

Chronological Index

B96-001 Hydrodynamic Suppression of Soot Emissions in Laminar Diffusion Flames. K.-C. Lin and G. M. Faeth, *University of Michigan* (12, 1, p. 10) Article based on AIAA Paper 95-0375

B96-002 Validity of Droplet Ignition Criteria Derived Assuming Gas-Phase Quasisteadiness. Shwin-Chung Wong, Tzu-Sheng Hsu, and Jyh-Cheng Chang, *National Tsing Hua University, Taiwan, ROC* (12, 1, p. 18) Article

B96-003 Effect of Fluorinated Graphite on Combustion of Boron and Boron-Based Fuel-Rich Propellants. Tai-Kang Liu, *Chung Shan Institute of Science and Technology, Taiwan, ROC*; and Ing-Ming Shyu and Yen-Sheng Hsia, *Chung Cheng Institute of Technology, Taiwan, ROC* (12, 1, p. 26) Article

B96-004 Role of Slip in the Generation of Acoustic Instabilities in Gas Turbines. M. DiCicco, *University of Illinois at Urbana-Champaign*; and J. Buckmaster, *Hong Kong University of Science and Technology* (12, 1, p. 34) Article

B96-005 Influence of Rocket Design Parameters on Engine Nozzle Efficiencies. Detlef Manski and Gerald Hagemann, *DLR, German Aerospace Research Establishment* (12, 1, p. 41) Article based on AIAA Paper 94-2756

B96-006 Corrosion of Ti-6Al-4V Alloy and 304L Stainless Steel in Liquid Nitrogen Oxides. Michael F. A. Dove, Norman Logan, and Simon A. Wood, *University of Nottingham, England, UK* (12, 1, p. 48) Article based on AIAA Paper 94-3258

B96-007 Large-Displacement Structural Durability Analyses of Simple Specimens Emulating Rocket Chambers. Vinod K. Arya, *University of Akron*; and Gary R. Halford and Leonard J. Westfall, *NASA Lewis Research Center* (12, 1, p. 55) Article

B96-008 Reacting Flow Simulation for a Large-Scale Ram Accelerator. Michael J. Nusca and David L. Kruczynski, *U. S. Army Research Laboratory* (12, 1, p. 61) Article

B96-009 Wall Surface Leakage Effects on Magnetohydrodynamic Power Generator Performance. Carlson C. P. Pian and Edwin W. Schmitt, *Textron Defense Systems* (12, 1, p. 70) Article

B96-010 Novel Active Ripple Filter for the Solar Array Shunt Switching Unit. Myung S. Moon, *Virginia Polytechnic Institute and State University*; and B. H. Cho, *Seoul National University, Republic of Korea* (12, 1, p. 78) Article

B96-011 Selective Emitters for Thermophotovoltaic Power Systems for Use in Aerospace Applications. M. F. Rose, P. Adair, and Ken Schroeder, *Auburn University* (12, 1, p. 83) Article based on AIAA Paper 95-0405

B96-012 Chemical Double-Layer Capacitor Power Source for Electromechanical Thrust Vector Control Actuator. Stephen A. Merryman, *Auburn University*; and David K. Hall, *NASA Marshall Space Flight Center* (12, 1, p. 89) Article

B96-013 Electric Probe Measurements in the Plume of an Ion Thruster. P. C. T. de Boer, *The Aerospace Corporation* (12, 1, p. 95) Article

B96-014 Near- and Far-Field Plume Studies of a One-Kilowatt Arcjet. Alec D. Gallimore, Sang-Wook Kim, John E. Foster, Lyon B. King, and Frank S. Gulczynski III, *University of Michigan* (12, 1, p. 105) Article based on AIAA Paper 94-3137

B96-015 Two-Fluid Nonequilibrium Simulation of Hydrogen

Arcjet Thrusters. S. A. Miller and M. Martinez-Sanchez, *Massachusetts Institute of Technology* (12, 1, p. 112) Article based on AIAA Paper 93-218

B96-016 Anode Heat Loss and Current Distributions in a DC Arcjet. Kazuhisa Fujita and Yoshihiro Arakawa, *University of Tokyo, Japan* (12, 1, p. 120) Article

B96-017 Computational Analysis of the Unsteady Type IV Shock Interaction of Blunt Body Flows. Charles A. Lind and Mark J. Lewis, *University of Maryland* (12, 1, p. 127) Article based on AIAA Paper 93-2479

B96-018 Time-Marching Euler Analysis of Ducted-Propellers. R. Srivastava, *University of Toledo* (12, 1, p. 134) Article based on AIAA Paper 92-0522

B96-019 Numerical Analysis of Sweep Effects in Shrouded Propfan Rotors. K. Helming, *DLR, German Aerospace Research Establishment* (12, 1, p. 139) Article based on AIAA Paper 94-2695

B96-020 Upwind Relaxation Multigrid Method for Computing Three-Dimensional, Viscous Internal Flows. Jack R. Edwards, *North Carolina State University* (12, 1, p. 146) Article based on AIAA Paper 95-0208

B96-021 Near-Field Study of a Turbulent Freejet and Velocity Bias Effects. S. A. Ahmed, *King Fahd University of Petroleum and Minerals, Saudi Arabia*; A. S. Nejad, *Experimental Research Company*; and A. Z. Al-Garni, *King Fahd University of Petroleum and Minerals, Saudi Arabia* (12, 1, p. 155) Article

B96-022 Internal Flowfield Characteristics of a Scramjet Inlet at Mach 10. D. M. Van Wie and D. A. Ault, *Johns Hopkins University* (12, 1, p. 158) Article based on AIAA Paper 94-0584

B96-023 Experimental Study on Mixing Enhancement by Petal Nozzle in Supersonic Flow. A. R. Srikrishnan, J. Kurian, and V. Sriramulu, *Indian Institute of Technology* (12, 1, p. 165) Article

