Chronological Index

- A85-001 A Survey of Aeroassisted Orbit Transfer. Gerald D. Walberg, NASA Langley Research Center (22, 1, p. 3) Article based on AIAA Paper 82-1378
- A85-002 Introductory Aerothermodynamics of Advanced Space Transportation Systems. John T. Howe, NASA Ames Research Center (22, 1, p. 19) Article based on AIAA Paper 83-0406
- **A85-003 Radiation Enhancement by Nonequilibrium in Earth's Atmosphere.** Chul Park (22, 1, p. 27) Article based on AIAA Paper 83-0410
- **A85-004** Trajectory Analysis of Radiative Heating for Planetary Missions with Aerobraking of Spacecraft. Gene P. Menees, NASA Ames Research Center (22, 1, p. 37) Article based on AIAA Paper 83-0407
- A85-005 Real-Gas Flowfields about Three-Dimensional Configurations. A. Balakrishnan, PEDA Corporation; W. C. Davy, NASA Ames Research Center; and C. K. Lombard, PEDA Corporation (22, 1, p. 46) Article based on AIAA Paper 83-0581
- A85-006 Chemical Nonequilibrium Effects on Flowfields for Aeroassisted Orbital Transfer Vehicles. Judy L. Shinn and Jim J. Jones, NASA Langley Research Center (22, 1, p. 54) Article based on AIAA Paper 83-0214
- A85-007 Computational Chemistry and Aeroassisted Orbital Transfer Vehicles. D. M. Cooper, R. L. Jaffe and J. O. Arnold, NASA Ames Research Center (22, 1, p. 60) Article
- **A85-008 Effects of Spin and Mass Addition on High-Angle-of-Attack Re-entry.** A. M. Morrison and C. Fiscina, *Naval Surface Weapons Center* (22, 1, p. 68) Article based on AIAA Paper 82-0190
- A85-009 Aerothermodynamic Design Feasibility of a Mars Aerocapture Vehicle. Dwight E. Florence, General Electric Company (22, 1, p. 74) Article based on AIAA Paper 81-0350
- **A85-010 Precision of Mesh-Type Reflectors for Large Space-Borne Antennas.** Rudolf X. Meyer, *The Aerospace Corporation* (22, 1, p. 80) Article based on AIAA Paper 82-0652
- A85-011 Experimental Investigation of an Argon Hollow Cathode. R. P. Stillwell, *The BDM Corporation*; R. S. Robinson, H. R. Kaufman and R. K. Cupp, *Colorado State University* (22, 1, p. 85) Article based on AIAA Paper 82-1890 CP827
- A85-012 Ion Accelerator Systems for High-Power 30-cm Thruster Operation. Graeme Aston, Jet Propulsion Laboratory, California Institute of Technology (22, 1, p. 91) Article based on AIAA Paper 82-1893
- A85-013 Three-Dimensional Nonequilibrium Viscous Flow over the Shuttle Orbiter with Catalytic Surface Effects. M. D. Kim and Clark H. Lewis, Virginia Polytechnic Institute and State University (22, 2, p. 97) Article based on AIAA Paper 83-1426
- A85-014 Aerodynamics of Generalized Bent Biconics for Aero-Assisted, Orbital-Transfer Vehicles. Carol B. Davies, Informatics General Corporation; and Chul Park, NASA Ames Research Center (22, 2, p. 104) Article based on AIAA Paper 83-1512
- A85-015 Surface Pressure Measurements on a Transonic Spinning Projectile. M. C. Miller, USAAMCC, Aberdeen

- Proving Ground (22, 2, p. 112) Article based on AIAA Paper 83-1838
- A85-016 Predicting the Supersonic Aerodynamics of Very-Low-Aspect-Ratio Lifting Surfaces. Eddie F. Lucero, *The Johns Hopkins University* (22, 2, p. 119) Article based on AIAA Paper 84-0575
- A85-017 Heating Measurements on Space Shuttle Orbiter Models with Differentially Deflected Elevons. William L. Wells, NASA Langley Research Center (22, 2, p. 126) Article based on AIAA Paper 83-1534
- A85-018 Analytic Solution for a Cruising Plane Change Maneuver. Richard T. Cervisi, *Rockwell International* (22, 2, p. 134) Article based on AIAA Paper 83-2095
