shear Detection and Warning Systems. Second Combined Manufacturers' and Technologists' Conference, part 2
[NASA-CP-10050-PT-2] p 9 N91-11695
Airborne Wind Shear Detection and Warning Systems: Third Combined Manufacturers' and Technologists' Conference, part 2
[NASA-CP-10060-PT-2] p 9 N91-24140
Airborne Wind Shear Detection and Warning Systems: Third Combined Manufacturers' and Technologists' Conference, part 1
[NASA-CP-10060-PT-1] p 9 N91-24166
- BOZZOLO, GUILLERMO**
Equivalent crystal theory of alloys
[NASA-TP-3155] p 23 N91-30318
- BRECKENRIDGE, ROGER A.**
Technology for the Future: In-Space Technology Experiments Program, part 1
[NASA-CP-10073-PT-1] p 14 N91-27177
Technology for the Future: In-Space Technology Experiments Program, part 2
[NASA-CP-10073-PT-2] p 14 N91-27178
- BRENNER, M. J.**
Development of an integrated aeroservoelastic analysis program and correlation with test data
[NASA-TP-3120] p 2 N91-26113
- BREWER, JEFFREY C.**
The 1991 NASA Aerospace Battery Workshop
[NASA-CP-3140] p 33 N92-22740
- BRITCHER, COLIN P.**
Aerospace Applications of Magnetic Suspension Technology, part 1
[NASA-CP-10066-PT-1] p 17 N91-21188
Aerospace Applications of Magnetic Suspension Technology, part 2
[NASA-CP-10066-PT-2] p 17 N91-21203
International Symposium on Magnetic Suspension Technology, part 1
[NASA-CP-3152-PT-1] p 18 N92-27721
International Symposium on Magnetic Suspension Technology, part 2
[NASA-CP-3152-PT-2] p 18 N92-27788
- BRODY, ADAM R.**
Manual Control Aspects of Orbital Flight
[NASA-CP-10056] p 13 N91-20147
- BROWN, JEFFREY C.**
Supersonic Throughflow Fan Test Facility at NASA. Lewis Research Center
[NASA-TP-3038] p 13 N92-31640
- BROWNLEE, D.**
Exobiology in Earth orbit: The results of science workshops held at NASA, Ames Research Center
[NASA-SP-500] p 41 N91-14725
- BRUCKER, G. J.**
Shortcomings in ground testing, environment, simulations, and performance predictions for space applications
[NASA-TP-3217] p 23 N92-22593
- BRYSON, CRAIG C.**
Second Conference on NDE for Aerospace Requirements
[NASA-CP-3091] p 16 N91-18189
- BULLOCK, ELLEN PARKER**
Span reduction effects on the flutter characteristics of arrow-wing supersonic transport configurations
[NASA-TP-3077] p 11 N91-21127
- BUNDICK, W. THOMAS**
Development of an adaptive failure detection and identification system for detecting aircraft control element failures
[NASA-TP-3051] p 12 N91-25151
- BURKHARDT, R.**
Cable compliance
[NASA-TP-3216] p 24 N92-30378
- BURLEY, JAMES R., II**
Parametric study of afterbody/nozzle drag on twin two-dimensional convergent-divergent nozzles at Mach numbers from 0.60 to 1.20
[NASA-TP-2640] p 4 N91-14316
- BURNEY, LEWIS G.**
Venturi air-jet vacuum ejectors for high-volume atmospheric sampling on aircraft platforms
[NASA-TP-3183] p 11 N92-20546
- BURNS, KAREN S.**
An investigation of microstructural characteristics of contact-lens polymers
[NASA-TP-3034] p 21 N91-13492
- BUSH, KATHRYN A.**
Mission description and in-flight operations of ERBE instruments on ERBS and NOAA 9 spacecraft, November 1984 - January 1986
[NASA-RP-1256] p 32 N92-10208
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[NASA-RP-1279] p 32 N92-32127
- BUSQUETS, ANTHONY M.**
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[NASA-TP-3117] p 11 N92-13065
- BUTLER, RICKY W.**
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[NASA-CP-10052] p 42 N91-17559
- BUTTERFIELD, ANSEL J.**
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[NASA-TP-3067] p 14 N91-20177
- BYRD, JAMES E.**
Influence of airfoil geometry on delta wing leading-edge vortices and vortex-induced aerodynamics at supersonic speeds
[NASA-TP-3105] p 7 N92-20038
- BZIK, SARA E.**
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[NASA-CP-3129] p 41 N92-13588
- CAMARDA, CHARLES J.**
A simplified method for thermal analysis of a cowl leading edge subject to intense local shock-wave-interference heating
[NASA-TP-3167] p 27 N92-24797
- CAMPBELL, RICHARD L.**
A method for the design of transonic flexible wings
[NASA-TP-3045] p 10 N91-14323
Applications of a direct/iterative design method to complex transonic configurations
[NASA-TP-3234] p 8 N92-33484
- CAMPBELL, WILLIAM A., JR.**
Outgassing data for selecting spacecraft materials, revision 2
[NASA-RP-1124-REV-2] p 21 N91-14437
- CAPONE, FRANCIS J.**
Aeropropulsive characteristics of canted twin pitch-vectoring nozzles at Mach 0.20 to 1.20
[NASA-TP-3060] p 5 N91-22069
Parametric investigation of single-expansion-ramp nozzles at Mach numbers from 0.60 to 1.20
[NASA-TP-3240] p 9 N92-34193
- CARDEN, HUEY D.**
Free vibrations of thin-walled semicircular graphite-epoxy composite frames
[NASA-TP-3010] p 29 N91-13750
Failure behavior of generic metallic and composite aircraft structural components under crash loads
[NASA-RP-1239] p 29 N91-13751
Effect of crash pulse shape on seat stroke requirements for limiting loads on occupants of aircraft
[NASA-TP-3126] p 30 N92-18053
- CARLSON, HARRY W.**
Survey and analysis of research on supersonic drag-due-to-lift minimization with recommendations for wing design
[NASA-TP-3202] p 9 N92-33656
- CARLSON, JOHN R.**
A nozzle internal performance prediction method
[NASA-TP-3221] p 8 N92-33625
- CARPENTER, M. H.**
Direct simulation of high-speed mixing layers
[NASA-TP-3186] p 8 N92-30909
- CARROLL, M. A.**
The atmospheric effects of stratospheric aircraft: A current consensus
[NASA-RP-1251] p 33 N91-16467
- CARSON, GEORGE T., JR.**
Aeropropulsive characteristics of canted twin pitch-vectoring nozzles at Mach 0.20 to 1.20
[NASA-TP-3060] p 5 N91-22069
Static internal performance of ventral and rear nozzle concepts for short-takeoff and vertical-landing aircraft
[NASA-TP-3103] p 6 N92-10975
Effect of afterbody geometry on aerodynamic characteristics of isolated nonaxisymmetric afterbodies at transonic Mach numbers
[NASA-TP-3236] p 9 N92-33706
- CAZIER, F. W., JR.**
Space Transportation Materials and Structures Technology Workshop. Volume 1: Executive summary
[NASA-CP-3148-VOL-1] p 15 N92-22660
- CHAMIS, CHRISTOS C.**
Computational Structures Technology for Airframes and Propulsion Systems
[NASA-CP-3142] p 31 N92-25911
- CHANG, B.-C.**
On the formulation of a minimal uncertainty model for robust control with structured uncertainty
[NASA-TP-3094] p 13 N92-10027
- CHANG, CHAU-LYAN**
Validation of three-dimensional incompressible spatial direct numerical simulation code: A comparison with linear stability and parabolic stability equation theories for boundary-layer transition on a flat plate
[NASA-TP-3205] p 8 N92-30295
- CHANG, I-CHUNG**
Transonic flow analysis for rotors. Part 3: Three-dimensional, quasi-steady, Euler calculation
[NASA-TP-2375] p 3 N91-10007
- CHEANEY, E. S.**
The development of the NASA aviation safety reporting system
[NASA-RP-1114] p 10 N91-70436
- CHOO, Y. K.**
NASA Workshop on future directions in surface modeling and grid generation
[NASA-CP-10092] p 8 N92-29625
- CHU, JULIO**
Effects of yaw angle and Reynolds number on rectangular-box cavities at subsonic and transonic speeds
[NASA-TP-3099] p 5 N91-27124

- CHU, WILLIAM P.**
SAGE 1 data user's guide
[NASA-RP-1275] p 34 N92-33097
- CHUANG, SHERRY L.**
The effects of video compression on acceptability of images for monitoring life sciences experiments
[NASA-TP-3239] p 16 N92-33933
- CHUN, SANG Y.**
HZETRN: A heavy ion/nucleon transport code for space radiations
[NASA-TP-3146] p 51 N92-15959
- CLARK, JOHN S.**
Nuclear Thermal Propulsion: A Joint NASA/DOE/DOD Workshop
[NASA-CP-10079] p 20 N92-11088
- CLARK, LENWOOD G.**
Technology for the Future: In-Space Technology Experiments Program, part 1
[NASA-CP-10073-PT-1] p 14 N91-27177
Technology for the Future: In-Space Technology Experiments Program, part 2
[NASA-CP-10073-PT-2] p 14 N91-27178
- CLARK, RONALD K.**
Oxidation characteristics of Ti-25Al-10Nb-3V-1Mo intermetallic alloy
[NASA-TP-3044] p 22 N91-13522
Surface effects on hydrogen permeation through Ti-14Al-21Nb alloy
[NASA-TP-3109] p 23 N91-20266
- COLLIER, LISA O.**
Technology for the Future: In-Space Technology Experiments Program, part 1
[NASA-CP-10073-PT-1] p 14 N91-27177
Technology for the Future: In-Space Technology Experiments Program, part 2
[NASA-CP-10073-PT-2] p 14 N91-27178
- COOK, GEORGE E.**
A generalized method for multiple robotic manipulator programming applied to vertical-up welding
[NASA-TP-3163] p 24 N92-11218
- COSGROVE, PATRICK A.**
Thermal-distortion analysis of a spacecraft box truss in geostationary orbit
[NASA-TP-3054] p 16 N91-11041
- COSTEN, ROBERT C.**
Inertial oscillation of a vertical rotating draft with application to a supercell storm
[NASA-TP-3230] p 36 N92-33482
Inertial oscillation of a vertical rotating draft with application to a supercell storm: Video supplement to NASA Technical Paper 3230
[NASA-TP-3230-VIDEO-SUPPL.] p 36 N92-34246
- CRIM, G.**
NASA-LaRC Flight-Critical Digital Systems Technology Workshop
[NASA-CP-10028] p 11 N91-24200
- CROWELL, CYNTHIA A.**
Two-dimensional aerodynamic characteristics of several polygon-shaped cross-sectional models applicable to helicopter fuselages
[NASA-TP-3233] p 8 N92-30394
- CRUZ, CHRISTOPHER I.**
Parametric trade studies on a Shuttle 2 launch system architecture
[NASA-TP-3059] p 14 N91-18180
- CRUZ, JUAN R.**
Optimization of composite sandwich cover panels subjected to compressive loadings
[NASA-TP-3173] p 21 N92-20679
- CUBBAGE, JAMES M.**
A parametric experimental investigation of a scramjet nozzle at Mach 6 with Freon and argon or air used for exhaust simulation
[NASA-TP-3048] p 4 N91-16990
- CUCINOTTA, FRANCIS A.**
Inclusive inelastic scattering of heavy ions and nuclear correlations
[NASA-TP-3026] p 46 N91-13985
Cellular track model of biological damage to mammalian cell cultures from galactic cosmic rays
[NASA-TP-3055] p 50 N91-16981
Improvements in computational accuracy of BRYNTRN (a baryon transport code)
[NASA-TP-3093] p 51 N91-23017
Radiation risk predictions for Space Station Freedom orbits
[NASA-TP-3098] p 51 N91-26107
Analyses of risks associated with radiation exposure from past major solar particle events
[NASA-TP-3137] p 50 N91-31061
Cellular repair/misrepair track model
[NASA-TP-3124] p 42 N92-11685
Transport methods and interactions for space radiations
[NASA-RP-1257] p 51 N92-15956
- Multiple lesion track structure model
[NASA-TP-3185] p 39 N92-22186
Track structure model of cell damage in space flight
[NASA-TP-3235] p 39 N92-34154
- CULBERT, CHRISTOPHER J.**
Second CLIPS Conference. Proceedings, volume 1
[NASA-CP-10085-VOL-1] p 42 N92-16568
Second CLIPS Conference Proceedings, volume 2
[NASA-CP-10085-VOL-2] p 42 N92-16590
- CUNNAN, WALTER S.**
Supersonic Throughflow Fan Test Facility at NASA, Lewis Research Center
[NASA-TP-3038] p 13 N92-31640

D

- DANFORD, M. D.**
Electrochemical studies of corrosion inhibitors
[NASA-TP-3066] p 22 N91-17208
The interaction of hydrogen with metal alloys
[NASA-TP-3128] p 23 N91-29318
- DARDEN, CHRISTINE M.**
High-Speed Research: Sonic Boom, volume 1
[NASA-CP-3172] p 11 N92-33874
- DAVIS, D. O.**
Evaluation of a technique to generate artificially thickened boundary layers in supersonic and hypersonic flows
[NASA-TP-3142] p 6 N91-28136
- DAVIS, RICHARD E.**
Evaluation of cloud detection instruments and performance of laminar-flow leading-edge test articles during NASA Leading-Edge Flight-Test Program
[NASA-TP-2888] p 11 N91-24199
- DAVIS, WILLIAM T.**
Packaging, development, and on-orbit assembly options for large geostationary spacecraft
[NASA-TP-3088] p 17 N91-27182
- DAWICKE, D. S.**
Analysis and prediction of Multiple-Site Damage (MSD) fatigue crack growth
[NASA-TP-3231] p 31 N92-31279
- DAWSON, RONALD A.**
Supersonic Throughflow Fan Test Facility at NASA, Lewis Research Center
[NASA-TP-3038] p 13 N92-31640
- DAWSON, VIRGINIA PARKER**
Engines and innovation: Lewis Laboratory and American propulsion technology
[NASA-SP-4306] p 51 N91-15975
- DECKER, HARRY J.**
Development of a full-scale transmission testing procedure to evaluate advanced lubricants
[NASA-TP-3265] p 28 N92-30396
- DEFREES, D.**
Exobiology in Earth orbit: The results of science workshops held at NASA, Ames Research Center
[NASA-SP-500] p 41 N91-14725
- DEGNAN, KEITH T.**
Mission description and in-flight operations of ERBE instruments on ERBS, NOAA 9, and NOAA 10 spacecraft
[NASA-RP-1279] p 32 N92-32127
- DEMORE, W. B.**
The atmospheric effects of stratospheric aircraft: A current consensus
[NASA-RP-1251] p 33 N91-16467
- DENNIS, BRIAN**
The Compton Observatory Science Workshop
[NASA-CP-3137] p 49 N92-21874
- DESILVA, SHANAKA**
Volcanism-Climate Interactions
[NASA-CP-10062] p 34 N91-21641
- DEVINCENZI, D. L.**
Exobiology on Mars
[NASA-CP-10055] p 41 N91-15691
- DILLARD, RICHARD B.**
Reliability training
[NASA-RP-1253] p 15 N92-32456
- DOGGETT, WILLIAM R.**
Software design for automated assembly of truss structures
[NASA-TP-3198] p 43 N92-28375
- DOIRON, SCOTT D.**
Nimbus-7 TOMS Antarctic ozone atlas: August - December 1990
[NASA-RP-1264] p 35 N91-26651
- DOUGLASS, A. R.**
The atmospheric effects of stratospheric aircraft: A current consensus
[NASA-RP-1251] p 33 N91-16467
- DOUGLASS, ANNE R.**
The atmospheric effects of stratospheric aircraft: A first program report
[NASA-RP-1272] p 33 N92-19121
- DOW, MARVIN B.**
Properties of three graphite/toughened resin composites
[NASA-TP-3102] p 21 N92-10067
- DREHER, P. E.**
Long-term orbital lifetime predictions
[NASA-TP-3058] p 13 N91-10092
- DRUMMOND, J. PHILIP**
Two-dimensional stability of laminar flames
[NASA-TP-3131] p 7 N92-17131
Direct simulation of high-speed mixing layers
[NASA-TP-3186] p 8 N92-30909
- DUKE, EUGENE L.**
Application and flight test of linearizing transformations using measurement feedback to the nonlinear control problem
[NASA-TP-3154] p 12 N91-30154
- DUNBAR, BONNIE J.**
The microgravity environment of the Space Shuttle Columbia middeck during STS-32
[NASA-TP-3140] p 48 N92-11930
The microgravity environment of the Space Shuttle Columbia payload bay during STS-32
[NASA-TP-3141] p 49 N92-11931
- DUNHAM, J. R.**
NASA-LaRC Flight-Critical Digital Systems Technology Workshop
[NASA-CP-10028] p 11 N91-24200
- DUNHAM, R. EARL, JR.**
Wind tunnel aerodynamic characteristics of a transport-type airfoil in a simulated heavy rain environment
[NASA-TP-3184] p 8 N92-31532
- DURICY, JAMES A.**
Rigid-body-control subsystem sizing for an Earth science geostationary platform
[NASA-TP-3087] p 17 N91-22302