B96-024 Mixing of Swirling Jets in a Supersonic Duct Flow. D. K. Kraus and A. D. Cutler, *George Washington University and NASA Langley Research Center* (12, 1, p. 170) Article

B96-025 Dual Stream Axisymmetric Mixing in the Presence of Axial Vorticity. V. M. Belovich, M. Samimy, and M. F. Reeder, *Ohio State University* (12, 1, p. 178) Article based on AIAA Paper 94-3084

B96-026 Transverse Jet Mixing and Combustion Experiments in Hypervelocity Flows. Jacques Bélanger, *University of Minnesota*; and Hans G. Hornung, *California Institute of Technology* (12, 1, p. 186) Article

B96-027 Model Developments for the Brush Seal Numerical Simulation. V. V. Kudriavtsev and M. J. Braun, *University of Akron* (12, 1, p. 193) Article

B96-028 Optimal Shock Wave Parameters for Supersonic Inlets. Pavel Safarik, *Czech Technical University*; and Arnold Polak, *University of Cincinnati* (12, 1, p. 202) Technical Note

B96-029 Advanced Instrumentation for Next-Generation Aerospace Propulsion Control Systems. S. Barkhoudarian and G. S. Cross, *Rockwell International Corporation*; and Carl F. Lorenzo, *NASA Lewis Research Center* (12, 1, p. 205) Technical Note based on AIAA Paper 93-2079

- B96-030 Experimental Flow Visualization for a Large-Scale Ram Accelerator.** David L. Kruczynski, Federico Liberatore, and Michael J. Nusca, *U. S. Army Research Laboratory* (12, 1, p. 206) Technical Note
- B96-031 Study on Thermal Strain Using Subscale Specimens.** F. H. Su, S. W. Wang, and H. C. Perng, *Chung Shan Institute of Science and Technology, Taiwan, ROC* (12, 1, p. 210) Technical Note
- B96-032 Development of Equations of State for Compressible Liquids.** K. Kolcio and A. J. Helmicki, *University of Cincinnati* (12, 1, p. 213) Technical Note
- B96-033 Shock-Wave/Boundary-Layer Interactions with Bleed Through Rows of Holes.** M. J. Rimlinger and T. I-P. Shih, *Carnegie-Mellon University*; and W. J. Chyu, *NASA Ames Research Center* (12, 2, p. 217) Article based on AIAA Paper 94-0313
- B96-034 Crossflow Mixing of Noncircular Jets.** D. S. Liscinsky and B. True, *United Technologies Research Center*; and J. D. Holdeman, *NASA Lewis Research Center* (12, 2, p. 225) Article based on AIAA Paper 95-0732
- B96-035 Flow Characteristics in Boundary-Layer Bleed Slots with Plenum.** A. Hamed, J. J. Yeuan, and Y. D. Jun, *University of Cincinnati* (12, 2, p. 231) Article based on AIAA Paper 95-0033
- B96-036 Performance Characterization of a Highly Offset Diffuser with Vortex Generator Jets.** M. B. Senseney, T. A. Buter, and R. D. W. Bowersox, *U.S. Air Force Institute of Technology* (12, 2, p. 237) Article
- B96-037 Direct Measurement of Skin Friction in a Turbine Cascade.** Alexei V. Marshakov, Joseph A. Schetz, and Tibor Kiss, *Virginia Polytechnic Institute and State University* (12, 2, p. 245) Article based on AIAA Paper 94-3076
- B96-038 Flow Visualization and the Three-Dimensional Flow in an Axial-Flow Pump.** W. C. Zierke and W. A. Straka, *Pennsylvania State University* (12, 2, p. 250) Article
- B96-039 Effect of Target Materials on the Particle Restitution Characteristics for Turbomachinery Application.** W. Tabakoff and A. Hamed, *University of Cincinnati*; and D. M. Murugan, *EASi Engineering, Inc.* (12, 2, p. 260) Article based on AIAA Paper 94-0143
- B96-040 Flutter Analysis of Propfans Using a Three-Dimensional Euler Solver.** R. Srivastava and T. S. R. Reddy, *University of Toledo*; and O. Mehmed, *NASA Lewis Research Center* (12, 2, p. 267) Article
- B96-041 Unsteady Multistage Analysis Using a Loosely Coupled Blade Row Approach.** Daniel J. Dorney, *Western Michigan University*; Roger L. Davis, *United Technologies Research Center*; and Om P. Sharma, *Pratt and Whitney, United Technologies* (12, 2, p. 274) Article based on AIAA Paper 95-0719
