

Chronological Index

- A06-030TC** Comment on “Compound Solar Sail with Optical Properties: Models and Performance.” Anna D. Guerman, *University of Beira Interior, Portugal*; and Georgi Smirnov, *University of Porto, Portugal* (**44**, 3, p. 732) Technical Comment
- A06-030R** Reply by the Authors to A. D. Guerman and G. Smirnov. Giovanni Mengali and Alessandro A. Quarto, *University of Pisa, Italy* (**44**, 3, p. 732) Reply
- A06-155E** Erratum on Laminar-Turbulent Transition on Reentry Capsules and Planetary Probes. Steven P. Schneider, *Purdue University* (**44**, 2, p. 464) Erratum
- A06-158E** Erratum on Low-Density Aerodynamics for the Inflatable Reentry Vehicle Experiment. James N. Moss, Christopher E. Glass, and Brian R. Hollis, *NASA Langley Research Center*, and John W. Van Norman, *Analytical Mechanics Associates, Inc.* (**44**, 2, p. 485) Erratum
- A06-160E** Erratum on Design of a Pulse-Facility Nozzle Using the Rotational Method of Characteristics. Richard L. Gaffney, Jr., *NASA Langley Research Center* (**44**, 2, p. 497) Erratum
- A06-178E** Erratum on Simulation of Aerodynamic Influences on Rocket-Mounted Oxygen Sensors. Jeffrey B. Allen, Mark Perl, and Thomas Hauser, *Utah State University* (**44**, 2, p. 505) Erratum
- A07-001** Survey of Ballute Technology for Aerocapture. Reuben R. Rohrschneider and Robert D. Braun, *Georgia Institute of Technology* (**44**, 1, p. 10) Survey Paper
- A07-002** Calculation of Stagnation-Point Heating Rates Associated with Stardust Vehicle. Chul Park, *ELORET Corporation* (**44**, 1, p. 24) Article based on AIAA Paper 2005-0190
- A07-003** Experimental Study on Aerodynamic Characteristics of Telescopic Aerospike with Multiple Disks. Hiroaki Kobayashi, *Japan Aerospace Exploration Agency, Japan*; Yusuke Maru, *University of Tokyo, Japan*; and Katsuyoshi Fukiba, *Japan Aerospace Exploration Agency, Japan* (**44**, 1, p. 33) Article
- A07-004** CFD Contribution to the Aerodynamic Data Set of the Vega Launcher. P. Catalano, M. Marini, and A. Nicoli, *CIRA Italian Aerospace Research Center, Italy*; and A. Pizzicaroli, *AVIO, Italy* (**44**, 1, p. 42) Article based on AIAA Paper 2005-4964
- A07-005** Centered and Upwind Multigrid Turbulent Flow Simulations of Launch Vehicle Configurations. Enda Dimitri V. Bigarella, *Instituto Tecnológico de Aeronáutica, Brazil*; João Luiz F. Azevedo, *Instituto de Aeronáutica e Espaço, Brazil*; and Leonardo C. Scalabrin, *University of Michigan* (**44**, 1, p. 52) Article based on AIAA Paper 2004-5384
- A07-006** Simulation and Analyses of Stage Separation of Two-Stage Reusable Launch Vehicles. Bandu N. Pamadi, *NASA Langley Research Center*; Thomas A. Neirynck, *George Washington University*; Nathaniel J. Hotcko, William I. Scallion, Kelly J. Murphy, and Peter F. Covell, *NASA Langley Research Center* (**44**, 1, p. 66) Article based on AIAA Paper 2005-3247
- A07-007** Hypersonic Missile Performance and Sensitivity Analysis. Con J. Doolan, *University of Adelaide, Australia* (**44**, 1, p. 81) Article based on AIAA Paper 2006-222
- A07-008** Force Measurement in a Ludwig Tube Tunnel. K. A. Juhany and A. Darji, *King Abdulaziz University, Saudi Arabia* (**44**, 1, p. 88) Article based on AIAA Paper 2005-4746
- A07-009** Chemical Characterization and Thermal Stressing Studies of Perfluorohexane Fluids for Space-Based Applications. William A. Arnold, *ZIN Technologies, Inc.*; Thomas G. Hartman, *Rutgers, The State University of New Jersey*; and John McQuillen, *NASA John H. Glenn Research Center at Lewis Field* (**44**, 1, p. 94) Article
- A07-010** Outgassing Measurements Combined with Vacuum Ultraviolet Illumination of the Deposited Materials. Keith C. Albyn, *NASA Marshall Space Flight Center* (**44**, 1, p. 102) Article