E

- EFTEKHARI, ABE**
An investigation of microstructural characteristics of contact-lens polymers
[NASA-TP-3034] p 21 N91-13492
Investigation of microstructural changes in polyetherether-ketone films at cryogenic temperatures by positron lifetime spectroscopy
[NASA-TP-3064] p 21 N91-18216
Low-energy positron flux generator for microstructural characterization of thin films
[NASA-TP-3074] p 27 N91-22538
Positron lifetime measurements in chiral nematic liquid crystals
[NASA-TP-3122] p 46 N92-10677
- EKLUND, W.**
Cable compliance
[NASA-TP-3216] p 24 N92-30378
- ELLIS, STEPHEN R.**
Manual Control Aspects of Orbital Flight
[NASA-CP-10056] p 13 N91-20147
- ERICKSON, GARY E.**
Wind tunnel investigation of the interaction and breakdown characteristics of slender wing vortices at subsonic, transonic, and supersonic speeds
[NASA-TP-3114] p 6 N92-12994
Wind tunnel investigation of vortex flows on F/A-18 configuration at subsonic through transonic speed
[NASA-TP-3111] p 6 N92-14968
- ERICKSON, LARRY L.**
Panel methods: An introduction
[NASA-TP-2995] p 5 N91-19058
- ERLEBACHER, GORDON**
A weakly nonlinear theory for wave-vortex interactions in curved channel flow
[NASA-TP-3158] p 7 N92-19175
- ESGAR, JACK B.**
Structural properties of laminated Douglas fir/epoxy composite material
[NASA-RP-1236] p 20 N91-10127

F

- FARMER, JEFFERY T.**
Thermal-distortion analysis of a spacecraft box truss in geostationary orbit
[NASA-TP-3054] p 16 N91-11041
On-orbit structural dynamic performance of a 15-meter microwave radiometer antenna
[NASA-TP-3041] p 16 N91-17114
- FASANELLA, EDWIN L.**
Determination of the flight hardware configuration of an energy absorbing attenuator for the proposed Space Station crew and equipment translation aid cart
[NASA-TP-3084] p 29 N91-21556

FEREBEE, MELVIN J., JR.
Benefits from synergies and advanced technologies for an advanced-technology space station
[NASA-TP-3067] p 14 N91-20177

FERNANDEZ, KENNETH R.
A generalized method for multiple robotic manipulator programming applied to vertical-up welding
[NASA-TP-3163] p 24 N92-11218

FERRAINOLO, JOHN J.
Large space structures and systems in the space station era: A bibliography with indexes
[NASA-SP-7085(01)] p 17 N91-18199
Large space structures and systems in the space station era: A bibliography with indexes
[NASA-SP-7085(02)] p 18 N91-28191

FERRANTE, JOHN
Equivalent crystal theory of alloys
[NASA-TP-3155] p 23 N91-30318

FIELDS, ROGER A.
Thermal and structural tests of Rene 41 honeycomb integral-tank concept for future space transportation systems
[NASA-TP-3145] p 30 N92-24205

FISCHL, ROBERT
On the formulation of a minimal uncertainty model for robust control with structured uncertainty
[NASA-TP-3094] p 13 N92-10027

FISHER, DAVID F.
Evaluation of cloud detection instruments and performance of laminar-flow leading-edge test articles during NASA Leading-Edge Flight-Test Program
[NASA-TP-2888] p 11 N91-24199

FITE, E. BRIAN
A three-dimensional finite-element thermal/mechanical analytical technique for high-performance traveling wave tubes
[NASA-TP-3081] p 25 N91-27436

FLANEGAN, MARK
Small Explorer Data System MIL-STD-1773 fiber optic bus
[NASA-TP-3227] p 16 N92-26667

FLOM, YURY
AMSAHTS 1990: Advances in Materials Science and Applications of High Temperature Superconductors
[NASA-CP-3100] p 22 N92-21605

FOLEY, ROBERT J.
Static thrust-vectoring performance of nonaxisymmetric convergent-divergent nozzles with post-exit yaw vanes
[NASA-TP-3085] p 5 N91-21059

FORREST, DANA K.
Measurements of forces, moments, and pressures on a generic store separating from a box cavity at supersonic speeds
[NASA-TP-3110] p 6 N92-10005

FOUGHNER, JEROME T., JR.
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[NASA-CP-3020-VOL-2] p 5 N91-24132

FREY, RICHARD
User's guide: Nimbus-7 Earth radiation budget narrow-field-of-view products. Scene radiance tape products, sorting into angular bins products, and maximum likelihood cloud estimation products
[NASA-RP-1246] p 34 N91-13043

FRIES, SYLVIA DOUGHTY
NASA engineers and the age of Apollo
[NASA-SP-4104] p 52 N92-28344

FRONEK, DENNIS L.
Supersonic Throughflow Fan Test Facility at NASA. Lewis Research Center
[NASA-TP-3038] p 13 N92-31640

G

GANAPOL, BARRY D.
Benchmark solutions for the galactic heavy-ion transport equations with energy and spatial coupling
[NASA-TP-3112] p 44 N92-13756

GARDNER, J. E.
Space Transportation Materials and Structures Technology Workshop. Volume 1: Executive summary
[NASA-CP-3148-VOL-1] p 15 N92-22660

GARDNER, JAMES E.
National Educators' Workshop: Update 1988. Standard Experiments in Engineering Materials Science and Technology
[NASA-CP-3060] p 20 N91-20207
National Educators' Workshop: Update 1991. Standard Experiments in Engineering Materials Science and Technology
[NASA-CP-3151] p 24 N92-30263

GARRETT, L. BERNARD
Benefits from synergies and advanced technologies for an advanced-technology space station
[NASA-TP-3067] p 14 N91-20177

GARRISON, JAMES L.
Launch vehicle integration options for a large Earth sciences geostationary platform concept
[NASA-TP-3083] p 15 N91-27180

GARY, J. PATRICK
Proceedings of the Second Annual NASA Science Internet User Working Group Conference
[NASA-CP-3117] p 48 N91-27009

GARZON, SHERRY B.
Eighth DOD/NASA/FAA Conference on Fibrous Composites in Structural Design, part 1
[NASA-CP-3087-PT-1] p 22 N92-32513
Eighth DOD/NASA/FAA Conference on Fibrous Composites in Structural Design, part 2
[NASA-CP-3087-PT-2] p 22 N92-32574

GATLIN, GREGORY M.
Low-speed, powered ground effects of a generic, hypersonic configuration
[NASA-TP-3092] p 5 N91-25103

GEHRELS, NEIL
The Compton Observatory Science Workshop
[NASA-CP-3137] p 49 N92-21874

GELDER, THOMAS F.
Design and performance of controlled-diffusion stator compared with original double-circular-arc stator
[NASA-TP-2852] p 12 N92-22863

GENTRY, GARL L., JR.
Wind tunnel aerodynamic characteristics of a transport-type airfoil in a simulated heavy rain environment
[NASA-TP-3184] p 8 N92-31532

GHOSH, DAVE
Ongoing Progress in Spacecraft Controls
[NASA-CP-10099] p 19 N92-28730

GIARRATANO, JOSEPH
Second CLIPS Conference Proceedings, volume 1
[NASA-CP-10085-VOL-1] p 42 N92-16568
Second CLIPS Conference Proceedings, volume 2
[NASA-CP-10085-VOL-2] p 42 N92-16590

GIBB, JOHN
MILSTAR's flexible substrate solar array: Lessons learned, addendum
[NASA-CP-3147-ADD] p 33 N92-26895

GIESECKE, ROBERT L.
The microgravity environment of the Space Shuttle Columbia payload bay during STS-32
[NASA-TP-3141] p 49 N92-11931

GILBERT, JOHN H.
A method of evaluating efficiency during space-suited work in a neutral buoyancy environment
[NASA-TP-3153] p 40 N92-19772

GLOSS, BLAIR B.
Longitudinal aerodynamic characteristics of a subsonic, energy-efficient transport configuration in the National Transonic Facility
[NASA-TP-2922] p 6 N91-28143

GODBOLD, JOHN A.
Payload bay doors and radiator panels familiarization handbook
[NASA-TM-107793] p 15 N92-20676

GOLDHIRSH, JULIUS
Propagation effects for land mobile satellite systems: Overview of experimental and modeling results
[NASA-RP-1274] p 25 N92-20404

GOLDMAN, LOUIS J.
Three-component laser anemometer measurement systems
[NASA-TP-3080] p 5 N91-19057
Laser anemometer measurements and computations in an annular cascade of high turning core turbine vanes
[NASA-TP-3252] p 8 N92-28980

GONG, LESLIE
Thermal and structural tests of Rene 41 honeycomb integral-tank concept for future space transportation systems
[NASA-TP-3145] p 30 N92-24205

GOODSELL, AGA M.
Transonic and supersonic Euler computations of vortex-dominated flow fields about a generic fighter
[NASA-TP-3156] p 6 N92-10011

GOUGEON, MEADE
Structural properties of laminated Douglas fir/epoxy composite material
[NASA-RP-1236] p 20 N91-10127

GRAHAM, R. LYNN
Experimental validation of clock synchronization algorithms
[NASA-TP-3209] p 42 N92-27589

GRANTHAM, CAROLYN
Software design for automated assembly of truss structures
[NASA-TP-3198] p 43 N92-28375

GRAVES, PHILIP C.
Multidisciplinary optimization of controlled space structures with global sensitivity equations
[NASA-TP-3130] p 18 N92-11087

GREELEY, RONALD
Sand and Dust on Mars
[NASA-CP-10074] p 50 N91-27057

GREEN, LAWRENCE L.
Wall-interference assessment and corrections for transonic NACA 0012 airfoil data from various wind tunnels
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[NASA-TP-3068] p 26 N91-18381
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[NASA-TP-3101] p 26 N92-10161

GREENISEN, MICHAEL
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[NASA-TP-3159] p 38 N92-17022

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[NASA-TP-3153] p 40 N92-19772

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[NASA-CP-10066-PT-1] p 17 N91-21188
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International Symposium on Magnetic Suspension Technology, part 1
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GROVEMAN, BRIAN
User's guide: Nimbus-7 Earth radiation budget narrow-field-of-view products. Scene radiance tape products, sorting into angular bins products, and maximum likelihood cloud estimation products
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[NASA-RP-1264] p 35 N91-26651

GUPTA, K. K.
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[NASA-TP-3120] p 2 N91-26113

GUPTA, ROOP N.
Calculations and curve fits of thermodynamic and transport properties for equilibrium air to 30000 K
[NASA-RP-1260] p 26 N92-11285
Stagnation-point heat-transfer rate predictions at aerosist flight conditions
[NASA-TP-3208] p 27 N92-31281

H

HABERLE, ROBERT M.
Sand and Dust on Mars
[NASA-CP-10074] p 50 N91-27057

HAHNE, DAVID E.
Full-scale semispan tests of a business-jet wing with a natural laminar flow airfoil
[NASA-TP-3133] p 6 N91-30098
Wind-tunnel static and free-flight investigation of high-angle-of-attack stability and control characteristics of a model of the EA-6B airplane
[NASA-TP-3194] p 7 N92-25276

HAINES, RICHARD F.
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[NASA-TP-3239] p 16 N92-33933

HAMROCK, BERNARD J.
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[NASA-RP-1255] p 28 N91-30531

HAN, DAESOO
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[NASA-CP-3135] p 46 N92-22045

HANDSCHUH, ROBERT F.
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[NASA-TP-3096] p 28 N92-10195

HARDY, ALVA C.
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[NASA-TP-3098] p 51 N91-26107
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[NASA-TP-3137] p 50 N91-31061