- B96-042 Spur, Helical, and Spiral Bevel Transmission Life Modeling.** M. Savage and K. L. Rubadeux, *University of Akron*; and H. H. Coe and J. J. Coy, *NASA Lewis Research Center* (12, 2, p. 283) Article based on AIAA Paper 94-3079
- B96-043 Vibration Signature Analysis of a Faulted Gear Transmission System.** F. K. Choy and S. Huang, *University of Akron*; J. J. Zakrajsek, *NASA Lewis Research Center*; R. F. Handschuh, *U.S. Army Aviation Systems Command and NASA Lewis Research Center*; and D. P. Townsend, *NASA Lewis Research Center* (12, 2, p. 289) Article based on AIAA Paper 94-2937
- B96-044 Laser Pyrolysis of Hydroxyl-Terminated Polybutadiene.** D. R. Esker and M. Q. Brewster, *University of Illinois at Urbana-Champaign* (12, 2, p. 296) Article
- B96-045 Nitramine Deflagration: Reduced Chemical Mechanism for the Primary Flame Facilitating Simplified Asymptotic Analysis.** S. C. Li and F. A. Williams, *University of California, San Diego* (12, 2, p. 302) Article
- B96-046 Predicting and Analyzing X-Rays to Measure Propellant Crack Propagation Speed.** R. A. Frederick Jr., *University of Alabama in Huntsville*; and B. M. Williams and S. B. Farmer, *Sverdrup Technology, Inc.* (12, 2, p. 310) Article
- B96-047 Airbreathing Space Boosters Using In-Flight Oxidizer Collection.** Lourdes Q. Maurice, John L. Leingang, and Louis R. Carreiro, *U.S. Air Force Wright Laboratory* (12, 2, p. 315) Article
- B96-048 Oblique Detonation Wave Engine Performance Prediction.** S. A. Ashford and G. Emanuel, *University of Oklahoma* (12, 2, p. 322) Article based on AIAA Paper 95-0432
- B96-049 Ram Accelerator Utilizing Active Projectile.** Julius Brandeis, *Stanford University* (12, 2, p. 328) Article based on AIAA Paper 95-0288
- B96-050 Finite Element Analysis of the Scramaccelerator with Hydrogen-Oxygen Combustion.** Barry R. Dyne and Juan C. Heinrich, *University of Arizona* (12, 2, p. 336) Article based on AIAA Paper 93-0745
- B96-051 Holography Experiments in a Dense High-Speed Impinging Jet Spray.** B. S. Kang and D. Poulikakos, *University of Illinois at Chicago* (12, 2, p. 341) Article
- B96-052 Transcritical Liquid Oxygen Droplet Vaporization: Effect on Rocket Combustion Instability.** J.-P. Delplanque and W. A. Sirignano, *University of California, Irvine* (12, 2, p. 349) Article based on AIAA Paper 93-0231
- B96-053 Oscillatory Fuel Droplet Vaporization: Driving Mechanism for Combustion Instability.** A. Duvvur, C. H. Chiang, and W. A. Sirignano, *University of California, Irvine* (12, 2, p. 358) Article
- B96-054 Mixing by Resonant Acoustic Driving in a Closed Chamber.** L. M. Matta, C. Zhu, J. I. Jagoda, and B. T. Zinn, *Georgia Institute of Technology* (12, 2, p. 366) Article based on AIAA Paper 95-0496
- B96-055 Vortex Shedding in Segmented Solid Rocket Motors.** A. Kourta, *Institut de Mécanique des Fluides de Toulouse, France* (12, 2, p. 371) Article based on AIAA Paper 95-0727
- B96-056 Simple Geometric Model for Estimating the Impingement Current on Ion Thruster Grids.** W. M. Ruyten, *Center for Space Transportation and Applied Research* (12, 2, p. 377) Article
- B96-057 Microinstabilities in a 10-Kilowatt Self-Field Magnetoplasmadynamic Thruster.** Dennis L. Tilley, Edgar Y. Choueiri, Arnold J. Kelly, and Robert G. Jahn, *Princeton University* (12, 2, p. 381) Article
- B96-058 Magnetohydrodynamic Generator Design for a Combined-Cycle Demonstration Power Plant.** Carlson C. P. Pian, Robert Kessler, and Edwin W. Schmitt, *Textron Defense Systems* (12, 2, p. 390) Article
- B96-059 Active Cooling of Metal Oxide Semiconductor Controlled Thyristor Using Venturi Flow.** R. Ponnappan, *UES, Inc.*; and J. E. Leland, W. S. Chang, J. E. Beam, B. T. Nguyen, and J. A. Weimer, *U.S. Air Force Wright Laboratory* (12, 2, p. 398) Article