- A85-019 Tension Line Fields in a Simply Supported Blanket Subjected to In-Plane Body Forces. Fred Rimrott and Blair Kingsland, *University of Toronto* (22, 2, p. 141) Article
- A85-020 Environmental Effects on Cumulative Damage in Rocket Motors. R. A. Heller, M. P. Singh and H. Zibdeh, Virginia Polytechnic Institute and State University (22, 2, p. 149) Article based on AIAA Paper 83-1120
- A85-021 Bulk Modulus Determination of Solid Propellant Void Content. S. W. Beckwith and H. B. Carroll, *Hercules Aerospace Division* (22, 2, p. 156) Article based on AIAA Paper 83-1119
- A85-022 Inert Gas Test of Two 12-cm Magnetostatic Thrusters. William D. Ramsey, Loral Electro-Optical Systems (22, 2, p. 162) Article based on AIAA Paper 82-1925
- A85-023 System Test and Flight Results from Infrared Astronomical Satellite External Thermal Subsystem. Ronald P. Salazar, S. Walter Petrick and Liang-Chi Wen, *Jet Propulsion Laboratory, California Institute of Technology* (22, 2, p. 166) Article
- A85-024 Impact of Uncommanded Effector Motions on Shuttle Consumables. M. S. Evanbar, D. J. Simkin and G. G. Altman, *Rockwell International* (22, 2, p. 170) Article based on AIAA Paper 82-1605 CP826
- A85-025 Optical Effects of Spacecraft-Environment Interaction: Spectrometric Observations of the DE-2 Satellite. Vincent J. Abreu, Wilbert R. Skinner and Paul B. Hays, *University of Michigan*; and Jen-Hwa Yee, *Harvard-Smithsonian Center for Astrophysics* (22, 2, p. 177) Article based on AIAA Paper 83-2657
- A85-026 Simplified Design and Life Prediction of Rocket Thrust Chambers. J. S. Porowski, W. J. O'Donnell, M. L. Badlani and B. Kasraie, O'Donnell & Associates, Inc.; and H. J. Kasper, NASA Lewis Research Center (22, 2, p. 181) Article based on AIAA Paper 82-1251
- A85-027 Low-Thrust LO₂/LH₂ Engine Performance with a 300:1 Nozzle. H. Miyajima and K. Nakahashi, National Aerospace Laboratory (Japan); H. Hirakoso, Mitsubishi Heavy Industries, Ltd. (Japan); and E. Sogame, National Space Development Agency of Japan (22, 2, p. 188) Article based on AIAA Paper 83-1313
- A85-028 Dynamic Response of the LE-5 Rocket Engine Liquid Oxygen Pump. T. Shimura, National Aerospace Laboratory of

- Japan; and K. Kamijo, National Aerospace Laboratory of Japan (22, 2, p. 195) Article based on AIAA Paper 83-1385
- A85-029 Analytical Model of Pulsing of Solid Propellant Rocket Motors. R. M. Hackett, *The University of Alabama in Huntsville*; and C. E. DeVilbiss, *John W. McDougall Company, Inc.* (22, 2, p. 201) Article
- **A85-030 Three-Dimensional Transient Heat Conducton in a** Multilayer Medium. R. M. Clever, *TRW Systems*; and A. T. Wassel, *Science Applications, Inc.* (22, 2, p. 211) Engineering Note
- A85-031 Mitigation of Scattered Solar Radiation from Condensed Attitude Control Jet Plumes. C. E. Kolb and R. B. Lyons, Aerodyne Research, Inc.; R. E. Huffman, D. E. Paulsen and A. McIntyre, Air Force Geophysics Laboratory, Hanscom Air Force Base (22, 2, p. 215) Engineering Note
- A85-032 Criteria for Ignition in Monopropellant Engines. Jay B. Benziger and John E. Strong, *Princeton University* (22, 2, p. 217) Engineering Note
- A85-033 Some New Results of Chuffing in Composite Solid Propellant Rockets. B.N. Raghunandan and P. Bhaskariah, Indian Institute of Science (22, 2, p. 218) Engineering Note
- A85-034 Estimate of the Probability of a Lightning Strike to the Galileo Probe. W. J. Borucki, NASA Ames Research Center (22, 2, p. 220) Engineering Note