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The development of the NASA aviation safety reporting system
[NASA-RP-1114] p 10 N91-70436
- HARRIS, BERNARD A.**
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[NASA-TP-3175] p 38 N92-16554
Eccentric and concentric muscle performance following 7 days of simulated weightlessness
[NASA-TP-3182] p 39 N92-17645
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[NASA-RP-1256] p 32 N92-10208
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[NASA-TP-3206] p 40 N92-26538
Correlation and prediction of dynamic human isolated joint strength from lean body mass
[NASA-TP-3207] p 40 N92-26682
- HATHAWAY, MICHAEL D.**
Design and performance of controlled-diffusion stator compared with original double-circular-arc stator
[NASA-TP-2852] p 12 N92-22863
- HAYES, JUDITH C.**
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[NASA-TP-3182] p 39 N92-17645
- HAYHURST, KELLY J.**
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[NASA-TP-3069] p 43 N91-18753
- HAYS, RUSSELL D.**
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[NASA-TP-3176] p 40 N92-16562
- HERSTROM, CATHERINE L.**
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[NASA-TP-3198] p 43 N92-28375
- HILL, ACQUILLA S.**
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[NASA-TP-3049] p 13 N91-13461
- HILL, EUGENE G.**
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[NASA-TP-3238] p 10 N92-30395
- HILL, GERALD F.**
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[NASA-TP-3183] p 11 N92-20546
- HINGST, W. R.**
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[NASA-TP-3142] p 6 N91-28136
- HOADLEY, SHERWOOD TIFFANY**
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[NASA-TP-3025] p 4 N91-18031
- HOBAN, FRANCIS T.**
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[NASA-SP-6101(03)] p 46 N91-13347
Issues in NASA program and project management
[NASA-SP-6101(04)] p 46 N91-28026
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[NASA-SP-6101(05)] p 47 N92-27609
- HODGE, A. J.**
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[NASA-TP-3108] p 21 N91-21242
A statistical comparison of two carbon fiber/epoxy fabrication techniques
[NASA-TP-3179] p 22 N92-20950
- HOFFLER, G. W.**
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[NASA-TP-3043] p 37 N91-19711
- HOLLENBACH, DAVID J.**
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[NASA-CP-3084] p 49 N91-14100
- HOLTON, J. R.**
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[NASA-RP-1251] p 33 N91-16467
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[NASA-TP-3204] p 30 N92-22227
Computational Structures Technology for Airframes and Propulsion Systems
[NASA-CP-3142] p 31 N92-25911
- HORACK, J. M.**
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[NASA-RP-1268] p 49 N91-32006
- HORNE, W. CLIFTON**
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[NASA-TP-3040] p 45 N91-21828
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[NASA-TP-3118] p 26 N91-25352
- HORTA, LUCAS G.**
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[NASA-TP-3164] p 31 N92-26537
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[NASA-CP-3142] p 31 N92-25911
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[NASA-RP-1249] p 26 N91-20418
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[NASA-TP-2983] p 10 N91-17014
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- INGRALDI, ANTHONY M.**
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[NASA-TP-3168] p 7 N92-19002
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[NASA-SP-500] p 41 N91-14725
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[NASA-RP-1251] p 33 N91-16467
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[NASA-TP-3275] p 23 N92-31278
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[NASA-TP-3201] p 16 N92-19762
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[NASA-TP-3224] p 22 N92-28374
- JACKSON, CHERYL C.**
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[NASA-TP-3087] p 17 N91-22302
- JACKSON, KAREN E.**
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[NASA-TP-3084] p 29 N91-21556
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[NASA-TP-3162] p 23 N92-17070
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[NASA-TP-3130] p 18 N92-11087
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[NASA-TP-3071] p 21 N91-18215
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[NASA-TP-3196] p 22 N92-23981
- JOHNSON, R. L.**
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[NASA-TP-3043] p 37 N91-19711
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Visually Guided Control of Movement
[NASA-CP-3118] p 39 N92-21467
- JOHNSTON, H. S.**
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[NASA-RP-1251] p 33 N91-16467
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[NASA-RP-1250] p 33 N91-16466
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[NASA-TP-3215] p 25 N92-20492
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[NASA-TP-3208] p 27 N92-31281
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[NASA-TP-3084] p 29 N91-21556
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[NASA-TP-3215] p 25 N92-20492
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JORDAN, FRANK L., JR.
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 [NASA-TP-3133] p 6 N91-30098
 Wind-tunnel static and free-flight investigation of high-angle-of-attack stability and control characteristics of a model of the EA-6B airplane
 [NASA-TP-3194] p 7 N92-25276

JOSLIN, RONALD D.
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 [NASA-TP-3205] p 8 N92-30295

JUANG, JER-NAN
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 [NASA-TP-3164] p 31 N92-26537

JULIENNE, ALAIN
 J-85 jet engine noise measured in the ONERA S1 wind tunnel and extrapolated to far field
 [NASA-TP-3053] p 45 N91-19823

K

KAISER, MARY K.
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 [NASA-CP-3118] p 39 N92-21467

KARAMCHETI, KRISHNAMURTY
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 [NASA-TP-3118] p 26 N91-25352

KARIYA, TIMMY T.
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 [NASA-TP-3168] p 7 N92-19002

KARPEL, MORDECHAY
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 [NASA-TP-3025] p 4 N91-18031

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 [NASA-TP-3014] p 15 N92-31251

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 [NASA-TP-3055] p 50 N91-16981
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 [NASA-TP-3098] p 51 N91-26107
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 [NASA-TP-3077] p 11 N91-21127
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 [NASA-TP-3116] p 11 N92-13054

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 [NASA-TP-3026] p 46 N91-13985
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 [NASA-RP-1257] p 51 N92-15956

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 [NASA-TP-3088] p 17 N91-27182

KJELGAARD, SCOTT O.
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 [NASA-TP-2997] p 4 N91-18030

KLEIN, H.
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 [NASA-SP-500] p 41 N91-14725

KNOX, CHARLES E.
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 [NASA-TP-3135] p 11 N91-31143

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 [NASA-RP-1251] p 33 N91-16467

KO, MALCOLM K. W.
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 [NASA-RP-1272] p 33 N92-19121

KORTE, JOHN J.
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 [NASA-TP-3050] p 4 N91-18032

KRANTZ, TIMOTHY L.
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 [NASA-TP-3063] p 28 N91-12956

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 Atlas of the Earth's radiation budget as measured by Nimbus-7: May 1979 to May 1980
 [NASA-RP-1263] p 35 N91-24720

L

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 [NASA-CP-3160] p 21 N92-11142

LANDIS, GEOFFREY A.
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 [NASA-CP-10059] p 13 N91-22139

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 [NASA-CP-3146] p 40 N92-25961

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 [NASA-CP-3153] p 31 N92-28620

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LARKO, DAVID E.
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 [NASA-RP-1264] p 35 N91-26651

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LEE, KAM-PUI
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 [NASA-RP-1260] p 26 N92-11285

LEPSCH, ROGER A.
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 [NASA-TP-3059] p 14 N91-18180

LESLIE, FRED W.
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 [NASA-CP-3093] p 35 N91-16500
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 [NASA-CP-3126] p 35 N91-32660

LEVINE, ARLENE S.
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 [NASA-CP-10072] p 52 N91-24972
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 [NASA-CP-3134-PT-1] p 52 N92-23280
 LDEF: 69 Months in Space. First Post-Retrieval Symposium, part 2
 [NASA-CP-3134-PT-2] p 52 N92-24806
 LDEF: 69 Months in Space. First Post-Retrieval Symposium, part 3
 [NASA-CP-3134-PT-3] p 52 N92-27083
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 [NASA-CP-10097] p 52 N92-27218

LEWICKI, DAVID G.
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 [NASA-TP-3265] p 28 N92-30396

LIGHTSEY, W. D.
 A nonlinear estimator for reconstructing the angular velocity of a spacecraft without rate gyros
 [NASA-TP-3178] p 24 N92-13343
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 [NASA-TP-3249] p 24 N92-29677

LIN, PAUL
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 [NASA-TP-3273] p 31 N92-33476

LIU, W. W.
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 [NASA-CP-10088] p 27 N92-24514

LITVIN, FAYDOR L.
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 [NASA-LP-3096] p 28 N92-10195

LOLLAR, L. F.
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 [NASA-TP-3161] p 20 N92-12052

- LONG, STEVEN R.**
NASA Wallops Flight Facility Air-Sea Interaction
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stable observer [NASA-TP-3164] p 31 N92-26537
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[NASA-CP-10094] p 24 N92-28436
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[NASA-TP-3058] p 13 N91-10092
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during NASA Leading-Edge Flight-Test Program
[NASA-TP-2888] p 11 N91-24199
- MAIDA, JAMES C.**
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forces resulting from multi-joint motions
[NASA-TP-3206] p 40 N92-26538
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joint strength from lean body mass
[NASA-TP-3207] p 40 N92-26682
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[NASA-RP-1253] p 15 N92-32456
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noise directivity [NASA-TP-3015] p 44 N91-12315
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noise directivity [NASA-TP-3015] p 44 N91-12315
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[NASA-TP-3060] p 5 N91-22069
- MAZZOCCA, AUGUSTUS D.**
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[NASA-TP-3176] p 40 N92-16562
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7 days of simulated weightlessness
[NASA-TP-3182] p 39 N92-17645
- MCALISTER, K. W.**
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measurements [NASA-TP-3151] p 6 N92-10981
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7 days of simulated weightlessness
[NASA-TP-3182] p 39 N92-17645
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Annoyance caused by advanced turboprop aircraft
flyover noise: Comparison of different propeller
configurations [NASA-TP-3104] p 45 N92-11758
Annoyance caused by aircraft en route noise
[NASA-TP-3165] p 45 N92-20479
- MCDUGAL, DAVID S.**
FIRE Science Results 1988
[NASA-CP-3083] p 34 N91-10448
- MCGHEE, D. S.**
The effect of acceleration versus displacement methods
on steady-state boundary forces
[NASA-TP-3218] p 30 N92-21457
- MCGINNIS, MICHAEL R.**
Microbiology on Space Station Freedom
[NASA-CP-3108] p 37 N91-18573
- MCGOWAN, DAVID M.**
A simplified method for thermal analysis of a cowl leading
edge subject to intense local shock-wave-interference
heating [NASA-TP-3167] p 27 N92-24797
- MCMASTER, L. R.**
SAM 2 measurements of the polar stratospheric aerosol.
Volume 9: October 1982 - April 1983
[NASA-RP-1244] p 33 N91-18505
- MCMASTER, LEONARD R.**
SAGE 1 data user's guide
[NASA-RP-1275] p 34 N92-33097
- MCMILLIN, S. NAOMI**
Navier-Stokes and Euler solutions for lee-side flows over
supersonic delta wings. A correlation with experiment
[NASA-TP-3035] p 4 N91-13401
- MEISSNER, C. W., JR.**
NASA-LaRC Flight-Critical Digital Systems Technology
Workshop [NASA-CP-10028] p 11 N91-24200
- MELFI, S. HARVEY**
The role of water vapor in climate. A strategic research
plan for the proposed GEWEX water vapor project
(GVaP) [NASA-CP-3120] p 35 N91-25556
- MELSON, N. DUANE**
Comparison of jet plume shape predictions and plume
influence on sonic boom signature
[NASA-TP-3172] p 7 N92-25133
- MELSON, W. EDWARD, JR.**
Wind tunnel aerodynamic characteristics of a
transport-type airfoil in a simulated heavy rain
environment [NASA-TP-3184] p 8 N92-31532
- MELTON, JOHN E.**
Transonic and supersonic Euler computations of
vortex-dominated flow fields about a generic fighter
[NASA-TP-3156] p 6 N92-10011
- MENON, P. K. A.**
Application and flight test of linearizing transformations
using measurement feedback to the nonlinear control
problem [NASA-TP-3154] p 12 N91-30154
- MIKAKE-LYE, RICHARD C.**
The atmospheric effects of stratospheric aircraft: A first
program report [NASA-RP-1272] p 33 N92-19121
- MICOL, JOHN R.**
Simulation of real-gas effects on pressure distributions
for aerassist flight experiment vehicle and comparison
with prediction [NASA-TP-3157] p 27 N92-20677
- MIKULAS, MARTIN M., JR.**
Buckling and vibration analysis of a simply supported
column with a piecewise constant cross section
[NASA-TP-3090] p 29 N91-20503
- MIN, J. B.**
Effect of type of load on stress analysis of thin-walled
ducts [NASA-TP-3248] p 31 N92-26669
Applications of FEM and BEM in two-dimensional
fracture mechanics problems [NASA-TP-3277] p 31 N92-31280
- MINECK, RAYMOND E.**
Calibration of the 13- by 13-inch adaptive wall test
section for the Langley 0.3-meter transonic cryogenic
tunnel [NASA-TP-3049] p 13 N91-13461
Comparison of a two-dimensional adaptive-wall
technique with analytical wall interference correction
techniques [NASA-TP-3132] p 7 N92-20494
- MINIS, IOANNIS**
The effect of bandwidth on telerobot system
performance [NASA-TP-3152] p 28 N91-30540
- MISHRA, S. K.**
Microbiology on Space Station Freedom
[NASA-CP-3108] p 37 N91-18573
- MOE, KAREN L.**
Space Network Control Conference on Resource
Allocation Concepts and Approaches
[NASA-CP-3124] p 16 N92-11039
- MONTA, WILLIAM J.**
A parametric experimental investigation of a scramjet
nozzle at Mach 6 with Freon and argon or air used for
exhaust simulation [NASA-TP-3048] p 4 N91-16990
- MONTANO, J. W.**
The interaction of hydrogen with metal alloys
[NASA-TP-3128] p 23 N91-29318
- MOORE, ALAN D.**
Evaluation of noninvasive cardiac output methods during
exercise [NASA-TP-3174] p 38 N92-16553
Fuel utilization during exercise after 7 days of bed rest
[NASA-TP-3175] p 38 N92-16554
- MOORJANI, KISHIN**
AMSAPTS 1990: Advances in Materials Science and
Applications of High Temperature Superconductors
[NASA-CP-3100] p 22 N92-21605
- MORELLO, SAMUEL A.**
Aviation Safety/Automation Program Conference
[NASA-CP-3090] p 9 N91-10836
Report of the workshop on Aviation Safety/Automation
Program [NASA-CP-10054] p 9 N91-15141
- MORRELL, FREDERICK R.**
Joint University Program for Air Transportation
Research, 1989-1990 [NASA-CP-3095] p 1 N91-19024
Joint University Program for Air Transportation
Research, 1990-1991 [NASA-CP-3131] p 3 N92-17984
- MORRIS, W. DOUGLAS**
Parametric trade studies on a Shuttle 2 launch system
architecture [NASA-TP-3059] p 14 N91-18180
- MUKUNDA, H. S.**
Two-dimensional stability of laminar flames
[NASA-TP-3131] p 7 N92-17131
Direct simulation of high-speed mixing layers
[NASA-TP-3186] p 8 N92-30909
- MURMAN, EARL M.**
Navier-Stokes and Euler solutions for lee-side flows over
supersonic delta wings. A correlation with experiment
[NASA-TP-3035] p 4 N91-13401
- N**
- NAFTEL, J. CHRISTOPHER**
Parametric trade studies on a Shuttle 2 launch system
architecture [NASA-TP-3059] p 14 N91-18180
- NAUGLE, JOHN E.**
First among equals: The selection of NASA space
science experiments [NASA-SP-4215] p 52 N91-28060
- NEALY, JOHN E.**
Cellular track model of biological damage to mammalian
cell cultures from galactic cosmic rays
[NASA-TP-3055] p 50 N91-16981
Radiation protection for human missions to the Moon
and Mars [NASA-TP-3079] p 50 N91-17999
Transport methods and interactions for space
radiations [NASA-RP-1257] p 51 N92-15956
MIRACAL: A mission radiation calculation program for
analysis of lunar and interplanetary missions
[NASA-TP-3211] p 51 N92-25100
- NELSON, MARK**
Biological Life Support Technologies: Commercial
Opportunities [NASA-CP-3094] p 36 N91-13842
- NEMETH, MICHAEL P.**
Axisymmetric shell analysis of the space shuttle solid
rocket booster field joint [NASA-TP-3033] p 28 N91-14618
Buckling behavior of long symmetrically laminated plates
subjected to combined loadings [NASA-TP-3195] p 22 N92-25160
- NETTLES, A. T.**
A novel method of testing the shear strength of thick
honeycomb composites [NASA-TP-3108] p 21 N91-21242
An examination of the damage tolerance enhancement
of carbon/epoxy using an outer lamina of spectra (R)
[NASA-TP-3160] p 21 N92-11142
- NEWMAN, J. C., JR.**
Stress concentrations for straight-shank and
countersunk holes in plates subjected to tension, bending,
and pin loading [NASA-TP-3192] p 31 N92-25997