- B96-060 Concentrating and Splitting of Solar Radiation for Laser Pumping and Photovoltaic Conversion.** A. Yogeve, *Weizmann Institute of Science, Israel*; J. Appelbaum, *Tel-Aviv University, Israel*; M. Oron, *Soreq Research Center, Israel*; and N. Yehezkel, *Tel-Aviv University, Israel* (12, 2, p. 405) Article
- B96-061 Solar Radiation on Mars: Tracking Photovoltaic Array.** J. Appelbaum and D. J. Flood, *NASA Lewis Research Center*; and M. Crutchik, *Tel-Aviv University, Israel* (12, 2, p. 410) Article
- B96-062 Transient Exergy Analysis and Optimal Removal Time of a Cylindrical Storage System.** J. G. Maveety and A. Razani, *University of New Mexico* (12, 2, p. 420) Article based on AIAA Paper 94-4078 CP9412
- B96-063 Preliminary Studies on Dual-Mode Combustion Ramjet Using Petal Nozzle.** D. Rajamanohar and Job Kurian, *Indian Institute of Technology* (12, 2, p. 424) Technical Note
- B96-064 Numerical Simulations of Unsteady Transonic Flow in Turbomachines.** Daniel J. Dorney, *Western Michigan University*; and Roger L. Davis, *United Technologies Research Center* (12, 2, p. 426) Technical Note based on AIAA Paper 94-2833
- B96-065 Estimation of Mixing of High-Speed Streams.** R. Ramesh Kumar and Job Kurian, *Indian Institute of Technology* (12, 2, p. 429) Technical Note
- B96-066 Mixing Pressure-Rise Parameter for Effect of Nozzle Geometry in Diffuser-Ejectors.** T. M. T. Nicholas, Anil K. Narayanan, and A. E. Muthunayagam, *Liquid Propulsion Systems Center, India* (12, 2, p. 431) Technical Note
- B96-067 Plateau Region of Composite Propellants.** Irvin Glassman, *Princeton University* (12, 2, p. 434) Technical Note
- B96-068 Magnetic Flow Meter Measurement of Solid Propellant Pressure-Coupled Responses Using an Acoustic Analysis.** F. Cauty, P. Comas, and F. Vuillot, *ONERA, France*; and M. M. Micci, *Pennsylvania State University* (12, 2, p. 436) Technical Note
- B96-069 Magnetohydrodynamics of a Particulate Suspension.** Ali J. Chamkha, *Kuwait University* (12, 2, p. 438) Technical Note
- B96-070 Effects of Initial Boundary Layers to the Lobed Mixer Trailing Streamwise Vorticity.** Simon C. M. Yu, X. G. Xu, and T. H. Yip, *Nanyang Technological Institute, Singapore* (12, 2, p. 440) Technical Note
- B96-071 Experimental Investigation of Angled Injection in a Compressible Flow.** Roy J. Hartfield Jr. and Douglas J. Bayley, *Auburn University* (12, 2, p. 442) Technical Note based on AIAA Paper 95-2414
- B96-072 Theoretical Upper Limits on Enthalpy Rocket Performance.** Timothy W. Parker and Ronald W. Humble, *University of Colorado* (12, 2, p. 445) Technical Note based on AIAA Paper 94-2872
- B96-073 Computational Study of Viscous Effects on Lobed Mixer Flow Features and Performance.** M. N. O'Sullivan, J. K. Krasnodebski, I. A. Waitz, E. M. Greitzer, and C. S. Tan, *Massachusetts Institute of Technology*; and W. N. Dawes, *Cambridge University, England, UK* (12, 3, p. 449) Article
- B96-074 Impact Characteristics of Hailstones Simulating Ingestion by Turbofan Aeroengines.** H. Pan and P. M. Render, *Loughborough University of Technology, England, UK* (12, 3, p. 457) Article based on AIAA Paper 94-2956
- B96-075 Supersonic Shock/Turbulent Boundary-Layer Interaction on a Roughened Surface.** George R. Inger, *Iowa State University* (12, 3, p. 463) Article based on AIAA Paper 95-0229
- B96-076 Simplified Model and Navier-Stokes Calculations for Hypersonic Air Intakes Design.** O. Penanhoat, *SNECMA, France*; and D. Darracq, *ONERA, France* (12, 3, p. 470) Article based on AIAA Paper 95-6016
- B96-077 Advanced Propeller Performance Calculation by a Lifting Surface Method.** Johan B. H. M. Schulten, *National Aerospace Laboratory, The Netherlands* (12, 3, p. 477) Article based on AIAA Paper 95-3035
- B96-078 Unsteady Pressure Behavior in a Ramjet/Scramjet Inlet.** Patrick E. Rodi, *National Research Council*; Saied Emami, *Lockheed Engineering and Sciences Company, Inc.*; and Carl A. Trexler, *NASA Langley Research Center* (12, 3, p. 486) Article based on AIAA Paper 95-0037
- B96-079 Upwind Unstructured Scheme for Three-Dimensional Combusting Flows.** Ashvin Hosangadi, Robert A. Lee, Brian J. York, Neeraj Sinha, and Sanford M. Dash, *Combustion Research and Flow Technology, Inc.* (12, 3, p. 494) Article based on AIAA Paper 95-0258
- B96-080 Identification of Parameter Coupling in Turbine Design Using Neural Networks.** Sanjay Goel, *General Electric Corporate R&D Center*; and Prabhat Hajela, *Rensselaer Polytechnic Institute* (12, 3, p. 503) Article
- B96-081 Influence of Formation Processes on Oblique Detonation Wave Stabilization.** K. Ghorbanian and J. D. Sterling, *Advanced Projects Research, Inc.* (12, 3, p. 509) Article
- B96-082 Simulation of Shock-Induced Combustion Past Blunt Projectiles Using Shock-Fitting Technique.** J. K. Ahuja, *Old Dominion University*; A. Kumar, *NASA Langley Research Center*; D. J. Singh, *Analytical Services and Materials, Inc.*; and S. N. Tiwari, *Old Dominion University* (12, 3, p. 518) Article
- B96-083 Semiempirical Correlations of NO_x Emissions from Utility Combustion Turbines with Inert Injection.** D. M. Newberry and A. M. Mellor, *Vanderbilt University* (12, 3, p. 527) Article
- B96-084 Global Characteristics and Structure of Hydrogen-Air Counterflow Diffusion Flames.** J. Zhao and K. M. Isaac, *University of Missouri-Rolla*; and G. L. Pellett, *NASA Langley Research Center* (12, 3, p. 534) Article based on AIAA Paper 94-0680
- B96-085 Role of Combustion on Droplet Transport in Pressure-Atomized Spray Flames.** A. K. Gupta, *University of Maryland*; C. Presser and J. T. Hodges, *National Institute of Standards and Technology*; and C. T. Avedisian, *Cornell University* (12, 3, p. 543) Article based on AIAA Paper 94-0115
- B96-086 Examination of Chemical Approaches to Stabilizing Composite-Propellant Combustion.** Merrill K. King, *Universities Space Research Association* (12, 3, p. 554) Article
- B96-087 Theory of Unsteady Combustion of Solids: Investigation of Quasisteady Assumption.** Maria A. Zebrowski and M. Quinn Brewster, *University of Illinois at Urbana-Champaign* (12, 3, p. 564) Article
- B96-088 New Decomposition Catalysts and Characterization Techniques for Rocket-Grade Hydrogen Peroxide.** John J. Rusek, *U.S. Air Force Phillips Laboratory* (12, 3, p. 574) Article based on AIAA Paper 95-3087
- B96-089 Laboratory Methodologies for Propellant Corrosion Research.** Michael F. A. Dove, *University of Nottingham, England, UK*; Norman Logan, *University of Alabama in Huntsville*;