- A07-011** Shape Memory Alloy Deployment of Membrane Mirrors for Spaceborne Telescopes. Eric L. Pollard and Christopher H. M. Jenkins, *South Dakota School of Mines & Technology* (**44**, 1, p. 109) Article based on AIAA Paper 2005-2196
- A07-012** Multidisciplinary Design Optimization of Space Plane Considering Rigid Body Characteristics. Nobuhiro Yokoyama, Shinji Suzuki, and Takeshi Tsuchiya, *University of Tokyo, Japan*; Hideyuki Taguchi and Takeshi Kanda, *Japan Aerospace Exploration Agency, Japan* (**44**, 1, p. 121) Article based on AIAA Paper 2005-710
- A07-013** High-Fidelity Gravity Offloading System for Free-Free Vibration Testing. Gyula Greschik, *University of Colorado*; and W. Keith Belvin, *NASA Langley Research Center* (**44**, 1, p. 132) Article based on AIAA Paper 2005-1839
- A07-014** Configuration for Propellant Gauging in Satellites. Amit Lal and B. N. Raghunandan, *Indian Institute of Science, India* (**44**, 1, p. 143) Article
- A07-015** Spare Parts Requirements for Space Missions with Reconfigurability and Commonality. Afreen Siddiqi and Olivier L. de Weck, *Massachusetts Institute of Technology* (**44**, 1, p. 147) Article
- A07-016** Chamber Core Structures for Fairing Acoustic Mitigation. Steven A. Lane, Kyle Henderson, and Andrew Williams, *U.S. Air Force Research Laboratory*; and Emil Ardelean, *Science Applications International Corporation* (**44**, 1, p. 156) Article
- A07-017** Laboratory Experimentation of Autonomous Spacecraft Approach and Docking to a Collaborative Target. Marcello Romano, David A. Friedman, and Tracy J. Shay, *U.S. Naval Postgraduate School* (**44**, 1, p. 164) Article
- A07-018** Experimental Investigation of Solder Joint Defect Formation and Mitigation in Reduced-Gravity Environments. J. Kevin Watson, *NASA Johnson Space Center*; Peter M. Struk, *NASA John H. Glenn Research Center at Lewis Field*; Richard D. Pettegrew and Robert S. Downs, *National Center for Space Exploration Research* (**44**, 1, p. 174) Article
- A07-019** Finite Element Modeling and Analysis of Large Pretensioned Space Structures. Thomas C. Jones and Hilary Bart-Smith, *University of Virginia*; Martin M. Mikulas, *National Institute of Aerospace*; and Judith J. Watson, *NASA Langley Research Center* (**44**, 1, p. 183) Article
- A07-020** Entry System Options for Human Return from the Moon and Mars. Z. R. Putnam, R. D. Braun, and R. R. Rohrschneider, *Georgia Institute of Technology*; and J. A. Dec, *NASA Langley Research Center* (**44**, 1, p. 194) Article based on AIAA Paper 2005-5915
- A07-021** Human Exploration of Mars via Earth-Mars Semicyclers. Damon F. Landau and James M. Longuski, *Purdue University* (**44**, 1, p. 203) Article
- A07-022** Formation and Attitude Control for Rotational Tethered Satellite Clusters. Osamu Mori, *Japan Aerospace Exploration Agency, Japan*; and Saburo Matunaga, *Tokyo Institute of Technology, Japan* (**44**, 1, p. 211) Article based on AIAA Paper 2001-4392
- A07-023** Single Antenna Attitude Algorithm for Nonuniform Antenna Gain Patterns. C. Wang, R. A. Walker, and M. P. Moody, *Queensland University of Technology, Australia* (**44**, 1, p. 221) Article based on AIAA Paper 2005-5993
- A07-024** Optimal Reconfiguration of Satellites in Formation. Christopher J. Scott and David B. Spencer, *The Pennsylvania State University* (**44**, 1, p. 230) Article
- A07-025** Identification of Tethered Satellites with Mixed Observational Data. Steven G. Tragesser, *University of Colorado*; and Mark Faulstich, *Air Force Space Command* (**44**, 1, p. 240) Article
- A07-026** Orbit Determination Using the Geomagnetic Field Measurement via the Unscented Kalman Filter. Kyoung-Min Roh, Sang-Young Park, and Kyu-Hong Choi, *Yonsei University, Republic of Korea* (**44**, 1, p. 246) Article