- Analysis and prediction of Multiple-Site Damage (MSD) fatigue crack growth [NASA-TP-3231] p 31 N92-31279
- NEWMAN, PERRY A.**
Wall-interference assessment and corrections for transonic NACA 0012 airfoil data from various wind tunnels [NASA-TP-3070] p 5 N91-20043
- NEWTON, FREDERICK K.**
A method of evaluating efficiency during space-suited work in a neutral buoyancy environment [NASA-TP-3153] p 40 N92-19772
- NGO, DUC M.**
Track structure model of cell damage in space flight [NASA-TP-3235] p 39 N92-34154
- NICOL, DAVID M.**
Advanced techniques in reliability model representation and solution [NASA-TP-3242] p 43 N92-33483
- NIEDRA, JANIS M.**
The 23 to 300 C demagnetization resistance of samarium-cobalt permanent magnets [NASA-TP-3119] p 25 N92-11252
- NISSIM, ELI**
Design of control laws for flutter suppression based on the aerodynamic energy concept and comparisons with other design methods [NASA-TP-3056] p 29 N91-10328
- NOOR, AHMED K.**
Research in Structures, Structural Dynamics and Materials, 1990 [NASA-CP-3064] p 29 N91-10301
Free vibrations of thin-walled semicircular graphite-epoxy composite frames [NASA-TP-3010] p 29 N91-13750
Computational methods for frictionless contact with application to Space Shuttle Orbiter nose-gear tires [NASA-TP-3073] p 30 N91-22576
Computational Structures Technology for Airframes and Propulsion Systems [NASA-CP-3142] p 31 N92-25911
- NORBURY, JOHN W.**
Transport methods and interactions for space radiations [NASA-RP-1257] p 51 N92-15956
- O**
- OLSEN, LARRY E.**
Large-scale aeroacoustic research feasibility and conceptual design of test-section inserts for the Ames 80-by-120-foot wind tunnel [NASA-TP-3020] p 45 N91-19824
- OUTLAW, RONALD A.**
Surface effects on hydrogen permeation through Ti-14Al-21Nb alloy [NASA-TP-3109] p 23 N91-20266
- OVERTON, ERIC**
The 23 to 300 C demagnetization resistance of samarium-cobalt permanent magnets [NASA-TP-3119] p 25 N92-11252
- P**
- PADULA, SHARON L.**
Multidisciplinary optimization of controlled space structures with global sensitivity equations [NASA-TP-3130] p 18 N92-11087
- PALASZEWSKI, BRYAN**
Lunar missions using chemical propulsion: System design issues [NASA-TP-3065] p 19 N91-15308
- PALASZEWSKI, BRYAN A.**
Metalized propellants for the human exploration of Mars [NASA-TP-3062] p 19 N91-11800
Upper stages using liquid propulsion and metalized propellants [NASA-TP-3191] p 20 N92-17151
- PALUMBO, DANIEL L.**
Model reduction by trimming for a class of semi-Markov reliability models and the corresponding error bound [NASA-TP-3089] p 43 N91-25741
Fault tolerance of artificial neural networks with applications in critical systems [NASA-TP-3187] p 42 N92-22285
Experimental validation of clock synchronization algorithms [NASA-TP-3209] p 42 N92-27589
Advanced techniques in reliability model representation and solution [NASA-TP-3242] p 43 N92-33483
- PANDYA, ABHILASH K.**
The validation of a human force model to predict dynamic forces resulting from multi-joint motions [NASA-TP-3206] p 40 N92-26538
Correlation and prediction of dynamic human isolated joint strength from lean body mass [NASA-TP-3207] p 40 N92-26682
- PARMA, GEORGE F.**
Development of a truss joint for robotic assembly of space structures [NASA-TP-3214] p 31 N92-27974
- PARMAR, DEVENDRA S.**
Positron lifetime measurements in chiral nematic liquid crystals [NASA-TP-3122] p 46 N92-10677
- PARRISH, RUSSELL V.**
Effect of short-term exposure to stereoscopic three-dimensional flight displays on real-world depth perception [NASA-TP-3117] p 11 N92-13065
- PATNAIK, SURYA N.**
Improved accuracy for finite element structural analysis via a new integrated force method [NASA-TP-3204] p 30 N92-22227
- PATTERSON, JAMES C., JR.**
Effect of location of aft-mounted nacelles on the longitudinal aerodynamic characteristics of a high-wing transport airplane [NASA-TP-3047] p 4 N91-13402
- PENDERGRAFT, ODIS C., JR.**
Parametric study of afterbody/nozzle drag on twin two-dimensional convergent-divergent nozzles at Mach numbers from 0.60 to 1.20 [NASA-TP-2640] p 4 N91-14316
Static thrust-vectoring performance of nonaxisymmetric convergent-divergent nozzles with post-exit yaw vanes [NASA-TP-3085] p 5 N91-21059
Installation effects of wing-mounted turbofan nacelle-pylons on a 1/17-scale, twin-engine, low-wing transport model [NASA-TP-3168] p 7 N92-19002
- PENN, LANNING M.**
Nimbus-7 TOMS Antarctic ozone atlas: August - December 1990 [NASA-RP-1264] p 35 N91-26651
- PEREZ, SHARON E.**
Static footprint local forces, areas, and aspect ratios for three type 7 aircraft tires [NASA-TP-2983] p 10 N91-17014
- PETERS, JEANNE M.**
Free vibrations of thin-walled semicircular graphite-epoxy composite frames [NASA-TP-3010] p 29 N91-13750
- PHAN, MINH Q.**
Identification of linear systems by an asymptotically stable observer [NASA-TP-3164] p 31 N92-26537
- PHILLIPS, ROGER J.**
Planetary geosciences, 1989-1990 [NASA-SP-508] p 50 N92-28345
- PIERSON, DUANE L.**
Microbiology on Space Station Freedom [NASA-CP-3108] p 37 N91-18573
- PINKERTON, THERESA L.**
Planform curvature effects on flutter characteristics of a wing with 56 deg leading-edge sweep and panel aspect ratio of 1.14 [NASA-TP-3116] p 11 N92-13054
- PLENTOVICH, E. B.**
Effects of yaw angle and Reynolds number on rectangular-box cavities at subsonic and transonic speeds [NASA-TP-3099] p 5 N91-27124
- POE, C. C., JR.**
NASA workshop on impact damage to composites [NASA-CP-10075] p 21 N91-29240
- POLITES, M. E.**
A scheme for bandpass filtering magnetometer measurements to reconstruct tethered satellite skiprope motion [NASA-TP-3123] p 42 N91-25629
A nonlinear estimator for reconstructing the angular velocity of a spacecraft without rate gyros [NASA-TP-3178] p 24 N92-13343
Definition and design of an experiment to test raster scanning with rotating unbalanced-mass devices on gimbaled payloads [NASA-TP-3249] p 24 N92-29677
Reconfiguring the RUM experiment to test circular scanning with rotating unbalanced-mass devices on gimbaled payloads [NASA-TP-3282] p 25 N92-33601
- PORRO, A. R.**
Evaluation of a technique to generate artificially thickened boundary layers in supersonic and hypersonic flows [NASA-TP-3142] p 6 N91-28136
- POTTER, ANDREW**
Orbital debris: Technical issues and future directions [NASA-CP-10077] p 49 N92-33478
- POVINELLI, LOUIS A.**
Workshop on Engineering Turbulence Modeling [NASA-CP-10088] p 27 N92-24514
- POWELL, K. A.**
SAM 2 measurements of the polar stratospheric aerosol. Volume 9: October 1982 - April 1983 [NASA-RP-1244] p 33 N91-18505
- POWERS, CHARLES E.**
Long-term life testing of Geostationary Operational Environmental Satellite (GOES) encoder lamps [NASA-RP-1273] p 23 N92-20063
- PRATHER, M. J.**
The atmospheric effects of stratospheric aircraft: A topical review [NASA-RP-1250] p 33 N91-16466
- PRATHER, MICHAEL J.**
The atmospheric effects of stratospheric aircraft: A first program report [NASA-RP-1272] p 33 N92-19121
- PROTZEL, PETER W.**
Fault tolerance of artificial neural networks with applications in critical systems [NASA-TP-3187] p 42 N92-22285
- PUESCHEL, RUDOLF F.**
International Workshop on Stratospheric Aerosols: Measurements, Properties, and Effects [NASA-CP-3114] p 32 N91-32528
- Q**
- QUEIJO, MANUEL J.**
Benefits from synergies and advanced technologies for an advanced-technology space station [NASA-TP-3067] p 14 N91-20177
- R**
- RANEY, DAVID L.**
Control integration concept for hypersonic cruise-turn maneuvers [NASA-TP-3136] p 13 N92-20195
- RASH, JAMES L.**
The 1991 Goddard Conference on Space Applications of Artificial Intelligence [NASA-CP-3110] p 43 N91-22769
The 1992 Goddard Conference on Space Applications of Artificial Intelligence [NASA-CP-3141] p 43 N92-23356
- RASHID, MICHAEL**
Evaluation of noninvasive cardiac output methods during exercise [NASA-TP-3174] p 38 N92-16553
Reliability of a Shuttle reaction timer [NASA-TP-3176] p 40 N92-16562
- RE, RICHARD J.**
Static internal performance of ventral and rear nozzle concepts for short-takeoff and vertical-landing aircraft [NASA-TP-3103] p 6 N92-10975
Installation effects of wing-mounted turbofan nacelle-pylons on a 1/17-scale, twin-engine, low-wing transport model [NASA-TP-3168] p 7 N92-19002
Parametric investigation of single-expansion-ramp nozzles at Mach numbers from 0.60 to 1.20 [NASA-TP-3240] p 9 N92-34193
- REARDON, LAWRENCE F.**
Thermal and structural tests of Rene 41 honeycomb integral-tank concept for future space transportation systems [NASA-TP-3145] p 30 N92-24205
- REYNARD, W. D.**
The development of the NASA aviation safety reporting system [NASA-RP-1114] p 10 N91-70436
- RHEINFURTH, M. H.**
Methods of applied dynamics [NASA-RP-1262] p 24 N91-25303
- RICE, BARBARA L.**
Nutritional Requirements for Space Station Freedom Crews [NASA-CP-3146] p 40 N92-25961
- RING, DARRYL S.**
Graphite/epoxy composite adapters for the Space Shuttle/Centaur vehicle [NASA-TP-3014] p 15 N92-31251