Jeremy P. Mauger, *University of Nottingham*; Barry D. Allan, *Redstone Arsenal*; and Ramona E. Arndt and Clark W. Hawk, *University of Alabama in Huntsville* (12, 3, p. 580) Article based on AIAA Paper 94-3257

B96-090 Aluminum Alloy Compatibility with Gelled Inhibited Red Fuming Nitric Acid. Michael F. A. Dove, *University of Nottingham, England, UK*; Norman Logan, *University of Alabama in Huntsville*; Jeremy P. Mauger, *University of Nottingham, England, UK*; Barry D. Allan, *Redstone Arsenal*; and Ramona E. Arndt and Clark W. Hawk, *University of Alabama in Huntsville* (12, 3, p. 585) Article based on AIAA Paper 94-3257

B96-091 Theoretical Effects of Aluminum Gel Propellant Secondary Atomization on Rocket Engine Performance. Donn C. Mueller and Stephen R. Turns, *Pennsylvania State University* (12, 3, p. 591) Article based on AIAA Paper 94-0686

B96-092 Al_2O_3 Collection and Sizing from Solid Rocket Motor Plumes. Jay K. Sambamurthi, *NASA Marshall Space Flight Center* (12, 3, p. 598) Article based on AIAA Paper 95-2590

B96-093 Laboratory-Scale Hybrid Rocket Motor Uncertainty Analysis. R. A. Frederick Jr. and B. E. Greiner, *University of Alabama in Huntsville* (12, 3, p. 605) Article based on AIAA Paper 95-3085

B96-094 Internal Ballistic Model for Spinning Star-Grain Motors. D. R. Greatrix, *Ryerson Polytechnic University, Canada* (12, 3, p. 612) Technical Note based on AIAA Paper 95-2876
Errata (12, 5, p. 1008)

B96-095 Propellant Design Relationships for Throttled Gas Generators. R. A. Frederick Jr., *University of Alabama in Huntsville*; and Iwao Komai, *NOF Corporation, Japan* (12, 3, p. 614) Technical Note

B96-096 Effects of Kevlar® Fibers on Ammonium Perchlorate Propellant Combustion. M. H. Hites, *Illinois Institute of Technology*; and M. Q. Brewster, *University of Illinois at Urbana-Champaign* (12, 3, p. 616) Technical Note

B96-097 Hot-Streak Clocking Effects in a 1-1/2 Stage Turbine. Daniel J. Dorney, *Western Michigan University*; and Karen Gundy-Bulet, *NASA Ames Research Center* (12, 3, p. 619) Technical Note

B96-098 Acoustic-Instability Boundaries in Liquid-Propellant Rockets: Theoretical Explanation of Empirical Correlation. J. S. Kim and F. A. Williams, *University of California, San Diego* (12, 3, p. 621) Technical Note

B96-099 Correlation of Slag Expulsion with Ballistic Anomalies in Shuttle Solid Rocket Motors. Jay K. Sambamurthi and Alexis Alvarado, *NASA Marshall Space Flight Center*; and Edward C. Mathias, *Thiokol Corporation* (12, 4, p. 625) Article based on AIAA Paper 95-2723

B96-100 Evolution of Internal Flow in a Solid Rocket Motor with Radial Slots. Jayant S. Sabnis, *United Technologies Research Center*; and Mark A. Eagar, *United Technologies Chemical Systems Division* (12, 4, p. 632) Article

B96-101 Effect of Heat Release on Streamwise Vorticity Enhanced Mixing. David S. Underwood and Ian A. Waitz, *Massachusetts Institute of Technology* (12, 4, p. 638) Article based on AIAA Paper 95-2471

B96-102 Unsteady Vorticity Generation and Evolution in a Model of a Solid Rocket Motor. Kadir Kirkkopru, David R. Kasoy, and Qing Zhao, *University of Colorado* (12, 4, p. 646) Article

B96-103 Numerical Flowfield Analysis of the Next Generation

Vulcan Nozzle. G. Hagemann and G. Krülle, *DLR, German Aerospace Research Establishment*; and K. Hannemann, *Institute for Fluid Mechanics, Germany* (12, 4, p. 655) Article based on AIAA Paper 95-2782

B96-104 Burn Time Measurements of Single Aluminum Particles in Steam and CO_2 Mixtures. S. E. Olsen and M. W. Beckstead, *Brigham Young University* (12, 4, p. 662) Article based on AIAA Paper 95-2715

B96-105 Shock Initiation of Crystalline Boron in Oxygen and Fluorine Compounds. Herman Krier, R. L. Burton, S. R. Pirman, and M. J. Spalding, *University of Illinois at Urbana-Champaign* (12, 4, p. 672) Article based on AIAA Paper 95-2120

B96-106 Hot-Spot Ignition of Condensed Phase Energetic Materials. David L. Bonnett and P. Barry Butler, *University of Iowa* (12, 4, p. 680) Article

B96-107 Effects of Hydrodynamics on Soot Formation in Laminar Opposed-Jet Diffusion Flames. K.-C. Lin and G. M. Faeth, *University of Michigan* (12, 4, p. 691) Article

B96-108 Autoignition of Methane Mixtures: The Effect of Hydrogen Peroxide. V. I. Golovitchev and M. L. Pilia, *CRS4 Center for Advanced Studies, Italy*; and C. Bruno, *University of Rome, Italy* (12, 4, p. 699) Article

B96-109 Numerical Analysis of a Ram Accelerator Employing Two-Phase Combustion. Richard Saurel, *Université de Provence, France* (12, 4, p. 708) Article based on AIAA Paper 94-2968

B96-110 Measured Supersonic Flame Properties: Heat-Release Patterns, Pressure Losses, Thermal Choking Limits. Youngbin Yoon, Jeffrey M. Donbar, Hwanil Huh, and James F. Driscoll, *University of Michigan* (12, 4, p. 718) Article