A07-027 Coast-Arc Orbit Stability During Spiral-Down Trajectories About Irregularly Shaped Bodies. Matthew A. Wissler, David B. Spencer, and Robert G. Melton, *The Pennsylvania State University* (**44**, 1, p. 254) Article

A07-028 Enhancement in Optimal Multiple-Burn Trajectory Computation by Switching Function Analysis. Yunjun Xu, *University of Oklahoma* (**44**, 1, p. 264) Article

A07-029 Heliocentric Solar Sail Orbit Transfers with Locally Optimal Control Laws. Malcolm Macdonald, *University of Glasgow, Scotland, U.K.*; Colin McInnes, *University of Strathclyde, Scotland, U.K.*; and Bernd Dachwald, *DLR, German Aerospace Centre, Germany* (**44**, 1, p. 273) Technical Note

A07-030 Algorithm for Missile Detection from Radar Data. Fabrizio Piergentili and Paolo Teofilatto, *University of Rome "La Sapienza," Italy* (**44**, 1, p. 276) Technical Note

A07-031 Nonlinear Control of a Double Pendulum Electrodynamic Tether System. Hirohisa Kojima and Tetsuro Sugimoto, *Tokyo Metropolitan University, Japan* (**44**, 1, p. 280) Technical Note

A07-032 Evaluation of Characteristic and Degree of Wrinkles in Space Membrane Structures. C. G. Wang, X. W. Du, and L. M. Zhang, *Harbin Institute of Technology, China (ROC)* (**44**, 1, p. 284) Technical Note

A07-033 Direct Simulation Monte Carlo Simulations of Ballute Aerothermodynamics Under Hypersonic Rarefied Conditions. James N. Moss, *NASA Langley Research Center* (**44**, 2, p. 289) Article based on AIAA Paper 2005-4949

A07-034 In-Flight Subsonic Lift and Drag Characteristics Unique to Blunt-Based Lifting Reentry Vehicles. Edwin J. Saltzman, *NASA Dryden Flight Research Center*; K. Charles Wang, *Jet Propulsion Laboratory, California Institute of Technology*; and Kenneth W. Iliff, *NASA Dryden Flight Research Center* (**44**, 2, p. 299) Article based on AIAA Paper 1999-0383

A07-035 Mars Exploration Entry, Descent, and Landing Challenges. Robert D. Braun, *Georgia Institute of Technology*; and Robert M. Manning, *Jet Propulsion Laboratory, California Institute of Technology* (**44**, 2, p. 310) Article

A07-036 Minimum-Fuel Powered Descent for Mars Pinpoint Landing. Ufuk Topcu, Jordi Casoliva, and Kenneth D. Mease, *University of California, Irvine* (**44**, 2, p. 324) Article based on AIAA Paper 2005-6286