- ROBERTS, F. E., III**
Optical measurements on solid specimens of solid rocket motor exhaust and solid rocket motor slag
[NASA-TP-3177] p 20 N92-20949
- ROBINSON, MARTHA P.**
Failure behavior of generic metallic and composite aircraft structural components under crash loads
[NASA-RP-1239] p 29 N91-13751
Computational methods for frictionless contact with application to Space Shuttle Orbiter nose-gear tires
[NASA-TP-3073] p 30 N91-22576
- ROCHELLE, WILLIAM C.**
Stagnation-point heat-transfer rate predictions at aerossist flight conditions
[NASA-TP-3208] p 27 N92-31281
- ROPER, MARY L.**
Eccentric and concentric muscle performance following 7 days of simulated weightlessness
[NASA-TP-3182] p 39 N92-17645
- ROSSONI, P.**
Cable compliance
[NASA-TP-3216] p 24 N92-30378
- ROSTAFINSKI, WOJCIECH**
Monograph on propagation of sound waves in curved ducts
[NASA-RP-1248] p 44 N91-15848
- ROWELL, LAWRENCE F.**
Thermal-distortion analysis of a spacecraft box truss in geostationary orbit
[NASA-TP-3054] p 16 N91-11041
Launch vehicle integration options for a large Earth sciences geostationary platform concept
[NASA-TP-3083] p 15 N91-27180
- ROWLAND, MICHAEL W.**
SAGE 1 data user's guide
[NASA-RP-1275] p 34 N92-33097
- RUMMEL, JOHN D.**
Fourth Symposium on Chemical Evolution and the Origin and Evolution of Life
[NASA-CP-3129] p 41 N92-13588
- RUNYAN, L. JAMES**
Lewis icing research tunnel test of the aerodynamic effects of aircraft ground deicing/anti-icing fluids
[NASA-TP-3238] p 10 N92-30395
- RYAN, R. S.**
The role of failure/problems in engineering: A commentary of failures experienced - lessons learned
[NASA-TP-3213] p 24 N92-22235
- RYAN, S. G.**
Limit cycle vibrations in turbomachinery
[NASA-TP-3181] p 20 N92-14108
- S**
- SACHSE, GLEN W.**
Venturi air-jet vacuum ejectors for high-volume atmospheric sampling on aircraft platforms
[NASA-TP-3183] p 11 N92-20546
- SALAS, MANUEL D.**
Shock wave interaction with an abrupt area change
[NASA-TP-3113] p 6 N91-27140
- SANDFORD, MAYNARD C.**
Planform curvature effects on flutter characteristics of a wing with 56 deg leading-edge sweep and panel aspect ratio of 1.14
[NASA-TP-3116] p 11 N92-13054
- SANKARAN, SANDARA N.**
Surface effects on hydrogen permeation through Ti-14Al-21Nb alloy
[NASA-TP-3109] p 23 N91-20266
- SANKARAN, SANKARA N.**
Oxidation characteristics of Ti-25Al-10Nb-3V-1Mo intermetallic alloy
[NASA-TP-3044] p 22 N91-13522
- SAVELY, ROBERT T.**
Fourth Annual Workshop on Space Operations Applications and Research (SOAR 90)
[NASA-CP-3103-VOL-1] p 41 N91-20641
Fourth Annual Workshop on Space Operations Applications and Research (SOAR 90)
[NASA-CP-3103-VOL-2] p 41 N91-20702
- SCALLION, WILLIAM I.**
Advanced Hypervelocity Aerophysics Facility Workshop
[NASA-CP-10031] p 13 N91-24211
- SCANLON, CHARLES H.**
Flight tests with a data link used for air traffic control information exchange
[NASA-TP-3135] p 11 N91-31143
- SCHATTEN, KENNETH H.**
Climate Impact of Solar Variability
[NASA-CP-3086] p 50 N91-12456
- SCHIMMERLING, WALTER S.**
Transport methods and interactions for space radiations
[NASA-RP-1257] p 51 N92-15956
- SCHLICKENMAIER, HERBERT**
Airborne Wind Shear Detection and Warning Systems. Second Combined Manufacturers' and Technologists' Conference, part 1
[NASA-CP-10050-PT-1] p 9 N91-11682
Airborne Wind Shear Detection and Warning Systems. Second Combined Manufacturers' and Technologists' Conference, part 2
[NASA-CP-10050-PT-2] p 9 N91-11695
Airborne Wind Shear Detection and Warning Systems. Third Combined Manufacturers' and Technologists' Conference, part 2
[NASA-CP-10060-PT-2] p 9 N91-24140
Airborne Wind Shear Detection and Warning Systems. Third Combined Manufacturers' and Technologists' Conference, part 1
[NASA-CP-10060-PT-1] p 9 N91-24166
- SCHMELTEKOPF, ARTHUR L.**
The atmospheric effects of stratospheric aircraft: A first program report
[NASA-RP-1272] p 33 N92-19121
- SCHMIDT, JAMES F.**
Design and performance of controlled-diffusion stator compared with original double-circular-arc stator
[NASA-TP-2852] p 12 N92-22863
- SCHOESS, JEFF N.**
The microgravity environment of the Space Shuttle Columbia middeck during STS-32
[NASA-TP-3140] p 48 N92-11930
- SCHULTZ, K.-J.**
Wake geometry effects on rotor blade-vortex interaction noise directivity
[NASA-TP-3015] p 44 N91-12315
- SCHWARZ, RAY P.**
Analysis of gravity-induced particle motion and fluid perfusion flow in the NASA-designed rotating zero-head-space tissue culture vessel
[NASA-TP-3143] p 24 N92-13340
Experimental measurement of the orbital paths of particles sedimenting within a rotating viscous fluid as influenced by gravity
[NASA-TP-3200] p 40 N92-28897
- SCIALDONE, JOHN J.**
Outgassing data for selecting spacecraft materials, revision 2
[NASA-RP-1124-REV-2] p 21 N91-14437
- SCOTT, A. DON**
Rigid-body-control subsystem sizing for an Earth science geostationary platform
[NASA-TP-3087] p 17 N91-22302
- SCOTT, COURTNEY J.**
Nimbus-7 TOMS Antarctic ozone atlas: August - December 1990
[NASA-RP-1264] p 35 N91-26651
- SCOTTI, STEPHEN J.**
Numerical studies of convective cooling for a locally heated skin
[NASA-TP-3100] p 26 N91-22509
A simplified method for thermal analysis of a cowl leading edge subject to intense local shock-wave-interference heating
[NASA-TP-3167] p 27 N92-24797
- SEASHOLTZ, RICHARD G.**
Laser anemometer measurements and computations in an annular cascade of high turning core turbine vanes
[NASA-TP-3252] p 8 N92-28980
- SEKAR, B.**
Direct simulation of high-speed mixing layers
[NASA-TP-3186] p 8 N92-30909
- SELLERS, WILLIAM L., III**
Detailed flow-field measurements over a 75 deg swept delta wing
[NASA-TP-2997] p 4 N91-18030
- SHABBI, A.**
Workshop on Engineering Turbulence Modeling
[NASA-CP-10088] p 27 N92-24514
- SHALKHAUSER, KURT A.**
A three-dimensional finite-element thermal/mechanical analytical technique for high-performance traveling wave tubes
[NASA-TP-3081] p 25 N91-27436
- SHALKHAUSER, MARY JO**
Destination-directed, packet-switching architecture for 30/20-GHz FDMA/TDM geostationary communications satellite network
[NASA-TP-3201] p 16 N92-19762
- SHARP, G. RICHARD**
A new fabrication method for precision antenna reflectors for space flight and ground test
[NASA-TP-3078] p 17 N91-21185
- A three-dimensional finite-element thermal/mechanical analytical technique for high-performance traveling wave tubes**
[NASA-TP-3081] p 25 N91-27436
- SHEN, CHIH-PING**
Feasibility study of a low-energy gamma ray system for measuring quantity and flow rate of slush hydrogen
[NASA-TP-3150] p 19 N92-25147
- SHEPHERD, KEVIN P.**
Wind turbine acoustics
[NASA-TP-3057] p 44 N91-16679
A loudness calculation procedure applied to shaped sonic booms
[NASA-TP-3134] p 45 N92-11765
- SHIDELER, JOHN L.**
Thermal and structural tests of Rene 41 honeycomb integral-tank concept for future space transportation systems
[NASA-TP-3145] p 30 N92-24205
- SHIER, DOUGLAS R.**
Structural factoring approach for analyzing stochastic networks
[NASA-TP-3069] p 43 N91-18753
- SHIH, T.-H.**
Workshop on Engineering Turbulence Modeling
[NASA-CP-10088] p 27 N92-24514
- SHIMSKI, JOHN T.**
Development of a full-scale transmission testing procedure to evaluate advanced lubricants
[NASA-TP-3265] p 28 N92-30396
- SHINN, JUDY L.**
Cellular track model of biological damage to mammalian cell cultures from galactic cosmic rays
[NASA-TP-3055] p 50 N91-16981
Improvements in computational accuracy of BRYNTRN (a baryon transport code)
[NASA-TP-3093] p 51 N91-23017
Radiation risk predictions for Space Station Freedom orbits
[NASA-TP-3098] p 51 N91-26107
Transport methods and interactions for space radiations
[NASA-RP-1257] p 51 N92-15956
Multiple lesion track structure model
[NASA-TP-3185] p 39 N92-22186
An efficient HZETRN (a galactic cosmic ray transport code)
[NASA-TP-3147] p 51 N92-22218
Track structure model of cell damage in space flight
[NASA-TP-3235] p 39 N92-34154
- SHIVAKUMAR, K. N.**
Stress concentrations for straight-shank and countersunk holes in plates subjected to tension, bending, and pin loading
[NASA-TP-3192] p 31 N92-25997
- SHRADER, CHRIS R.**
The Compton Observatory Science Workshop
[NASA-CP-3137] p 49 N92-21874
- SHUART, MARK J.**
Experimental behavior of graphite-epoxy Y-stiffened specimens loaded in compression
[NASA-TP-3171] p 30 N92-23115
- SICONOLFI, STEVEN F.**
Evaluation of noninvasive cardiac output methods during exercise
[NASA-TP-3174] p 38 N92-16553
Fuel utilization during exercise after 7 days of bed rest
[NASA-TP-3175] p 38 N92-16554
Reliability of a Shuttle reaction timer
[NASA-TP-3176] p 40 N92-16562
Eccentric and concentric muscle performance following 7 days of simulated weightlessness
[NASA-TP-3182] p 39 N92-17645
- SIM, ALEX G.**
Flight characteristics of a modified Schweizer SGS1-36 sailplane at low and very high angles of attack
[NASA-TP-3022] p 12 N91-10079
- SIMON, FREDERICK F.**
Modeling of the heat transfer in bypass transitional boundary-layer flows
[NASA-TP-3170] p 27 N92-11299
- SIMONSEN, LISA C.**
Radiation protection for human missions to the Moon and Mars
[NASA-TP-3079] p 50 N91-17999
Transport methods and interactions for space radiations
[NASA-RP-1257] p 51 N92-15956
MIRACAL: A mission radiation calculation program for analysis of lunar and interplanetary missions
[NASA-TP-3211] p 51 N92-25100
- SINGER, BART A.**
A weakly nonlinear theory for wave-vortex interactions in curved channel flow
[NASA-TP-3158] p 7 N92-19175

- SINGH, JAG J.**
An investigation of microstructural characteristics of contact-lens polymers [NASA-TP-3034] p 21 N91-13492
Investigation of microstructural changes in polyetherether-ketone films at cryogenic temperatures by positron lifetime spectroscopy [NASA-TP-3064] p 21 N91-18216
Low-energy positron flux generator for microstructural characterization of thin films [NASA-TP-3074] p 27 N91-22538
Positron lifetime measurements in chiral nematic liquid crystals [NASA-TP-3122] p 46 N92-10677
Feasibility study of a low-energy gamma ray system for measuring quantity and flow rate of slush hydrogen [NASA-TP-3150] p 19 N92-25147
- SINGH, NAGENDRA**
Current Collection from Space Plasmas [NASA-CP-3089] p 46 N91-17713
- SLEIGHT, DAVID W.**
On-orbit structural dynamic performance of a 15-meter microwave radiometer antenna [NASA-TP-3041] p 16 N91-17114
- SMITH, CHARLES A.**
Aerodynamic and aerodynamic applications of the theory of nonequilibrium thermodynamics [NASA-TP-3118] p 26 N91-25352
- SMITH, DONALD L.**
Properties of three graphite/toughened resin composites [NASA-TP-3102] p 21 N92-10067
- SMITH, G. LOUIS**
Limb-darkening functions as derived from along-track operation of the ERBE scanning radiometers for August 1985 [NASA-RP-1243] p 34 N91-14683
Atlas of wide-field-of-view outgoing longwave radiation derived from Nimbus 7 Earth radiation budget data set, November 1985 to October 1987 [NASA-RP-1261] p 35 N91-24719
- SMITH, LEIGH ANN**
A method for the design of transonic flexible wings [NASA-TP-3045] p 10 N91-14323
Applications of a direct/iterative design method to complex transonic configurations [NASA-TP-3234] p 8 N92-33484
- SMITH, R. E.**
NASA Workshop on future directions in surface modeling and grid generation [NASA-CP-10092] p 8 N92-29625
- SMITH, ROBERT E.**
Software Surface Modeling and Grid Generation Steering Committee [NASA-CP-3143] p 42 N92-24397
- SMITH, ROBERT E., JR.**
Numerical analysis and simulation of an assured crew return vehicle flow field [NASA-TP-3101] p 26 N92-10161
- SODERMAN, PAUL T.**
Flow-induced resonance of screen-covered cavities [NASA-TP-3052] p 25 N91-15499
J-85 jet engine noise measured in the ONERA S1 wind tunnel and extrapolated to far field [NASA-TP-3053] p 45 N91-19823
Large-scale aeroacoustic research feasibility and conceptual design of test-section inserts for the Ames 80-by-120-foot wind tunnel [NASA-TP-3020] p 45 N91-19824
Acoustic and aerodynamic study of a pusher-propeller aircraft model [NASA-TP-3040] p 45 N91-21828
- SOFFEN, GERALD**
Biological Life Support Technologies: Commercial Opportunities [NASA-CP-3094] p 36 N91-13842
- SPADY, AMOS A., JR.**
Airborne Wind Shear Detection and Warning Systems. Second Combined Manufacturers' and Technologists' Conference, part 1 [NASA-CP-10050-PT-1] p 9 N91-11682
Airborne Wind Shear Detection and Warning Systems. Second Combined Manufacturers' and Technologists' Conference, part 2 [NASA-CP-10050-PT-2] p 9 N91-11695
- SPERA, DAVID A.**
Structural properties of laminated Douglas fir/epoxy composite material [NASA-RP-1236] p 20 N91-10127
- SPLETTSTOEISSER, W. R.**
Wake geometry effects on rotor blade-vortex interaction noise directivity [NASA-TP-3015] p 44 N91-12315
- SPRINKLE, DANNY R.**
Investigation of microstructural changes in polyetherether-ketone films at cryogenic temperatures by positron lifetime spectroscopy [NASA-TP-3064] p 21 N91-18216
Feasibility study of a low-energy gamma ray system for measuring quantity and flow rate of slush hydrogen [NASA-TP-3150] p 19 N92-25147
- SQUIRES, WILLIAM**
Techniques for determination of impact forces during walking and running in a zero-G environment [NASA-TP-3159] p 38 N92-17022
- SQUIRES, WILLIAM G.**
A method of evaluating efficiency during space-suited work in a neutral buoyancy environment [NASA-TP-3153] p 40 N92-19772
- ST. CLAIR, TERRY L.**
Investigation of microstructural changes in polyetherether-ketone films at cryogenic temperatures by positron lifetime spectroscopy [NASA-TP-3064] p 21 N91-18216
Low-energy positron flux generator for microstructural characterization of thin films [NASA-TP-3074] p 27 N91-22538
- STALLINGS, ROBERT L., JR.**
Measurements of forces, moments, and pressures on a generic store separating from a box cavity at supersonic speeds [NASA-TP-3110] p 6 N92-10005
- STANLEY, DOUGLAS O.**
Parametric trade studies on a Shuttle 2 launch system architecture [NASA-TP-3059] p 14 N91-18180
- STARNE, JAMES H., JR.**
Computational Structures Technology for Airframes and Propulsion Systems [NASA-CP-3142] p 31 N92-25911
Eighth DOD/NASA/FAA Conference on Fibrous Composites in Structural Design, part 1 [NASA-CP-3087-PT-1] p 22 N92-32513
Eighth DOD/NASA/FAA Conference on Fibrous Composites in Structural Design, part 2 [NASA-CP-3087-PT-2] p 22 N92-32574
- STARR, D. OC.**
The role of water vapor in climate. A strategic research plan for the proposed GEWEX water vapor project (GVaP) [NASA-CP-3120] p 35 N91-25556
- STASSINOPOULOS, E. G.**
Shortcomings in ground testing, environment simulations, and performance predictions for space applications [NASA-TP-3217] p 23 N92-22593
- STECHER, JOSEPH L., III**
Sixteenth Space Simulation Conference Confirming Spaceworthiness Into the Next Millennium [NASA-CP-3096] p 17 N91-19126
- STEEVE, B. E.**
Applications of FEM and BEM in two-dimensional fracture mechanics problems [NASA-TP-3277] p 31 N92-31280
- STENGLE, THOMAS**
Flight Mechanics/Estimation Theory Symposium, 1990 [NASA-CP-3102] p 14 N91-17073
Flight Mechanics/Estimation Theory Symposium, 1991 [NASA-CP-3123] p 14 N92-14070
- STEPHENS, CRAIG A.**
Modeling of the heat transfer in bypass transitional boundary-layer flows [NASA-TP-3170] p 27 N92-11299
- STEPHENS, DAVID G.**
Fourth Aircraft Interior Noise Workshop [NASA-CP-10103] p 45 N92-32948
- STEWART, DONALD F.**
Workshop on Exercise Prescription for Long-Duration Space Flight [NASA-CP-3051] p 36 N91-10574
- STEWART, ERIC C.**
A comparison of airborne wake vortex detection measurements with values predicted from potential theory [NASA-TP-3125] p 10 N92-10994
- STIEGLER, JAMES O.**
National Educators' Workshop: Update 1991. Standard Experiments in Engineering Materials Science and Technology [NASA-CP-3151] p 24 N92-30263
- STOCK, LARRY V.**
Inertial oscillation of a vertical rotating draft with application to a supercell storm [NASA-TP-3230] p 36 N92-33482
Inertial oscillation of a vertical rotating draft with application to a supercell storm: Video supplement to NASA Technical Paper 3230 [NASA-TP-3230-VIDEO-SUPPL] p 36 N92-34246
- STONE, NOBIE H.**
Current Collection from Space Plasmas [NASA-CP-3089] p 46 N91-17713
- STRETT, CRAIG L.**
Validation of three-dimensional incompressible spatial direct numerical simulation code: A comparison with linear stability and parabolic stability equation theories for boundary-layer transition on a flat plate [NASA-TP-3205] p 8 N92-30295
- STRIEPE, SCOTT A.**
MIRACAL: A mission radiation calculation program for analysis of lunar and interplanetary missions [NASA-TP-3211] p 51 N92-25100
- SUDER, KENNETH L.**
Design and performance of controlled-diffusion stator compared with original double-circular-arc stator [NASA-TP-2852] p 12 N92-22863
- SULENTIC, JACK W.**
Paired and Interacting Galaxies: International Astronomical Union Colloquium No. 124 [NASA-CP-3098] p 49 N91-16858
- SULLIVAN, BRENDA M.**
A loudness calculation procedure applied to shaped sonic booms [NASA-TP-3134] p 45 N92-11765
- SWANSON, G. R.**
Applications of FEM and BEM in two-dimensional fracture mechanics problems [NASA-TP-3277] p 31 N92-31280
- SYDNOR, RICHARD L.**
The 22nd Annual Precise Time and Time Interval (PTTI) Applications and Planning Meeting [NASA-CP-3116] p 44 N91-25755
Proceedings of the 23rd Annual Precise Time and Time Interval (PTTI) Applications and Planning Meeting [NASA-CP-3159] p 44 N92-33350
- SYDOW, P. DANIEL**
Experimental behavior of graphite-epoxy Y-stiffened specimens loaded in compression [NASA-TP-3171] p 30 N92-23115