B96-111 Experimental Investigation of a Nonsteady Flow Thrust Augmenter. Sameh M. Amin and Charles A. Garriss Jr., *George Washington University* (12, 4, p. 724) Article based on AIAA Paper 95-2802

B96-112 Enhancement of Thermal Mixing in Coaxial Supersonic Jets. A. R. Srikrishnan, J. Kurian, and V. Sriramulu, *Indian Institute of Technology* (12, 4, p. 730) Article

B96-113 Analysis of Partially Mixed Supersonic Ejector. Dimitri Papamoschou, *University of California, Irvine* (12, 4, p. 736) Article

B96-114 Investigation of the Effect of Tabs on Supersonic Jets Using Advanced Diagnostics. M. F. Reeder, M. Samimy, and G. S. Elliott, *Ohio State University* (12, 4, p. 742) Article based on AIAA Paper 95-0672

B96-115 Breakup of Annular Viscous Liquid Jets in Two Gas Streams. Jihua Shen and Xianguo Li, *University of Victoria, Canada* (12, 4, p. 752) Article based on AIAA Paper 95-3121

B96-116 Stochastic-Probabilistic Efficiency Enhanced Dispersion Modeling of Turbulent Polydispersed Sprays. Xi-Qing Chen and José Carlos F. Pereira, *Instituto Superior Técnico, Portugal* (12, 4, p. 760) Article

B96-117 Injection of Supercritical Ethylene in Nitrogen. Pei-Kuan Wu and Tzong H. Chen, *Taitech, Inc.*; Abdollah S. Nejad, *U.S. Air Force Wright Laboratory*; and Campbell D. Carter, *Systems Research Laboratories, Inc.* (12, 4, p. 770) Article

B96-118 Wave Rotor Optimization for Gas Turbine Engine Topping Cycles. Jack Wilson, *NYMA, Inc.*; and Daniel E. Paxson, *NASA Lewis Research Center* (12, 4, p. 778) Article

B96-119 Engine Seal Technology Requirements to Meet NASA's Advanced Subsonic Technology Program Goals. Bruce M. Steinetz and Robert C. Hendricks, *NASA Lewis Research Center* (12, 4, p. 786) Article based on AIAA Paper 94-2698

B96-120 Advanced Seals for Engine Secondary Flowpath. Mingfong Hwang and Adam N. Pope, *Stein Seal Company*; and Bernie Shucktis, *General Electric Aircraft Engines* (12, 4, p. 794) Article based on AIAA Paper 95-2618

B96-121 Stall Flutter Prediction Techniques for Fan and Compressor Blades. V. R. Capece, *University of California, Davis*; and Y. M. EL-Aini, *Pratt and Whitney, United Technologies* (12, 4, p. 800) Article based on AIAA Paper 95-2652

B96-122 Stability of Projectiles in Thermally Choked Ram Accelerators. Chiping Li, K. Kailasanath, and Elaine S. Oran, *U.S. Naval Research Laboratory* (12, 4, p. 807) Technical Note

B96-123 Modified Spalart-Allmaras One-Equation Turbulence Model for Rough Wall Boundary Layers. Jaesoo Lee and Gerald C. Paynter, *Boeing Commercial Airplane Group* (12, 4, p. 809) Technical Note based on AIAA Paper 95-7087

B96-124 Boundary-Layer Tripping by a Roughness Element. Jamal A. Masad, *High Technology Corporation* (12, 4, p. 812) Technical Note

B96-125 Whistler-Driven, Electron-Cyclotron-Resonance-Heated Thruster: Experimental Status. B. W. Stallard and E. B. Hooper, *Lawrence Livermore National Laboratory*; and J. L. Power, *NASA Lewis Research Center* (12, 4, p. 814) Technical Note

B96-126 Technologies for Spacecraft Electric Power Systems. Henry W. Brandhorst, *Auburn University*; P. R. K. Chetty and M. J. Doherty, *Orbital Sciences Corporation*; and Gary L. Bennett, *Metaspaces Enterprises* (12, 5, p. 819) Article based on AIAA Paper 94-3812 CP9412

B96-127 Designs and Technologies for Future Planetary Power Systems. R. Detwiler, S. Surampudi, P. Stella, K. Clark, and P. Bankston, *Jet Propulsion Laboratory, California Institute of Technology* (12, 5, p. 828) Article based on AIAA Paper 95-0029

B96-128 Recent Advances in Solar Cell Technology. Geoffrey A. Landis, Sheila G. Bailey, and Michael F. Piszczor Jr., *NASA Lewis Research Center* (12, 5, p. 835) Article based on AIAA Paper 95-0027

B96-129 High-Efficiency GaInP/GaAs Tandem Solar Cells. K. A. Bertness, D. J. Friedman, Sarah R. Kurtz, A. E. Kibbler, C. Kramer, and J. M. Olson, *National Renewable Energy Laboratory* (12, 5, p. 842) Article

B96-130 Clementine Gallium Arsenide/Germanium Solar Array. J. Christopher Garner, *U. S. Naval Research Laboratory* (12, 5, p. 847) Article

B96-131 Early Results from Solar Dynamic Space Power System Testing. Richard K. Shaltens and Lee S. Mason, *NASA Lewis Research Center* (12, 5, p. 852) Article

B96-132 Linear Refractive Photovoltaic Concentrator Solar Array Flight Experiment. P. Alan Jones and David M. Murphy, *AEC-Able Engineering Co., Inc.* (12, 5, p. 859) Article

B96-133 Lightweight Inflatable Solar Array. Patrick K. Malone and Geoffrey T. Williams, *L'Garde, Inc.* (12, 5, p. 866) Article

B96-134 Nickel-Hydrogen Batteries—An Overview. John J. Smithrick and Patricia M. O'Donnell, *NASA Lewis Research Center* (12, 5, p. 873) Article based on AIAA Paper 95-0026