A07-037 Determination of Atmospheric Densities from Reentry Flight Data. P. zur Nieden and H. Olivier, *RWTH Aachen University, Germany* (**44**, 2, p. 332) Article

A07-038 Engine Thrust Effects on Rocket Aerodynamic Characteristics at High Angle of Attack. William V. Logan, Roger L. Davis, and Nesrin Sarigul-Klijn, *University of California at Davis*; and Marti Sarigul-Klijn, *AirLaunch, LLC* (**44**, 2, p. 338) Article based on AIAA Paper 2006-4963

A07-039 Characteristics of a Central Bleed Jet in Supersonic Axisymmetric Base Flow. Joel P. Kuehner, Blake B. Anderson, and Jonathan G. Flittner, *Washington and Lee University*; and J. C. Dutton, *University of Texas at Arlington* (**44**, 2, p. 347) Article

A07-040 Analysis of Increased Compression Through Area Constriction on Ejector-Rocket Performance. J. Etele, *Carleton University, Canada*; B. Parent, *Nagaoka University of Technology, Japan*; and J. P. Sislian, *University of Toronto, Canada* (**44**, 2, p. 355) Article

A07-041 Comparison of Hydrogen and Hydrocarbon-Fueled Scramjet Engines for Orbital Insertion. M. R. Tetlow and C. J. Doolan, *University of Adelaide, Australia* (**44**, 2, p. 365) Article

A07-042 Nonlinear Longitudinal Dynamical Model of an Air-Breathing Hypersonic Vehicle. Michael A. Bolender and David B. Doman, *U.S. Air Force Research Laboratory* (**44**, 2, p. 374) Article based on AIAA Paper 2005-6255

A07-043 Sigma Point Filtering for Sequential Orbit Estimation and Prediction. Deok-Jin Lee and Kyle T. Alfriend, *Texas A&M University* (**44**, 2, p. 388) Article

A07-044 Evaluation of Solar Electric Propulsion Technologies for Discovery-Class Missions. David Y. Oh, *Jet Propulsion Laboratory, California Institute of Technology* (**44**, 2, p. 399) Article based on AIAA Paper 2005-4270

A07-045 Parametric Study of Deployment of Tethered Satellite Systems. Parag Mantri, Andre P. Mazzoleni, and David A. Padgett, *North Carolina State University* (**44**, 2, p. 412) Article

A07-046 Satellite Formation Mission Optimization with a Multi-Impulse Design. Aaron B. Hoskins and Ella M. Atkins, *University of Michigan* (**44**, 2, p. 425) Article based on AIAA Paper 2005-5835

A07-047 Comparison of Polyethylene and Polyimide as a Fluence Monitor of Atomic Oxygen. Kumiko Yokota and Masahito Tagawa, *Kobe University, Japan* (**44**, 2, p. 434) Article

A07-048 Experimental Investigations of an Avionics Cooling System for Aerospace Vehicle. Qingjun Cai and Chung-Lung Chen, *Rockwell Scientific Company*; and Julie Asfia, *The Boeing Company* (**44**, 2, p. 439) Article based on AIAA Paper 2005-0385

A07-049 Thermal Design and Analysis of the Mars Exploration Rover Surface Impact Airbags. D. C. Wilson, D. K. Harris, and J. Rade, *Auburn University* (**44**, 2, p. 445) Article

A07-050 Evaluation of Dynamic Burn Rate from the Extinction Compliance of Solid Rocket Motors. V. R. Sanal Kumar, *Indian Space Research Organization, India* (**44**, 2, p. 453) Technical Note based on AIAA Paper 99-2501

A07-051 N-Impulse Orbit Transfer Using Genetic Algorithms. Ossama Abdelkhalik, *Embry-Riddle Aeronautical University*; and Daniele Mortari, *Texas A&M University* (**44**, 2, p. 456) Technical Note

A07-052 Optimizing Trajectories for Suborbital Human Spaceflight. Ryan L. Kobrick and David B. Spencer, *The Pennsylvania State University* (**44**, 2, p. 460) Technical Note