T

- TAKAHASHI, R. K.**
NACA 0015 wing pressure and trailing vortex measurements [NASA-TP-3151] p 6 N92-10981
- TALAY, THEODORE A.**
Parametric trade studies on a Shuttle 2 launch system architecture [NASA-TP-3059] p 14 N91-18180
- TANNER, JOHN A.**
Computational methods for frictionless contact with application to Space Shuttle Orbiter nose-gear tires [NASA-TP-3073] p 30 N91-22576
- TARTER, J.**
Exobiology in Earth orbit: The results of science workshops held at NASA, Ames Research Center [NASA-SP-500] p 41 N91-14725
- TATRO, D.**
Responses of women to orthostatic and exercise stresses [NASA-TP-3043] p 37 N91-19711
- TAYLOR, LAWRENCE W., JR.**
The 5th Annual NASA Spacecraft Control Laboratory Experiment (SCOLE) Workshop, part 1 [NASA-CP-10057-PT-1] p 16 N91-18186
The 5th Annual NASA Spacecraft Control Laboratory Experiment (SCOLE) Workshop, part 2 [NASA-CP-10057-PT-2] p 17 N91-19122
Fourth NASA Workshop on Computational Control of Flexible Aerospace Systems, part 1 [NASA-CP-10065-PT-1] p 17 N91-22307
Fourth NASA Workshop on Computational Control of Flexible Aerospace Systems, part 2 [NASA-CP-10065-PT-2] p 17 N91-22331
- TELESKO, C. M.**
Paired and Interacting Galaxies: International Astronomical Union Colloquium No. 124 [NASA-CP-3098] p 49 N91-16858
- TETER, JOHN E., JR.**
Determination of the flight hardware configuration of an energy absorbing attenuator for the proposed Space Station crew and equipment translation aid cart [NASA-TP-3084] p 29 N91-21556
- THOMAS, DONALD A.**
The microgravity environment of the Space Shuttle Columbia middeck during STS-32 [NASA-TP-3140] p 48 N92-11930
The microgravity environment of the Space Shuttle Columbia payload bay during STS-32 [NASA-TP-3141] p 49 N92-11931

V

- THOMAS, JAMES L.**
Navier-Stokes and Euler solutions for lee-side flows over supersonic delta wings. A correlation with experiment [NASA-TP-3035] p 4 N91-13401
- THOMPSON, BRAD G.**
Controlled Ecological Life Support Systems: Natural and Artificial Ecosystems [NASA-CP-10040] p 40 N91-24744
- THOMPSON, RICHARD A.**
Calculations and curve fits of thermodynamic and transport properties for equilibrium air to 30000 K [NASA-RP-1260] p 26 N92-11285
- THRONSON, HARLEY A., JR.**
The Interstellar Medium in External Galaxies: Summaries of contributed papers [NASA-CP-3084] p 49 N91-14100
- TIBBITTS, THEODORE W.**
Controlled Ecological Life Support Systems: Natural and Artificial Ecosystems [NASA-CP-10040] p 40 N91-24744
- TIELENS, ALEXANDER G. G. M.**
Interstellar Dust: Contributed Papers [NASA-CP-3036] p 48 N91-14897
- TILTON, JAMES C.**
Multisource Data Integration in Remote Sensing [NASA-CP-3099] p 32 N91-15615
Space and Earth Science Data Compression Workshop [NASA-CP-3130] p 41 N92-12425
- TOKAZ, J. C.**
Resource envelope concepts for mission planning [NASA-TP-3139] p 15 N91-29209
- TOLSON, CAROL J.**
Mission description and in-flight operations of ERBE instruments on ERBS and NOAA 9 spacecraft, November 1984 - January 1986 [NASA-RP-1256] p 32 N92-10208
Mission description and in-flight operations of ERBE instruments on ERBS, NOAA 9, and NOAA 10 spacecraft [NASA-RP-1279] p 32 N92-32127
- TORRANCE, PAUL R.**
Saturation point model for the formation of metal nitrate in nitrogen tetroxide oxidizer [NASA-TP-3107] p 26 N91-24542
- TOWNSEND, LAWRENCE W.**
Inclusive inelastic scattering of heavy ions and nuclear correlations [NASA-TP-3026] p 46 N91-13985
Cellular track model of biological damage to mammalian cell cultures from galactic cosmic rays [NASA-TP-3055] p 50 N91-16981
Radiation risk predictions for Space Station Freedom orbits [NASA-TP-3098] p 51 N91-26107
Benchmark solutions for the galactic heavy-ion transport equations with energy and spatial coupling [NASA-TP-3112] p 44 N92-13756
Transport methods and interactions for space radiations [NASA-RP-1257] p 51 N92-15956
HZETRN: A heavy ion/nucleon transport code for space radiations [NASA-TP-3146] p 51 N92-15959
- TRACY, M. B.**
Effects of yaw angle and Reynolds number on rectangular-box cavities at subsonic and transonic speeds [NASA-TP-3099] p 5 N91-27124
- TURCO, RICHARD P.**
The atmospheric effects of stratospheric aircraft: A first program report [NASA-RP-1272] p 33 N92-19121
- UEBEL, MARK**
The effect of bandwidth on telerobot system performance [NASA-TP-3152] p 28 N91-30540
- UPCHURCH, BILLY T.**
An investigation of microstructural characteristics of contact-lens polymers [NASA-TP-3034] p 21 N91-13492
- URASEK, DONALD C.**
Supersonic Throughflow Fan Test Facility at NASA. Lewis Research Center [NASA-TP-3038] p 13 N92-31640
- USHER, D.**
Exobiology in Earth orbit: The results of science workshops held at NASA, Ames Research Center [NASA-SP-500] p 41 N91-14725
- VALLETTE, BRENDA J.**
Atlas of the Earth's radiation budget as measured by Nimbus-7: May 1979 to May 1980 [NASA-RP-1263] p 35 N91-24720
- VANDALSEM, W. R.**
NASA Workshop on future directions in surface modeling and grid generation [NASA-CP-10092] p 8 N92-29625
- VERDERAIME, V.**
Plate and butt-weld stresses beyond elastic limit, material and structural modeling [NASA-TP-3075] p 29 N91-16413
Structural deterministic safety factors selection criteria and verification [NASA-TP-3203] p 30 N92-19355
- VERHOFF, VINCENT G.**
Three-dimensional laser window formation [NASA-RP-1280] p 14 N92-30307
- VICROY, DAN D.**
Airborne Wind Shear Detection and Warning Systems: Third Combined Manufacturers' and Technologists' Conference, part 2 [NASA-CP-10060-PT-2] p 9 N91-24140
Airborne Wind Shear Detection and Warning Systems: Third Combined Manufacturers' and Technologists' Conference, part 1 [NASA-CP-10060-PT-1] p 9 N91-24166
- VILLARREAL, JAMES**
Proceedings of the Second Joint Technology Workshop on Neural Networks and Fuzzy Logic, volume 1 [NASA-CP-10061-VOL-1] p 43 N91-21778
- VILLARREAL, JAMES A.**
Proceedings of the Second Joint Technology Workshop on Neural Networks and Fuzzy Logic, volume 2 [NASA-CP-10061-VOL-2] p 43 N91-20811
- VOELKER, L. S.**
Development of an integrated aeroservoelastic analysis program and correlation with test data [NASA-TP-3120] p 2 N91-26113
- VOGEL, A. A.**
NASA Workshop on future directions in surface modeling and grid generation [NASA-CP-10092] p 8 N92-29625
- VOGEL, WOLFHARD J.**
Propagation effects for land mobile satellite systems: Overview of experimental and modeling results [NASA-RP-1274] p 25 N92-20404
- VOGLER, WILLIAM A.**
Static footprint local forces, areas, and aspect ratios for three type 7 aircraft tires [NASA-TP-2983] p 10 N91-17014
- VOLK, TYLER**
Controlled Ecological Life Support Systems: Natural and Artificial Ecosystems [NASA-CP-10040] p 40 N91-24744
- VOORHIES, COERTE V.**
Steady induction effects in geomagnetism. Part 1A: Steady motional induction of geomagnetic chaos [NASA-TP-3272-PT-1A] p 34 N92-32655
- WADE, LARRY O.**
Venturi air-jet vacuum ejectors for high-volume atmospheric sampling on aircraft platforms [NASA-TP-3183] p 11 N92-20546
- WAGGONER, E. G.**
Prediction of effects of wing contour modifications on low-speed maximum lift and transonic performance for the EA-6B aircraft [NASA-TP-3046] p 4 N91-10902
- WAGNER, H. SCOTT**
FIRE Science Results 1988 [NASA-CP-3083] p 34 N91-10448
- WAGNER, RICHARD D.**
Evaluation of cloud detection instruments and performance of laminar-flow leading-edge test articles during NASA Leading-Edge Flight-Test Program [NASA-TP-2888] p 11 N91-24199
- WAHLS, DEBORAH M.**
On-orbit structural dynamic performance of a 15-meter microwave radiometer antenna [NASA-TP-3041] p 16 N91-17114
- WALLACE, TERRY L. A.**
Oxidation characteristics of Ti-25Al-10Nb-3V-1Mo intermetallic alloy [NASA-TP-3044] p 22 N91-13522
- WALLER, MARVIN C.**
Flight deck benefits of integrated data link communication [NASA-TP-3219] p 10 N92-21459
- WALTER, LOUIS S.**
Volcanism-Climate Interactions [NASA-CP-10062] p 34 N91-21641
- WALTON, MARLEI**
Techniques for determination of impact forces during walking and running in a zero-G environment [NASA-TP-3159] p 38 N92-17022
- WANHAINEN, JOYCE S.**
A new fabrication method for precision antenna reflectors for space flight and ground test [NASA-TP-3078] p 17 N91-21185
- WASZAK, MARTIN R.**
A methodology for computing uncertainty bounds of multivariable systems based on sector stability theory concepts [NASA-TP-3166] p 13 N92-21410
- WATSON, R. T.**
The atmospheric effects of stratospheric aircraft: A topical review [NASA-RP-1250] p 33 N91-16466
- WATTS, G.**
Technique to eliminate computational instability in multibody simulations employing the Lagrange multiplier [NASA-TP-3220] p 42 N92-23432
- WEAVER, WILLIAM L.**
Mission description and in-flight operations of ERBE instruments on ERBS and NOAA 9 spacecraft, November 1984 - January 1986 [NASA-RP-1256] p 32 N92-10208
Mission description and in-flight operations of ERBE instruments on ERBS, NOAA 9, and NOAA 10 spacecraft [NASA-RP-1279] p 32 N92-32127
- WEILER, J. D.**
Resource envelope concepts for mission planning [NASA-TP-3139] p 15 N91-29209
- WEILMUNSTER, K. JAMES**
Numerical analysis and simulation of an assured crew return vehicle flow field [NASA-TP-3101] p 26 N92-10161
- WESOKY, HOWARD L.**
The atmospheric effects of stratospheric aircraft: A first program report [NASA-RP-1272] p 33 N92-19121
- WESSELMANN, GARY F.**
Influence of airfoil geometry on delta wing leading-edge vortices and vortex-induced aerodynamics at supersonic speeds [NASA-TP-3105] p 7 N92-20038
- WEST, PHILLIP**
A method of evaluating efficiency during space-suited work in a neutral buoyancy environment [NASA-TP-3153] p 40 N92-19772
- WEYLAND, MARK**
Improvements in computational accuracy of BRYNTRN (a baryon transport code) [NASA-TP-3093] p 51 N91-23017
Radiation risk predictions for Space Station Freedom orbits [NASA-TP-3098] p 51 N91-26107
- WEYLAND, MARK D.**
Analyses of risks associated with radiation exposure from past major solar particle events [NASA-TP-3137] p 50 N91-31061
- WHARTON, ROBERT A., JR.**
Fourth Symposium on Chemical Evolution and the Origin and Evolution of Life [NASA-CP-3129] p 41 N92-13588
- WHITE, ALLAN L.**
Model reduction by trimming for a class of semi-Markov reliability models and the corresponding error bound [NASA-TP-3089] p 43 N91-25741
- WIEDEMANN, KARL E.**
Oxidation characteristics of Ti-25Al-10Nb-3V-1Mo intermetallic alloy [NASA-TP-3044] p 22 N91-13522
- WILCOX, FLOYD J., JR.**
Experimental investigation of porous-floor effects on cavity flow fields at supersonic speeds [NASA-TP-3032] p 5 N91-19042
Measurements of forces, moments, and pressures on a generic store separating from a box cavity at supersonic speeds [NASA-TP-3110] p 6 N92-10005
- WILL, RALPH W.**
Software design for automated assembly of truss structures [NASA-TP-3198] p 43 N92-28375
- WILLIAMS, R. W.**
Tenth Workshop for Computational Fluid Dynamic Applications in Rocket Propulsion, part 2 [NASA-CP-3163-PT-2] p 27 N92-32245
Tenth Workshop for Computational Fluid Dynamic Applications in Rocket Propulsion, part 1 [NASA-CP-3163-PT-1] p 27 N92-32278