- A85-035 Effects of an S-Inlet on the Flow in a Dump Combustor. J. A. Schetz, Virginia Polytechnic Institute and State University; J. Guruswamy, Virginia Polytechnic Institute and State University; and J. F. Marchman III, Virginia Polytechnic Institute and State University (22, 2, p. 221) Engineering Note
- A85-036 Dynamics of Magnetospheric Plasmas. J. L. Horwitz, The University of Alabama (22, 3, p. 225) Article
- **A85-037 Magnetospheric Plasma Modeling (0-100 keV).** Henry Berry Garrett and Guy C. Spitale, *Jet Propulsion Laboratory, California Institute of Technology* (22, 3, p. 231) Survey Paper
- A85-038 Charging of Large Structures in Space with Application to the Solar Sail Spacecraft. Jay R. Hill and Elden C. Whipple Jr., *University of California at San Diego* (22, 3, p. 245) Survey Paper
- A85-039 Experiments in Charge Control at Geosynchronous Orbit ATS-5 and ATS-6. R. C. Olsen, *The University of Alabama* (22, 3, p. 254) Survey Paper
- **A85-040 Spacecraft** Discharge Electromagnetic Interference Coupling Models. A. J. Woods and E. P. Wenaas, *JAYCOR* (22, 3, p. 265) Survey Paper
- **A85-041 Studies of Microdamage in Dielectric Discharges.** E. J. Yadlowsky and R. C. Hazelton, *HY-Tech Research Corporation* (22, 3, p. 282) Article
- A85-042 Liquid Management in Low Gravity Using Baffled Rotating Containers. Roger F. Gans, *University of Rochester* (22, 3, p. 287) Synoptic
- A85-043 Aeroelastic Characteristics of the Space Shuttle External Tank Cable Trays. L. E. Ericsson and J. P. Reding, Lockheed Missiles & Space Company (22, 3, p. 289) Article based on AIAA Paper 82-0633 CP823

- A85-044 Comparison of Inviscid Flow Computations with Flight Data for the Shuttle Orbiter. K. James Weilmuenster, NASA Langley Research Center (22, 3, p. 297) Article based on AIAA Paper 83-1798
- A85-045 Extension of Equivalent Angle-of-Attack Method for Nonlinear Flowfields. M. J. Hemsch, Nielsen Engineering & Research, Inc.; and J. N. Nielsen, Nielsen Engineering & Research, inc. (22, 3, p. 304) Article based on AIAA Paper 83-2083
- A85-046 Aerothermodynamic Design of High Speed Rockets. Samuel McAlees Jr. and Randall C. Maydew, Sandia National Laboratories (22, 3, p. 309) Article
- A85-047 Interplanetary Missions for the Late Twentieth Century. R. A. Wallace, W. H. Blume, N. D. Hulkower and C. L. Yen, *Jet Propulsion Laboratory, California Institute of Technology* (22, 3, p. 316) Article based on AIAA Paper 82-1463
- A85-048 Example Solar Electric Propulsion System Asteroid Tours Using Variational Calculus. Roger R. Burrows, NASA Marshall Space Flight Center (22, 3, p. 325) Article
- A85-049 Structural Concepts for Future Space Transportation System Orbiters. Allan H. Taylor, L. Robert Jackson and Randall C. Davis, *NASA Langley Research Center*; Jeffrey A. Cerro and Stephen J. Scotti, *Kentron International Inc.* (22, 3, p. 333) Article based on AIAA Paper 83-0210
- A85-050 Structural Response and Acoustic Fatigue for Random Progressive Waves and Diffuse Fields. C. E. Wallace, *Arizona State University* (22, 3, p. 340) Article
- A85-051 Starwisp: An Ultra-Light Interstellar Probe. Robert L. Forward, Hughes Research Laboratories (22, 3, p. 345) Article
- A85-052 Benefits of a Reusable Upper Stage Orbital Maneuvering Vehicle. G. Thomas Kroncke, *Martin Marietta Aerospace* (22, 3, p. 351) Article based on AIAA Paper 83-1304