B96-135 Current Status of Nickel-Hydrogen Battery Technology Development. D. K. Coates and C. L. Fox, *Eagle-Picher Industries, Inc.* (12, 5, p. 879) Article

B96-136 Space-Station Nickel-Hydrogen Battery Orbital Replacement Unit Test. Fred Cohen, *Rockwell International Corporation*; and Penni J. Dalton, *NASA Lewis Research Center* (12, 5, p. 886) Article based on AIAA Paper 94-3870 CP9412

B96-137 26% Potassium Hydroxide Electrolyte for Long-Term Nickel-Hydrogen Geosynchronous Missions. Steven J. Stadnick and Howard H. Rogers, *Hughes Space and Communications Company* (12, 5, p. 893) Article

B96-138 Development and Flight of a 250-A-h Lithium Thionyl Chloride Battery. H. F. Bittner and M. J. Mildner, *The Aerospace Corporation* (12, 5, p. 897) Article

B96-139 Space Nuclear Power: An Overview. Gary L. Bennett, *Metaspaces Enterprises*; Richard J. Hemler, *Lockheed Martin Missiles and Space*; and Alfred Schock, *Orbital Sciences Corporation* (12, 5, p. 901) Article based on AIAA Paper 95-0025

B96-140 SP-100 Thermoelectric Cell Testing. Richard Ewell and Andrew Zoltan, *Jet Propulsion Laboratory, California Institute of Technology* (12, 5, p. 911) Article

B96-141 Laser Cooling of Neutral Argon for Simulating the Storage of Antimatter. S. Satori, H. Kuninaka, and K. Kuriki, *Institute for Space and Astronautical Science, Japan* (12, 5, p. 918) Article

B96-142 Semiempirical Predictions and Correlations of CO Emissions from Utility Combustion Turbines. C. S. Connors, J. C. Barnes, and A. M. Mellor, *Vanderbilt University* (12, 5, p. 926) Article

B96-143 Condensed-Phase Kinetics of Cyclotrimethylenetrinitramine by Modeling the T-Jump/Infrared Spectroscopy Experiment. Stefan T. Thynell, *Pennsylvania State University*; and Polly E. Gongwer and Thomas B. Brill, *University of Delaware* (12, 5, p. 933) Article

B96-144 Guide to Credible Computer Simulations of Fluid Flows. Unmeel B. Mehta, *NASA Ames Research Center* (12, 5, p. 940) Article based on AIAA Paper 95-2225

B96-145 Numerical Simulation of Dynamic Wave Rotor Performance. Daniel E. Paxson, *NASA Lewis Research Center* (12, 5, p. 949) Article based on AIAA Paper 95-2800

B96-146 Preliminary Assessment of Wake Management Strategies for Reduction of Turbomachinery Fan Noise. I. A. Waitz, J. M. Brookfield, J. Sell, and B. J. Hayden, *Massachusetts Institute of Technology* (12, 5, p. 958) Article

B96-147 Case Wall Pressures in a Multistage Axial Compressor with Tip Clearance Variation. I. N. Moyle, R. P. Shreeve, and G. J. Walker, *U.S. Naval Postgraduate School* (12, 5, p. 967) Article based on AIAA Paper 93-2389

B96-148 Three-Dimensional Flowfield in a Turbine Nozzle Passage. M. Zaccaria, D. Ristic, and B. Lakshminarayana, *Pennsylvania State University* (12, 5, p. 974) Article

B96-149 Upstream Influence and Peak Heating in Hypervelocity Shock Wave/Boundary-Layer Interaction. S. G. Mallinson, S. L. Gai, and N. R. Mudford, *University of New South Wales, Australia* (12, 5, p. 984) Article

B96-150 Micromechanics of Nonlinear Behavior in Solid-Filled Mooney-Rivlin Rubber Specimen. Chao-Hsun Chen,

Chien-Heng Wu, Yuh-Chang Wang, and Chiang-Ho Cheng, *National Taiwan University, ROC* (12, 5, p. 991) Technical Note

B96-151 Analysis of Agglomerate Size from Burning Aluminized AP/RDX/HTPB Propellants in Quench Bomb. Tai-Kang Liu and Chi-Fa Hsieh, *Chung Shan Institute of Science and Technology, Taiwan, ROC* (12, 5, p. 995) Technical Note

B96-152 Shock-Tunnel Investigation of Hypervelocity Free Shear Layers in a Planar Duct. D. R. Buttsworth and R. G. Morgan, *University of Queensland, Australia* (12, 5, p. 998) Technical Note

B96-153 Combustion of Liquid Oxygen with Hydrogen Under High-Pressure Conditions. An-Shik Yang, *National Space Program Office, Taiwan, ROC*; Wen H. Hsieh, *National Chung-Cheng University, Taiwan, ROC*; and Kenneth K. Kuo, *Pennsylvania State University* (12, 5, p. 1001) Technical Note

B96-154 Flow Characteristics of a Rectangular Multielement Supersonic Mixer-Ejector. R. Taghavi, *University of Kansas*; and G. Raman, *NYMA, Inc.* (12, 5, p. 1004) Technical Note

B96-155 Arcjets and Arc Heaters: An Overview of Research Status and Needs. Mitat A. Birkan, *U.S. Air Force Office of Scientific Research* (12, 6, p. 1011) Article

B96-156 Development and Demonstration of a 600-Second Mission-Average I_{sp} Arcjet. Paul G. Lichon, *Olin Aerospace Company*; and John M. Sankovic, *NASA Lewis Research Center* (12, 6, p. 1018) Article based on AIAA Paper 93-087

B96-157 Directions for Arcjet Technology Development. G. W. Butler and R. J. Cassady, *Olin Aerospace Company* (12, 6, p. 1026) Article