W

WILLIAMS, ROBERT L., II

- Automation and Robotics for Space-Based Systems, 1991
[NASA-CP-10098] p 43 N92-27763
- WILLIAMS, STEVEN P.**
Effect of short-term exposure to stereoscopic three-dimensional flight displays on real-world depth perception
[NASA-TP-3117] p 11 N92-13065
- WILLSHIRE, KELLI F.**
Technology for the Future: In-Space Technology Experiments Program, part 1
[NASA-CP-10073-PT-1] p 14 N91-27177
Technology for the Future: In-Space Technology Experiments Program, part 2
[NASA-CP-10073-PT-2] p 14 N91-27178
- WILLSHIRE, WILLIAM L., JR.**
Fourth International Symposium on Long-Range Sound Propagation
[NASA-CP-3101] p 44 N91-16682
- WILSON, H. B.**
Methods of applied dynamics
[NASA-RP-1262] p 24 N91-25303
- WILSON, JOHN C.**
Two-dimensional aerodynamic characteristics of several polygon-shaped cross-sectional models applicable to helicopter fuselages
[NASA-TP-3233] p 8 N92-30394
- WILSON, JOHN W.**
Inclusive inelastic scattering of heavy ions and nuclear correlations
[NASA-TP-3026] p 46 N91-13985
Cellular track model of biological damage to mammalian cell cultures from galactic cosmic rays
[NASA-TP-3055] p 50 N91-16981
Improvements in computational accuracy of BRYNTRN (a baryon transport code)
[NASA-TP-3093] p 51 N91-23017
Radiation risk predictions for Space Station Freedom orbits
[NASA-TP-3098] p 51 N91-26107
Analyses of risks associated with radiation exposure from past major solar particle events
[NASA-TP-3137] p 50 N91-31061
Cellular repair/misrepair track model
[NASA-TP-3124] p 42 N92-11685
Benchmark solutions for the galactic heavy-ion transport equations with energy and spatial coupling
[NASA-TP-3112] p 44 N92-13756
Transport methods and interactions for space radiations
[NASA-RP-1257] p 51 N92-15956
HZETRN: A heavy ion/nucleon transport code for space radiations
[NASA-TP-3146] p 51 N92-15959
Multiple lesion track structure model
[NASA-TP-3185] p 39 N92-22186
An efficient HZETRN (a galactic cosmic ray transport code)
[NASA-TP-3147] p 51 N92-22218
Track structure model of cell damage in space flight
[NASA-TP-3235] p 39 N92-34154
- WING, DAVID J.**
Static performance of a cruciform nozzle with multiaxis thrust-vectoring and reverse-thrust capabilities
[NASA-TP-3188] p 7 N92-23095
- WITCOFSKI, ROBERT D.**
Advanced Hypervelocity Aerophysics Facility Workshop
[NASA-CP-10031] p 13 N91-24211
- WOGAN, CHRISTINE F.**
Microbiology on Space Station Freedom
[NASA-CP-3108] p 37 N91-18573
Nutritional Requirements for Space Station Freedom Crews
[NASA-CP-3146] p 40 N92-25961
- WOLF, DAVID A.**
Analysis of gravity-induced particle motion and fluid perfusion flow in the NASA-designed rotating zero-head-space tissue culture vessel
[NASA-TP-3143] p 24 N92-13340
Experimental measurement of the orbital paths of particles sedimenting within a rotating viscous fluid as influenced by gravity
[NASA-TP-3200] p 40 N92-28897
- WONG, KAM L.**
Reliability training
[NASA-RP-1253] p 15 N92-32456
- WOOD, RICHARD M.**
Influence of airfoil geometry on delta wing leading-edge vortices and vortex-induced aerodynamics at supersonic speeds
[NASA-TP-3105] p 7 N92-20038
The natural flow wing-design concept
[NASA-TP-3193] p 7 N92-25202

WOODARD, STANLEY E.

- Multidisciplinary optimization of controlled space structures with global sensitivity equations
[NASA-TP-3130] p 18 N92-11087
- WOODIS, KENNETH W.**
Second Conference on NDE for Aerospace Requirements
[NASA-CP-3091] p 16 N91-18189
- WOOLFORD, BARBARA J.**
The validation of a human force model to predict dynamic forces resulting from multi-joint motions
[NASA-TP-3206] p 40 N92-26538
Correlation and prediction of dynamic human isolated joint strength from lean body mass
[NASA-TP-3207] p 40 N92-26682
- WORKMAN, GARY L.**
Second Conference on NDE for Aerospace Requirements
[NASA-CP-3091] p 16 N91-18189
- WORNOM, STEPHEN F.**
Relative efficiency and accuracy of two Navier-Stokes codes for simulating attached transonic flow over wings
[NASA-TP-3061] p 26 N91-17310
- WRIGHT, K. H., JR.**
Current Collection from Space Plasmas
[NASA-CP-3089] p 46 N91-17713
- WUEBBLES, DONALD J.**
The atmospheric effects of stratospheric aircraft: A first program report
[NASA-RP-1272] p 33 N92-19121

Y

- YOS, JERROLD M.**
Calculations and curve fits of thermodynamic and transport properties for equilibrium air to 30000 K
[NASA-RP-1260] p 26 N92-11285
- YOUNG, DOUGLAS C.**
Venturi air-jet vacuum ejectors for high-volume atmospheric sampling on aircraft platforms
[NASA-TP-3183] p 11 N92-20546
- YOUNG, RONALD**
Evaluation of cloud detection instruments and performance of laminar-flow leading-edge test articles during NASA Leading-Edge Flight-Test Program
[NASA-TP-2888] p 11 N91-24199

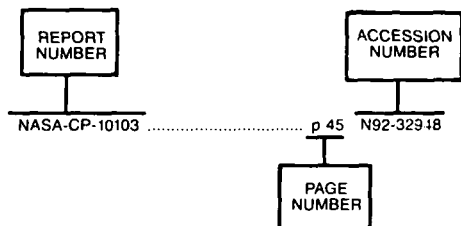
Z

- ZACHARY, W. W.**
Workshop on Squeezed States and Uncertainty Relations
[NASA-CP-3135] p 46 N92-22045
- ZANG, THOMAS A.**
A weakly nonlinear theory for wave-vortex interactions in curved channel flow
[NASA-TP-3158] p 7 N92-19175
- ZEIN-SABBATTOU, SALEH**
A generalized method for multiple robotic manipulator programming applied to vertical-up welding
[NASA-TP-3163] p 24 N92-11218
- ZIERTEN, THOMAS A.**
Lewis icing research tunnel test of the aerodynamic effects of aircraft ground deicing/anti-icing fluids
[NASA-TP-3238] p 10 N92-30395
- ZOLADZ, T. F.**
Time-frequency representation of a highly nonstationary signal via the modified Wigner distribution
[NASA-TP-3215] p 25 N92-20492
- ZUBER, MARIA T.**
Planetary geosciences, 1989-1990
[NASA-SP-508] p 50 N92-28345
- ZUTECK, MICHAEL D.**
Structural properties of laminated Douglas fir/epoxy composite material
[NASA-RP-1236] p 20 N91-10127

REPORT NUMBER INDEX

NASA Scientific and Technical Publications 1991-1992

Typical Report Number Index Listing



Listings in this index are arranged alphanumerically by report number. The page number indicates the page on which the citation is located. The accession number denotes the number by which the citation is identified.

NASA-CP-10028	p 11	N91-24200
NASA-CP-10030	p 19	N91-24307
NASA-CP-10031	p 13	N91-24211
NASA-CP-10038-VOL-1	p 4	N91-10839
NASA-CP-10038-VOL-2	p 4	N91-10868
NASA-CP-10040	p 40	N91-24744
NASA-CP-10042	p 46	N91-11591
NASA-CP-10045	p 5	N91-21062
NASA-CP-10050-PT-1	p 9	N91-11682
NASA-CP-10050-PT-2	p 9	N91-11695
NASA-CP-10052	p 42	N91-17559
NASA-CP-10053	p 16	N92-22001
NASA-CP-10054	p 9	N91-15141
NASA-CP-10055	p 41	N91-15691
NASA-CP-10056	p 13	N91-20147
NASA-CP-10057-PT-1	p 16	N91-18186
NASA-CP-10057-PT-2	p 17	N91-19122
NASA-CP-10059	p 13	N91-22139
NASA-CP-10060-PT-1	p 9	N91-24166
NASA-CP-10060-PT-2	p 9	N91-24140
NASA-CP-10061-VOL-1	p 43	N91-21778
NASA-CP-10061-VOL-2	p 43	N91-20811
NASA-CP-10062	p 34	N91-21641
NASA-CP-10063	p 12	N91-20086
NASA-CP-10065-PT-1	p 17	N91-22307
NASA-CP-10065-PT-2	p 17	N91-22331
NASA-CP-10066-PT-1	p 17	N91-21188
NASA-CP-10066-PT-2	p 17	N91-21203
NASA-CP-10070	p 15	N92-15082
NASA-CP-10071	p 40	N92-11638
NASA-CP-10072	p 52	N91-24972
NASA-CP-10073-PT-1	p 14	N91-27177
NASA-CP-10073-PT-2	p 14	N91-27178
NASA-CP-10074	p 50	N91-27057
NASA-CP-10075	p 21	N91-29240
NASA-CP-10077	p 49	N92-33478
NASA-CP-10078	p 12	N92-25808
NASA-CP-10079	p 20	N92-11088
NASA-CP-10081	p 14	N92-12010
NASA-CP-10083-VOL-1-PT-1	p 18	N92-17098
NASA-CP-10083-VOL-1-PT-2	p 18	N92-17409
NASA-CP-10083-VOL-2-PT-1	p 18	N92-17768
NASA-CP-10083-VOL-2-PT-2	p 18	N92-17348
NASA-CP-10084	p 20	N92-10044
NASA-CP-10085-VOL-1	p 42	N92-16568
NASA-CP-10085-VOL-2	p 42	N92-16590
NASA-CP-10088	p 27	N92-24514
NASA-CP-10089	p 12	N92-25712
NASA-CP-10090	p 20	N92-21517
NASA-CP-10092	p 8	N92-29625
NASA-CP-10093	p 50	N92-30302
NASA-CP-10094	p 24	N92-28436
NASA-CP-10097	p 52	N92-27218
NASA-CP-10098	p 43	N92-27763
NASA-CP-10099	p 19	N92-28730

NASA-CP-10103	p 45	N92-32948
NASA-CP-3020-VOL-2	p 5	N91-24132
NASA-CP-3036	p 48	N91-14897
NASA-CP-3049	p 12	N92-22510
NASA-CP-3051	p 36	N91-10574
NASA-CP-3060	p 20	N91-20207
NASA-CP-3064	p 29	N91-10301
NASA-CP-3078	p 5	N91-21062
NASA-CP-3080	p 27	N91-14574
NASA-CP-3081-VOL-2	p 11	N91-17020
NASA-CP-3083	p 34	N91-10448
NASA-CP-3084	p 49	N91-14100
NASA-CP-3085	p 48	N91-15930
NASA-CP-3086	p 50	N91-12456
NASA-CP-3087-PT-1	p 22	N92-32513
NASA-CP-3087-PT-2	p 22	N92-32574
NASA-CP-3088	p 48	N91-12401
NASA-CP-3089	p 46	N91-17713
NASA-CP-3090	p 9	N91-10936
NASA-CP-3091	p 16	N91-18189
NASA-CP-3093	p 35	N91-16500
NASA-CP-3094	p 36	N91-13842
NASA-CP-3095	p 1	N91-19024
NASA-CP-3096	p 17	N91-19126
NASA-CP-3098	p 49	N91-16858
NASA-CP-3099	p 32	N91-15615
NASA-CP-3100	p 22	N92-21605
NASA-CP-3101	p 44	N91-16682
NASA-CP-3102	p 14	N91-17073
NASA-CP-3103-VOL-1	p 41	N91-20641
NASA-CP-3103-VOL-2	p 41	N91-20702
NASA-CP-3105	p 10	N91-20071
NASA-CP-3106-VOL-1	p 35	N91-32599
NASA-CP-3106-VOL-2	p 36	N91-32693
NASA-CP-3107	p 19	N91-19182
NASA-CP-3108	p 37	N91-18573
NASA-CP-3109-VOL-1	p 52	N91-23021
NASA-CP-3109-VOL-2	p 52	N91-24041
NASA-CP-3110	p 43	N91-22769
NASA-CP-3111	p 29	N91-20506
NASA-CP-3112-VOL-2	p 19	N91-28193
NASA-CP-3112-VOL-3	p 19	N91-28235
NASA-CP-3112	p 19	N91-25176
NASA-CP-3113	p 30	N91-24603
NASA-CP-3114	p 32	N91-32528
NASA-CP-3115-VOL-1	p 32	N91-20541
NASA-CP-3115-VOL-2	p 32	N91-26573
NASA-CP-3116	p 44	N91-25755
NASA-CP-3117	p 48	N91-27009
NASA-CP-3118	p 39	N92-21467
NASA-CP-3119	p 20	N92-27130
NASA-CP-3120	p 35	N91-25556
NASA-CP-3121	p 19	N91-30203
NASA-CP-3122	p 28	N92-14346
NASA-CP-3123	p 14	N92-14070
NASA-CP-3124	p 16	N92-11039
NASA-CP-3125	p 33	N91-32549
NASA-CP-3126	p 35	N91-32660
NASA-CP-3127-VOL-2	p 41	N92-22324
NASA-CP-3129	p 41	N92-13588
NASA-CP-3130	p 41	N92-12425
NASA-CP-3131	p 3	N92-17984
NASA-CP-3132	p 25	N92-14202
NASA-CP-3134-PT-1	p 52	N92-23280
NASA-CP-3134-PT-2	p 52	N92-24806
NASA-CP-3134-PT-3	p 52	N92-27083
NASA-CP-3135	p 46	N92-22045
NASA-CP-3136-VOL-1	p 52	N92-22423
NASA-CP-3136-VOL-2	p 52	N92-22676
NASA-CP-3137	p 49	N92-21874
NASA-CP-3138	p 52	N92-24987
NASA-CP-3140	p 33	N92-22740
NASA-CP-3141	p 43	N92-23356
NASA-CP-3142	p 31	N92-25911
NASA-CP-3143	p 42	N92-24397
NASA-CP-3145	p 30	N92-24324
NASA-CP-3146	p 40	N92-25961
NASA-CP-3147-ADD	p 33	N92-26895
NASA-CP-3147	p 30	N92-25067
NASA-CP-3148-VOL-1	p 15	N92-22660
NASA-CP-3151	p 24	N92-30263
NASA-CP-3152-PT-1	p 18	N92-27721
NASA-CP-3152-PT-2	p 18	N92-27788
NASA-CP-3153	p 31	N92-28620
NASA-CP-3158-PT-1	p 28	N92-29228
NASA-CP-3158-PT-2	p 28	N92-31013
NASA-CP-3159	p 44	N92-33350
NASA-CP-3160	p 31	N92-30106
NASA-CP-3163-PT-1	p 27	N92-32278
NASA-CP-3163-PT-2	p 27	N92-32245
NASA-CP-3172	p 11	N92-33874
NASA-RP-1014	p 21	N91-14437
NASA-RP-1114	p 10	N91-70436
NASA-RP-1124-REV-2	p 21	N91-14437
NASA-RP-1236	p 20	N91-10127
NASA-RP-1239	p 29	N91-13751
NASA-RP-1243	p 34	N91-14883
NASA-RP-1244	p 33	N91-18505
NASA-RP-1246	p 34	N91-13043
NASA-RP-1248	p 44	N91-15848
NASA-RP-1249	p 26	N91-20418
NASA-RP-1250	p 33	N91-16466
NASA-RP-1251	p 33	N91-16467
NASA-RP-1252	p 10	N91-19082
NASA-RP-1253	p 15	N92-32456
NASA-RP-1255	p 28	N91-30531
NASA-RP-1256	p 32	N92-10208
NASA-RP-1257	p 51	N92-15956
NASA-RP-1258-VOL-1	p 45	N92-10598
NASA-RP-1258-VOL-2	p 45	N92-14779
NASA-RP-1260	p 26	N92-11285
NASA-RP-1261	p 35	N91-24719
NASA-RP-1262	p 24	N91-25303
NASA-RP-1263	p 35	N91-24720
NASA-RP-1264	p 35	N91-26651
NASA-RP-1267	p 3	N92-22505
NASA-RP-1268	p 49	N91-32008
NASA-RP-1272	p 33	N92-19121
NASA-RP-1273	p 23	N92-20063
NASA-RP-1274	p 25	N92-20404
NASA-RP-1275	p 34	N92-33097
NASA-RP-1277	p 36	N92-25981
NASA-RP-1278	p 36	N92-27930
NASA-RP-1279	p 32	N92-32127
NASA-RP-1280	p 14	N92-30307
NASA-SP-4104	p 52	N92-28344
NASA-SP-4215	p 52	N91-28060
NASA-SP-4306	p 51	N91-15975
NASA-SP-500	p 41	N91-14725
NASA-SP-508	p 50	N92-28345
NASA-SP-6101(03)	p 46	N91-13347
NASA-SP-6101(04)	p 46	N91-28026
NASA-SP-6101(05)	p 47	N92-27609
NASA-SP-7011(341)	p 37	N91-10594
NASA-SP-7011(342)	p 37	N91-13063
NASA-SP-7011(343)	p 37	N91-14711
NASA-SP-7011(344)	p 37	N91-14712
NASA-SP-7011(345)	p 37	N91-16547
NASA-SP-7011(346)	p 37	N91-23700
NASA-SP-7011(347)	p 37	N91-23701
NASA-SP-7011(348)	p 37	N91-23702
NASA-SP-7011(349)	p 37	N91-24731
NASA-SP-7011(350)	p 38	N91-25600
NASA-SP-7011(351)	p 38	N91-27756
NASA-SP-7011(352)	p 38	N91-28729
NASA-SP-7011(353)	p 38	N91-31760
NASA-SP-7011(354)	p 38	N92-12404
NASA-SP-7011(355)	p 38	N92-12412
NASA-SP-7011(356)	p 38	N92-15538
NASA-SP-7011(357)	p 39	N92-21714
NASA-SP-7011(358)	p 39	N92-22026
NASA-SP-7011(359)	p 39	N92-21715
NASA-SP-7011(361)	p 39	N92-27433
NASA-SP-7011(362)	p 39	N92-27068
NASA-SP-7011(363)	p 39	N92-30987
NASA-SP-7037(256)	p 1	N91-10002
NASA-SP-7037(257)	p 1	N91-12589
NASA-SP-7037(258)	p 1	N91-13399
NASA-SP-7037(259)	p 1	N91-15979
NASA-SP-7037(260)	p 1	N91-15978
NASA-SP-7037(261)	p 1	N91-23073
NASA-SP-7037(262)	p 1	N91-23074
NASA-SP-7037(263)	p 2	N91-24096
NASA-SP-7037(264)	p 2	N91-24097