- A85-053 Natural Environment Considerations for Space Shuttle System Development Support. William W. Vaughan and S. Clark Brown, NASA Marshall Space Flight Center (22, 3, p. 355) Article based on AIAA Paper 83-2663
- A85-054 Long-Term, Light-Induced Changes in the Dark Conductivity of Kapton. M. S. Leung, M. B. Tueling and P. F. Mizera, *The Aerospace Corporation* (22, 3, p. 361) Article
- A85-055 Analysis of Two-Phase Flow Processes in Rocket Exhaust Plumes. S. M. Dash, D. E. Wolf and R. A. Beddini, Science Applications, Inc.; and H. S. Pergament, Science Applications, Inc. (22, 3, p. 367) Article based on AIAA Paper 83-0248
- A85-056 Minimum Hole Size in Ion Optics. Harold R. Kaufman and Raymond S. Robinson, *Colorado State University* (22, 3, p. 381) Engineering Note
- A85-057 Thermal Control System of the Purdue University Space Shuttle Payload. John Aldrich Stark, *Purdue University* (22, 3, p. 382) Engineering Note
- A85-058 Thermal-Structural Analysis of Large Space Structures: An Assessment of Recent Advances. Earl A. Thornton, Old Dominion University; and Donald B. Paul, Wright-Patterson Air Force Base (22, 4, p. 385) Survey Paper based on AIAA Paper 83-1018 CP833

- A85-059 Prediction of Burning Rates in Nozzleless Rocket Motors. Merrill K. King, *Atlantic Research Corporation* (22, 4, p. 394) Synoptic based on AIAA Paper 82-1200
- A85-060 Recession Behavior of Graphitic Nozzles in Simulated Rocket Motors. S. T. Keswani, E. Andiroglu, J. D. Campbell and K. K. Kuo, *The Pennsylvania State University* (22, 4, p. 396) Synoptic based on AIAA Paper 83-1317
- A85-061 Engineering Flowfield Method with Angle-of-Attack Applications. E. V. Zoby and A. L. Simmonds, NASA Langley Research Center (22, 4, p. 398) Article based on AIAA Paper 84-0303
- A85-062 Nature and Reduction of Errors in Near-Earth Autonomous Satellite Navigation. Vincent L. Pisacane, Steve M. Yionoulis and Robert E. Jenkins, *The John Hopkins University* (22, 4, p. 405) Article
- A85-063 MPD Thruster Performance with Various Propellants. K. Uematsu and S. Morimoto, Ishikawajima-Harima Heavy Industries Company, Ltd.; and K. Kuriki, Institute of Space and Astronautical Science (Japan) (22, 4, p. 412) Article based on AIAA Paper 82-1885
- A85-064 Experimental Aerodynamic Heating to Simulated Shuttle Tiles. Don E. Avery, Patricia A. Kerr and Allan R. Wieting, NASA Langley Research Center (22, 4, p. 417) Article based on AIAA Paper 83-1536
- A85-065 Alternative Designs of Integral Tanks for Advanced Space Transportation Systems. Ian O. MacConochie and R. B. Davis, NASA Langley Research Center; and R. W. LeMessurier, Kentron International, Inc. (22, 4, p. 425) Article based on AIAA Paper 82-0634 CP824
- A85-066 Optimum Design of Dewar Supports. David Bushnell, Lockheed Applied Mechanics (22, 4, p. 432) Article based on AIAA Paper 83-0829 CP831
- A85-067 Time-Domain Response Envelope for Structural Dynamic Systems. Jay-Chung Chen, Marc Trubert and John A. Garba, Jet Propulsion Laboratory, California Institute of Technology (22, 4, p. 442) Article based on AIAA Paper 83-0818 CP832
- A85-068 Vibration Characteristics of Hexagonal Radial Rib and Hoop Platforms. W. Keith Belvin, NASA Langley Research Center (22, 4, p. 450) Article based on AIAA Paper 83-0822 CP831
- A85-069 Review of the In-Orbit Thermal Performance of the Maritime Communication Statellite MCS-A. D. R. Chalmers, ERNO Raumfahrttechnik GmbH (22, 4, p. 457) Article based on AIAA Paper 83-1494
- A85-070 Development of a Large Inert Gas Ion Thruster. G. Steiner, Xerox Electro-Optical Systems (22, 4, p. 465) Article based on AIAA Paper 82-1927