A07-053 Finite Element Modeling of Sail Deformation Under Solar Radiation Pressure. Hiraku Sakamoto, *University of Colorado at Boulder*; Yasuyuki Miyazaki, *Nihon University, Japan*; and K. C. Park, *University of Colorado at Boulder* (**44**, 3, p. 514) Article

A07-054 Experimental and Numerical Correlation of Gravity Sag in Solar-Sail-Quality Membranes. Jonathan T. Black, *University of Kentucky*; Jack Leifer, *Trinity University*; Joshua A. DeMoss, *Virginia Polytechnic Institute and State University*; and Eric N. Walker, *George Washington University* (**44**, 3, p. 522) Article based on AIAA Paper 2004-1579

A07-055 Slender Solar Sail Booms: Finite Element Analysis. Ilinca Stanculescu, Lawrence N. Virgin, and Tod A. Laursen, *Duke University* (**44**, 3, p. 528) Article

A07-056 Modeling of Triangular Lattice Space Structures with Curved Battens. Tzikang Chen and John T. Wang, *NASA Langley Research Center* (**44**, 3, p. 538) Article based on AIAA Paper 2005-1967

A07-057 Thrust Vector Control Analysis and Design for Solar-Sail Spacecraft. Bong Wie, *Arizona State University* (**44**, 3, p. 545) Article based on AIAA Paper 2005-6086

A07-058 Solar Sail Topology Variations Due to On-Orbit Thermal Effects. Jeremy A. Banik, *South Dakota School of Mines and Technology*; Peter S. Lively, *Lockheed Martin Space Operations*; Barmac K. Taleghani, *NASA Langley Research Center*; and Christopher H. Jenkins, *Montana State University* (**44**, 3, p. 558) Article based on AIAA Paper 2006-1708

A07-059 Simplified Computational Models for Shear-Compliant Borders in Solar Sails. Jack Leifer, *Trinity University* (**44**, 3, p. 571) Article based on AIAA Paper 2005-2056

A07-060 Geometrically Nonlinear Shell Analysis of Wrinkled Thin-Film Membranes with Stress Concentrations. Alexander Tessler and David W. Sleight, *NASA Langley Research Center* (**44**, 3, p. 582) Article based on AIAA Paper 2004-1739