REPORT

NASA-SP-7037(265)	p 2	N91-24095	NASA-TP-3083	p 15	N91-27180	NASA-TP-3194	p 7	N92-25276
NASA-SP-7037(266)	p 2	N91-27122	NASA-TP-3084	p 29	N91-21556	NASA-TP-3195	p 22	N92-25160
NASA-SP-7037(267)	p 2	N92-10001	NASA-TP-3085	p 5	N91-21059	NASA-TP-3196	p 22	N92-23981
NASA-SP-7037(268)	p 2	N91-30077	NASA-TP-3086	p 5	N91-22070	NASA-TP-3197	p 7	N92-28477
NASA-SP-7037(269)	p 2	N92-10974	NASA-TP-3087	p 17	N91-22302	NASA-TP-3198	p 43	N92-28375
NASA-SP-7037(270)	p 2	N92-10973	NASA-TP-3088	p 17	N91-27182	NASA-TP-3200	p 40	N92-28897
NASA-SP-7037(271)	p 2	N92-14967	NASA-TP-3089	p 43	N91-25741	NASA-TP-3201	p 16	N92-19762
NASA-SP-7037(272)	p 3	N92-21844	NASA-TP-3090	p 29	N91-20503	NASA-TP-3202	p 9	N92-33656
NASA-SP-7037(273)	p 3	N92-21729	NASA-TP-3092	p 5	N91-25103	NASA-TP-3203	p 30	N92-19355
NASA-SP-7037(275)	p 3	N92-28679	NASA-TP-3093	p 51	N91-23017	NASA-TP-3204	p 30	N92-22227
NASA-SP-7037(277)	p 3	N92-27929	NASA-TP-3094	p 13	N92-10027	NASA-TP-3205	p 8	N92-30295
NASA-SP-7037(278)	p 3	N92-28677	NASA-TP-3096	p 28	N92-10195	NASA-TP-3206	p 40	N92-26538
NASA-SP-7037(280)	p 3	N92-31456	NASA-TP-3098	p 51	N91-26107	NASA-TP-3207	p 40	N92-26682
NASA-SP-7039(38)-SECT-1	p 47	N91-17833	NASA-TP-3099	p 5	N91-27124	NASA-TP-3208	p 27	N92-31281
NASA-SP-7039(38)-SECT-2	p 47	N91-17834	NASA-TP-3100	p 26	N91-22509	NASA-TP-3209	p 42	N92-27589
NASA-SP-7039(39)-SECT-1	p 48	N91-28042	NASA-TP-3101	p 26	N92-10161	NASA-TP-3210	p 30	N92-24546
NASA-SP-7039(39)-SECT-2	p 48	N91-29088	NASA-TP-3102	p 21	N92-10067	NASA-TP-3211	p 51	N92-25100
NASA-SP-7039(40)-SECT-1	p 48	N92-22508	NASA-TP-3103	p 6	N92-10975	NASA-TP-3213	p 24	N92-22235
NASA-SP-7039(40)-SECT-2	p 48	N92-27081	NASA-TP-3104	p 45	N92-11758	NASA-TP-3214	p 31	N92-27974
NASA-SP-7039(41)-SECT-2	p 48	N92-31455	NASA-TP-3105	p 7	N92-20038	NASA-TP-3215	p 25	N92-20492
NASA-SP-7063(04)	p 47	N91-13374	NASA-TP-3107	p 26	N91-24542	NASA-TP-3216	p 24	N92-30378
NASA-SP-7063(05)	p 47	N91-24939	NASA-TP-3108	p 21	N91-21242	NASA-TP-3217	p 23	N92-22593
NASA-SP-7064-SUPPL-4	p 47	N91-10804	NASA-TP-3109	p 23	N91-20266	NASA-TP-3218	p 30	N92-21457
NASA-SP-7064-SUPPL-5	p 47	N91-19962	NASA-TP-3110	p 6	N92-10005	NASA-TP-3219	p 10	N92-21459
NASA-SP-7085(01)	p 17	N91-18199	NASA-TP-3111	p 6	N92-14968	NASA-TP-3220	p 42	N92-23432
NASA-SP-7085(02)	p 18	N91-28191	NASA-TP-3112	p 44	N92-13756	NASA-TP-3221	p 8	N92-33625
NASA-SP-7085(03)	p 18	N92-22317	NASA-TP-3113	p 6	N91-27140	NASA-TP-3224	p 22	N92-28374
NASA-SP-7091	p 49	N91-24965	NASA-TP-3114	p 6	N92-12994	NASA-TP-3226	p 23	N92-27194
NASA-SP-7092	p 32	N91-30588	NASA-TP-3116	p 11	N92-13054	NASA-TP-3227	p 16	N92-26667
NASA-SP-7097	p 47	N92-22665	NASA-TP-3117	p 11	N92-13065	NASA-TP-3230-VIDEO-SUPPL	p 36	N92-34246
NASA-SP-7500(25)	p 46	N91-24936	NASA-TP-3118	p 26	N91-25352	NASA-TP-3230	p 36	N92-33482
NASA-SP-7500(26)	p 47	N92-27080	NASA-TP-3119	p 25	N92-11252	NASA-TP-3231	p 31	N92-31279
NASA-TP-POD-2	p 15	N92-20676	NASA-TP-3120	p 2	N91-26113	NASA-TP-3232	p 8	N92-30747
NASA-TP-2375	p 3	N91-10007	NASA-TP-3122	p 46	N92-10677	NASA-TP-3233	p 8	N92-30394
NASA-TP-2640	p 4	N91-14316	NASA-TP-3123	p 42	N91-25629	NASA-TP-3234	p 8	N92-33484
NASA-TP-2852	p 12	N92-22863	NASA-TP-3124	p 42	N92-11685	NASA-TP-3235	p 39	N92-34154
NASA-TP-2888	p 11	N91-24199	NASA-TP-3125	p 10	N92-10994	NASA-TP-3236	p 9	N92-33706
NASA-TP-2922	p 6	N91-28143	NASA-TP-3126	p 30	N92-18053	NASA-TP-3238	p 10	N92-30395
NASA-TP-2983	p 10	N91-17014	NASA-TP-3128	p 23	N91-29318	NASA-TP-3239	p 16	N92-33933
NASA-TP-2995	p 5	N91-19058	NASA-TP-3130	p 18	N92-11087	NASA-TP-3240	p 9	N92-34193
NASA-TP-2997	p 4	N91-18030	NASA-TP-3131	p 7	N92-17131	NASA-TP-3242	p 43	N92-33483
NASA-TP-3010	p 29	N91-13750	NASA-TP-3132	p 7	N92-20494	NASA-TP-3248	p 31	N92-26669
NASA-TP-3014	p 15	N92-31251	NASA-TP-3133	p 6	N91-30098	NASA-TP-3249	p 24	N92-29677
NASA-TP-3015	p 44	N91-12315	NASA-TP-3134	p 45	N92-11765	NASA-TP-3252	p 8	N92-28980
NASA-TP-3020	p 45	N91-19824	NASA-TP-3135	p 11	N91-31143	NASA-TP-3261	p 8	N92-32480
NASA-TP-3022	p 12	N91-10079	NASA-TP-3136	p 13	N92-20195	NASA-TP-3265	p 28	N92-30396
NASA-TP-3025	p 4	N91-18031	NASA-TP-3137	p 50	N91-31061	NASA-TP-3272-PT-1A	p 34	N92-32655
NASA-TP-3026	p 46	N91-13985	NASA-TP-3139	p 15	N91-29209	NASA-TP-3273	p 31	N92-33476
NASA-TP-3032	p 5	N91-19042	NASA-TP-3140	p 48	N92-11930	NASA-TP-3275	p 23	N92-31278
NASA-TP-3033	p 28	N91-14618	NASA-TP-3141	p 49	N92-11931	NASA-TP-3277	p 31	N92-31280
NASA-TP-3034	p 21	N91-13492	NASA-TP-3142	p 6	N91-28136	NASA-TP-3282	p 25	N92-33601
NASA-TP-3035	p 4	N91-13401	NASA-TP-3143	p 24	N92-13340			
NASA-TP-3038	p 13	N92-31640	NASA-TP-3144	p 30	N92-24205			
NASA-TP-3040	p 45	N91-21828	NASA-TP-3146	p 51	N92-15959			
NASA-TP-3041	p 16	N91-17114	NASA-TP-3147	p 51	N92-22218			
NASA-TP-3043	p 37	N91-19711	NASA-TP-3150	p 19	N92-25147			
NASA-TP-3044	p 22	N91-13522	NASA-TP-3151	p 6	N92-10981			
NASA-TP-3045	p 10	N91-14323	NASA-TP-3152	p 28	N91-30540			
NASA-TP-3046	p 4	N91-10902	NASA-TP-3153	p 40	N92-19772			
NASA-TP-3047	p 4	N91-13402	NASA-TP-3154	p 12	N91-30154			
NASA-TP-3048	p 4	N91-16990	NASA-TP-3155	p 23	N91-30318			
NASA-TP-3049	p 13	N91-13461	NASA-TP-3156	p 6	N92-10011			
NASA-TP-3050	p 4	N91-18032	NASA-TP-3157	p 27	N92-20677			
NASA-TP-3051	p 12	N91-25151	NASA-TP-3158	p 7	N92-19175			
NASA-TP-3052	p 25	N91-15499	NASA-TP-3159	p 38	N92-17022			
NASA-TP-3053	p 45	N91-19823	NASA-TP-3160	p 21	N92-11142			
NASA-TP-3054	p 16	N91-11041	NASA-TP-3161	p 20	N92-12052			
NASA-TP-3055	p 50	N91-16981	NASA-TP-3162	p 23	N92-17070			
NASA-TP-3056	p 29	N91-10328	NASA-TP-3163	p 24	N92-11218			
NASA-TP-3057	p 44	N91-16679	NASA-TP-3164	p 31	N92-26537			
NASA-TP-3058	p 13	N91-10092	NASA-TP-3165	p 45	N92-20479			
NASA-TP-3059	p 14	N91-18180	NASA-TP-3166	p 13	N92-21410			
NASA-TP-3060	p 5	N91-22069	NASA-TP-3167	p 27	N92-24797			
NASA-TP-3061	p 26	N91-17310	NASA-TP-3168	p 7	N92-19002			
NASA-TP-3062	p 19	N91-11800	NASA-TP-3169	p 7	N92-20545			
NASA-TP-3063	p 28	N91-12956	NASA-TP-3170	p 27	N92-11299			
NASA-TP-3064	p 21	N91-18216	NASA-TP-3171	p 30	N92-23115			
NASA-TP-3065	p 19	N91-15308	NASA-TP-3172	p 7	N92-25133			
NASA-TP-3066	p 22	N91-17208	NASA-TP-3173	p 21	N92-20679			
NASA-TP-3067	p 14	N91-20177	NASA-TP-3174	p 38	N92-16553			
NASA-TP-3068	p 26	N91-18381	NASA-TP-3175	p 38	N92-16554			
NASA-TP-3069	p 43	N91-18753	NASA-TP-3176	p 40	N92-16562			
NASA-TP-3070	p 5	N91-20043	NASA-TP-3177	p 20	N92-20949			
NASA-TP-3071	p 21	N91-18215	NASA-TP-3178	p 24	N92-13343			
NASA-TP-3072	p 12	N91-20128	NASA-TP-3179	p 22	N92-20950			
NASA-TP-3073	p 30	N91-22576	NASA-TP-3181	p 20	N92-14108			
NASA-TP-3074	p 27	N91-22538	NASA-TP-3182	p 39	N92-17645			
NASA-TP-3075	p 29	N91-16413	NASA-TP-3183	p 11	N92-20546			
NASA-TP-3077	p 11	N91-21127	NASA-TP-3184	p 8	N92-31532			
NASA-TP-3078	p 17	N91-21185	NASA-TP-3185	p 39	N92-22186			
NASA-TP-3079	p 50	N91-17999	NASA-TP-3186	p 8	N92-30909			
NASA-TP-3080	p 5	N91-19057	NASA-TP-3187	p 42	N92-22285			
NASA-TP-3081	p 25	N91-27436	NASA-TP-3188	p 7	N92-23095			
NASA-TP-3082	p 42	N91-25624	NASA-TP-3191	p 20	N92-17151			
			NASA-TP-3192	p 31	N92-25997			
			NASA-TP-3193	p 7	N92-25202			

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