- A85-071 Analysis of Electromagnetic Propulsion of Nonionized Dipole Gases. Michael M. Micci, *The Pennsylvania State University* (22, 4, p. 469) Article based on AIAA Paper 83-1395
- A85-072 Shuttle Orbiter High Resolution Accelerometer Package Experiment: Preliminary Flight Results. R. C. Blanchard, NASA Langley Research Center; and J. F. Rutherford, NASA Johnson Space Center (22, 4, p. 474) Article based on AIAA Paper 84-0490

A85-073 Ignition/Duct Overpressure Induced by Space Shuttle Solid Rocket Motor Ignition. Hideo Ikawa and Fred S. Laspesa, *Rockwell International* (22, 4, p. 481) Article based on AIAA Paper 83-1113

679

- A85-074 Effects on Nonequilibrium and Wall Catalysis on Shuttle Heat Transfer. C. D. Scott, NASA Johnson Space Center (22, 5, p. 489) Survey Paper based on AIAA Paper 83-1485
- A85-075 The Shuttle Environment: Gases, Particulates, and Glow. Byron David Green and George E. Caledonia, *Physical Sciences Inc.*; and Thomas D. Wilkerson, *University of Maryland* (22, 5, p. 500) Survey Paper
- A85-076 Metal Combustion Efficiency Predictions for Low L* Rocket Motors. Merrill K. King, Atlantic Research Corporation (22, 5, p. 512) Synoptic based on AIAA Paper 82-1202
- A85-077 An Auroral X-Ray Imaging Spectrometer. P. F. Mizera, W. A. Kolasinski, D. J. Gorney and J. L. Roeder, *The Aerospace Corporation* (22, 5, p. 514) Synoptic
- A85-078 Shock-Interaction-Induced Heat Transfer to the Orbiter Wing Lower Surface. David A. Throckmorton and Lin C. Hartung, NASA Langley Research Center (22, 5, p. 516) Article based on AIAA Paper 84-0227
- A85-079 A Nine-Noded Quadratic Control-Volume-Based Finite Element for Heat Conduction. M. J. Raw, G. E. Schneider and V. Hassani, *University of Waterloo (Canada)* (22, 5, p. 523) Article based on AIAA Paper 84-0493
- A85-080 Supersonic Wind Tunnel Simulation of Propulsive Jets. R. A. White, University of Illinois at Urbana-Champaign; J. Agrell and S.-E. Nyberg, Aeronautical Research Institute of Sweden (22, 5, p. 530) Article based on AIAA Paper 84-0230
- A85-081 Aerodynamic Control of the Space Shuttle Orbiter with Tip-Fin Controllers. Richard W. Powell and Delma C. Freeman Jr., NASA Langley Research Center (22, 5, p. 536) Article based on AIAA Paper 84-0488
- A85-082 Comparative Analysis of Numerical Schemes for Hypersonic Re-entry Flows. Bilal A. Bhutta and Clark H. Lewis, Virginia Polytechnic Institute and State University; and Frederick A. Kautz II, Central Intelligence Agency (22, 5, p. 541) Article based on AIAA Paper 83-1799
- A85-083 Path-Constrained Maneuvering Near Large Space Structures. S. A. Stern, *University of Colorado*; and W. T. Fowler, *University of Texas*, *Austin* (22, 5, p. 548) Article
- A85-084 Effects of Random Member Length Errors on the Accuracy and Internal Loads of Truss Antennas. William H. Greene, NASA Langley Research Center (22, 5, p. 554) Article based on AIAA Paper 83-1019 CP831
- A85-085 How Beryllium Proved Successful on the Space Shuttle Orbiter. L. B. Norwood, *Rockwell International* (22, 5, p. 560)
- A85-086 Aries Rocket Motor Infrared and Ultraviolet Spent-Stage Emission. D. S. Frankel and M. E. Gersh, Aerodyne Research, Inc.; A. McIntyre, R. E. Huffman and D. E. Paulsen, Air Force Geophysics Laboratory, Hanscom AFB (22, 5, p. 567) Article
- A85-087 Deposit Formation and Heat-Transfer Characteristics of Hydrocarbon Rocket Fuels. Anthony J. Giovanetti, Louis J. Spadaccini and Eugene J. Szetela, *United Technologies*