B96-158 Arcjet Modeling: Status and Prospects. Manuel Martinez-Sanchez, *Massachusetts Institute of Technology*; and Scott A. Miller, *The Aerospace Corporation* (12, 6, p. 1035) Article

B96-159 High-Pressure Arc Heater Development and Modeling: Status and Requirements. E. J. Felderman, R. Chapman, J. L. Jacobs, D. D. Horn, and W. E. Bruce III, *Micro Craft Technology Arnold Engineering Development Center Operations* (12, 6, p. 1044) Article

B96-160 Plasma Generators for Re-Entry Simulation. Monika Auweter-Kurtz, Helmut L. Kurtz, and Stefan Laure, *Universität Stuttgart, Germany* (12, 6, p. 1053) Article

B96-161 Two-Temperature Plasma Modeling of Nitrogen/Hydrogen Arcjets. Thomas W. Megli, Herman Krier, Rodney L. Burton, and Ayhan Mertogul, *University of Illinois at Urbana-Champaign* (12, 6, p. 1062) Article

B96-162 Interior Plasma Diagnostics of Arcjet Thrusters. Mark A. Cappelli and P. Victor Storm, *Stanford University* (12, 6, p. 1070) Article

B96-163 Arcjet Thruster Development. M. Auweter-Kurtz, B. Glocker, T. Götz, H. L. Kurtz, E. W. Messerschmid, M. Riehle, and D. M. Zube, *Universität Stuttgart, Germany* (12, 6, p. 1077) Article

B96-164 Near-Electrode Model for 100-Standard Atmosphere Arc Discharges. E. J. Felderman, W. N. MacDermott, and C. J. Fisher, *Arnold Engineering Development Center* (12, 6, p. 1084) Article

B96-165 Impacts of External Magnetic Fields Applied to High-Pressure Electric Arc Heaters. D. D. Horn, E. J. Felderman, and W. N. MacDermott, *Arnold Engineering Development Center* (12, 6, p. 1093) Article

B96-166 Exit-Plane Electrostatic Probe Measurements of a Low-Power Arcjet. Rodney L. Burton and Scott A. Bufton, *University of Illinois at Urbana-Champaign* (12, 6, p. 1099) Article

B96-167 Fluctuation of Arcjet Plume Properties. Jeffrey A. Pobst, *Hughes STX Corporation*; Ronald A. Spores, *U.S. Air Force Phillips Laboratory*; and John H. Schilling and Daniel A. Erwin, *University of Southern California* (12, 6, p. 1107) Article based on AIAA Papers 92-3238; 93-128; and 94-2742

B96-168 Numerical Simulation of a Hydrogen Arcjet. V. Babu, S. M. Aithal, and V. V. Subramaniam, *Ohio State University* (12, 6, p. 1114) Article

B96-169 Low-Power Ammonia Arcjet: Numerical Simulations and Laser-Induced Fluorescence Measurements. David Burtner and Dennis Keefer, *University of Tennessee Space Institute*; and Wim Ruyten, *Sverdrup Technology, Inc.* (12, 6, p. 1123) Article

B96-170 Transverse Gas Jet Injection Behind a Rearward-Facing Step. A. R. Karagozian, K. C. Wang, A.-T. Le, and O. I. Smith, *University of California, Los Angeles* (12, 6, p. 1129) Article

B96-171 Propellant Injection in a Liquid Oxygen/Gaseous Hydrogen Rocket Engine. Wolfgang Mayer, *DLR, German Aerospace Research Establishment, Germany*; and Hiroshi Tamura, *National Aerospace Laboratory, Japan* (12, 6, p. 1137) Article based on AIAA Paper 95-2433

B96-172 Triggering of Longitudinal Combustion Instabilities in Rocket Motors: Nonlinear Combustion Response. Josef M. Wicker, William D. Greene, Seung-Il Kim, and Vigor Yang, *Pennsylvania State University* (12, 6, p. 1148) Article

B96-173 Effects of Nozzle Geometry on Parallel Injection into a Supersonic Flow. Diana D. Glawe and Mo Samimy, *Ohio State University*; Abdollah S. Nejad, *U.S. Air Force Wright Laboratory*; and Tzong H. Chen, *Taitech, Inc.* (12, 6, p. 1159) Article

B96-174 Expansion Corner Effects on Hypersonic Shock Wave/Turbulent Boundary-Layer Interactions. Michael E. White and David A. Ault, *Johns Hopkins University, Applied Physics Laboratory* (12, 6, p. 1169) Article based on AIAA Paper 95-6125

B96-175 Arcjet Anode Sheath Voltage Measurement by Langmuir Probe. Nicholas T. Tiliakos and Rodney L. Burton, *University of Illinois at Urbana-Champaign* (12, 6, p. 1174) Technical Note

B96-176 Application of the $k-\omega$ Turbulence Model to Quasi-Three-Dimensional Turbomachinery Flows. Rodrick V. Chima, *NASA Lewis Research Center* (12, 6, p. 1176) Technical Note based on AIAA Paper 96-0248

B96-177 Linear Acoustic Analysis of Solid Propellant Pressure-Coupled Distributed Combustion. Michael M. Micci, *Pennsylvania State University* (12, 6, p. 1179) Technical Note

B96-178 Impulse Function and Drag in Scramjet Inlet Models. Takeshi Kanda, Kouichiro Tani, Tomoyuki Komuro, Atsuo Murakami, Kenji Kudo, and Nobuo Chinzei, *National Aerospace Laboratory, Japan* (12, 6, p. 1181) Technical Note

B96-179 Hollow Projectile Operation in the Ram Accelerator. A. Sasoh, A. J. Higgins, C. Knowlen, and A. P. Bruckner, *University of Washington* (12, 6, p. 1183) Technical Note