- A07-061 Experimental Evaluation of a High Fineness Ratio Body with Drag Brakes.** Corey J. Florendo, Thomas R. Yechout, Stefan Siegel, and Russell M. Cummings, *U.S. Air Force Academy*; and Joseph Kealos, *Textron, Inc.* (**44**, 3, p. 589) Article based on AIAA Paper 2006-0666
- A07-062 Identification of Overpressure Sources at Launch Vehicle Liftoff Using an Inverse Method.** B. Troclet, *EADS ST, France*; S. Alestra, I. Terrasse, S. Jeanjean, and V. Srithammavanh, *EADS CRC, France* (**44**, 3, p. 597) Article
- A07-063 Plume Impingement Analysis for Aeolus Spacecraft and Gas/Surface Interaction Models.** Gennady N. Markelov, *Advanced Operations and Engineering Services Group, The Netherlands* (**44**, 3, p. 607) Article based on AIAA Paper 2005-5067
- A07-064 Theoretical and Numerical Study of Free Molecular-Flow Problems.** Chunpei Cai, *ZONA Technology Inc.*; and Iain Boyd, *University of Michigan* (**44**, 3, p. 619) Article based on AIAA Paper 2006-3800
- A07-065 Numerical Studies of Magnetohydrodynamic Flow Control Considering Real Wall Electrical Conductivity.** Takayasu Fujino, Yusuke Matsumoto, Jiro Kasahara, and Motoo Ishikawa, *University of Tsukuba, Japan* (**44**, 3, p. 625) Article based on AIAA Paper 2006-2891
- A07-066 Heat Flux Measurements for a GO_2/GH_2 Single-Element, Shear Injector.** Alex Conley, Aravind Vaidyanathan, and Corin Segal, *University of Florida* (**44**, 3, p. 633) Article
- A07-067 Weight Growth Study of Reusable Launch Vehicle Systems.** Adam F. Dissel and Ajay P. Kothari, *AstroX Corporation*; John W. Livingston, *Aerospace Systems Design and Analysis ASC/XRE*; and Mark J. Lewis, *University of Maryland* (**44**, 3, p. 640) Article based on AIAA Paper 2005-4369
- A07-068 Dynamics and Control of Rotating Tethered Satellite Systems.** Christopher D. Hall and Mischa Kim, *Virginia Polytechnic Institute and State University* (**44**, 3, p. 649) Article
- A07-069 Earth-Moon Triangular Libration Point Spacecraft Formations.** Kathryn A. Catlin and Craig A. McLaughlin, *University of North Dakota* (**44**, 3, p. 660) Article
- A07-070 Autonomous Formation Flying for the PRISMA Mission.** Eberhard Gill, Oliver Montenbruck and Simone D'Amico, *DLR, German Aerospace Center, Germany* (**44**, 3, p. 671) Article
- A07-071 Efficient and Accurate Evolutionary Multi-Objective Optimization Paradigms for Satellite Constellation Design.** Matthew P. Ferringier, Ronald S. Clifton, and Timothy G. Thompson, *The Aerospace Corporation* (**44**, 3, p. 682) Article based on AIAA Paper 2006-6015
- A07-072 Mars Sample Return: Testing the Last Meter of Rendezvous and Sample Capture.** Richard P. Kornfeld, *Jet Propulsion Laboratory, California Institute of Technology*; Joe C. Parrish and Steve Sell, *Payload Systems, Inc.* (**44**, 3, p. 692) Article
- A07-073 Bioinspired Drill for Planetary Sampling: Literature Survey, Conceptual Design, and Feasibility Study.** Yang Gao, Alex Ellery, and Martin Sweeting, *University of Surrey, England, U.K.*; and Julian Vincent, *University of Bath, England, U.K.* (**44**, 3, p. 703) Article
- A07-074 Correlation and Error Metrics for Plant Identification of On-Orbit Space Structures.** Steven A. Lane and Seth L. Lacy, *U.S. Air Force Research Laboratory*; Vit Babuska and Delano Carter, *General Dynamics-Advanced Information Systems* (**44**, 3, p. 710) Article based on AIAA Paper 2005-2012
- A07-075 Performance Comparison of Stochastic Search Algorithms on the Interplanetary Gravity-Assist Trajectory Problem.** Christopher R. Bessette and David B. Spencer, *The Pennsylvania State University* (**44**, 3, p. 722) Technical Note based on AIAA Paper 2006-6306
- A07-076 Example Impact of Nonuniform Acceleration Fields on Liquids in Spacecraft.** Steven H. Collicott, *Purdue University* (**44**, 3, p. 725) Technical Note