- Research Center (22, 5, p. 574) Article based on AIAA Paper 84-0512
- A85-088 Turbulent Reynolds Analogy Factors for Nonplanar Surface Microgeometries. A. Margrethe Lindemann, NASA Langley Research Center (22, 5, p. 581) Engineering Note
- **A85-089 Close-Pack Modules for Manned Space Structures.** Warren Frisina, *Smithtown, New York* (22, 5, p. 583) Engineering Note
- A85-090 Effect of Contact Spacing on Efficiency of Flat-Plate Solar Collectors. S. Crha and G. E. Schneider, *University of Waterloo* (22, 6, p. 585) Article based on AIAA Paper 84-0146
- A85-091 Improved Double-Wall Artery High-Capacity Heat Pipe. R. Ponnappan, Universal Energy Systems, Inc.; Jerry E. Beam and Tom Mahefkey, Air Force Wright Aeronautical Laboratories, Wright-Patterson Air Force Base (22, 6, p. 592) Article based on AIAA Paper 84-1717
- A85-092 Verification Tests of Durable Thermal Protection System Concepts. John L. Shideler, Granville L. Webb and Claud M. Pittman, NASA Langley Research Center (22, 6, p. 598) Article based on AIAA Paper 84-1767
- A85-093 Missile Aerodynamics Prediction Code. J. Sun, S. G. Hansen, R. M. Cummings and H. August, *Hughes Aircraft Company* (22, 6, p. 605) Article based on AIAA Paper 84-0389
- A85-094 High-Altitude Effects on Three-Dimensional Non-equilibrium Viscous Shock-Layer Flows. D. J. Song and S. Swaminathan, Virginia Polytechnic Institute and State University; and Clark H. Lewis, VRA, Inc. (22, 6, p. 614) Article based on AIAA Paper 84-0304
- A85-095 Effects of Tripropellant Engines on Earth-to-Orbit Vehicles. James A. Martin, NASA Langley Research Center (22, 6, p. 620) Article based on AIAA Paper 83-1178

- A85-096 Measurement of Energy Distribution in Flowing Hydrogen Microwave Plasmas. R. Chapman, T. Morin, M. Finzel and M. C. Hawley, *Michigan State University* (22, 6, p. 626) Article based on AIAA Paper 82-1951
- A85-097 Current Collection from the Space Plasma Through Defects in Solar Array Insulation. R. P. Stillwell and R. S. Robinson, Colorado State University; and H. R. Kaufman, Collorado State University (22, 6, p. 631) Article
- A85-098 Radiation Energy Receiver for Solar Propulsion Systems. D. F. G. Rault, McGill University (22, 6, p. 642) Article based on AIAA Paper 83-1207
- A85-099 Frequency Characteristics of a Bubble Cluster in a Vibrated Liquid Column. Hiroyuki, Tohoku University Hashimoto and Seiichi Sudo, *Tohoku University* (22, 6, p. 649)
- A85-100 Comparison of Theoretical and Experimental Performance of a 6.44-ft-diam Parachute. William B. Pepper, Sandia National Laboratories (22, 6, p. 656) Article based on AIAA Paper 84-0802 CP843
- A85-101 Compressible Flow in a Long Tube Closed at One End. M. D. Bennett and F. V. Wyatt, Sandia National Laboratories (22, 6, p. 661) Engineering Note
- A85-102 Drag Reduction of Perforated Axisymmetric Bodies in Supersonic Flow. Eugen Serbanescu and George Savu, *The National Institute for Scientific and Technical Creation (Romania)* (22, 6, p. 663) Engineering Note
- A85-103 Transient Temperature Distributions in a Radiantly Heated Hollow Cylinder. Y. Sakurai, Mitsubishi Electric Corporation; and D. K. Edwards, University of California, Irvine (22, 6, p. 665) Engineering Note
- A85-104 Payload Piggybacking Aboard Shuttle Solid Rocket Booster. S. A. Stern, University of Colorado and F. I. Tallentire, Martin Marietta Denver Aerospace (22, 6, p. 668) Engineering Note