- A07-077 HAMSAT-1 Precise Orbit Determination System and Performance.** Vighnesam V. Narayanasetti, Anatta Sonney, and Pramod K. Soni, *ISRO Satellite Centre, India* (**44**, 3, p. 727) Technical Note based on AIAA Paper 2006-6404
- A07-078 Impact of Optical Degradation on Solar Sail Mission Performance.** Bernd Dachwald, *DLR, German Aerospace Center, Germany*; Malcolm Macdonald, *University of Glasgow, Scotland, U.K.*; Colin R. McInnes, *University of Strathclyde, Scotland, U.K.*; Giovanni Mengali and Alessandro A. Quarta, *University of Pisa, Italy* (**44**, 4, p. 740) Article
- A07-079 Advanced Self-Deployable Structures for Space Applications.** Witold M. Sokolowski, *Jet Propulsion Laboratory, California Institute of Technology*; and Seng C. Tan, *Wright Materials Research Company* (**44**, 4, p. 750) Article
- A07-080 Solar Sail Kinetic Energy Impactor Trajectory Optimization for an Asteroid-Deflection Mission.** Bernd Dachwald, *DLR, German Aerospace Center, Germany*; and Bong Wie, *Arizona State University* (**44**, 4, p. 755) Article based on AIAA Paper 2005-6176
- A07-081 Solar Sail Structural Characterization Test Program.** James L. Gaspar and Thomas W. Jones, *NASA Langley Research Center*; and David W. Murphy, *ATK Space Systems and Sensors* (**44**, 4, p. 765) Article
- A07-082 GeoSail: An Elegant Solar Sail Demonstration Mission.** Malcolm Macdonald and Gareth Hughes, *University of Glasgow, Scotland, U.K.*; Colin McInnes, *University of Strathclyde, Scotland, U.K.*; Aleksander Lyngvi, Peter Falkner, and Alessandro Atzei, *ESA, The Netherlands* (**44**, 4, p. 784) Article
- A07-083 Validation of a Scalable Solar Sailcraft System.** David M. Murphy, *ATK Space Systems and Sensors* (**44**, 4, p. 797) Article
- A07-084 Solar-Sail Attitude Control Design for a Sail Flight Validation Mission.** Bong Wie, *Arizona State University*; and David Murphy, *ATK Space Systems* (**44**, 4, p. 809) Article based on AIAA Paper 2004-5010
- A07-085 Solar-Sail-Based Stopover Cyclers for Cargo Transportation Missions.** Giovanni Mengali and Alessandro A. Quarta, *University of Pisa, Italy* (**44**, 4, p. 822) Article
- A07-086 Solar Sail Scalability and a "Truly Scalable" Architecture: The Space Tow.** S Gyula Greschik, *University of Colorado* (**44**, 4, p. 831) Article based on AIAA Paper 2006-1703
- A07-087 Microsolar Sails for Earth Magnetotail Monitoring.** V. Lappas, *University of Surrey-Guildford, England, U.K.*; B. Wie, *Arizona State University*; C. McInnes, *University of Glasgow, Scotland, U.K.*; L. Tarabini, *GMV, Spain*; L. Gomes, *Surrey Satellite Technology, England, U.K.*; and K. Wallace, *ESA, England, U.K.* (**44**, 4, p. 840) Article
- A07-088 Aerothermodynamic Optimization of Reentry Heat Shield Shapes for a Crew Exploration Vehicle.** Joshua E. Johnson, Ryan P. Starkey, and Mark J. Lewis, *University of Maryland* (**44**, 4, p. 849) Article based on AIAA Paper 2006-6273
- A07-089 Computational Analysis of Automated Transfer Vehicle Reentry Flow and Explosion Assessment.** D. E. Boutamine, *ESA, The Netherlands*; Ph. Reynier, and R. Schmehl, *Advanced Operations and Engineering Services, The Netherlands*; L. Marraffa and J. Steelant, *ESA, The Netherlands* (**44**, 4, p. 860) Article
- A07-090 Wind-Tunnel Results of the B-52B with the X-43A Stack.** Mark C. Davis and Alexander G. Sim, *NASA Dryden Flight Research Center*; Matthew Rhode, *NASA Langley Research Center*; and Kevin D. Johnson Sr., *NASA Dryden Flight Research Center* (**44**, 4, p. 871) Article based on AIAA Paper 2006-3850
- A07-091 Thermal Gauging and Rebalancing of Propellant in Multiple Tank Satellites.** Boris Yendler, *Lockheed Martin Mission Services*; Steven H. Collicott, *Purdue University*; and T. A. Martin, *Lockheed Martin Space Systems* (**44**, 4, p. 878) Article based on AIAA Paper 2005-1149
- A07-092 Improved Corrections Process for Constrained Trajectory Design in the n -Body Problem.** Belinda G. March and Kathleen C. Howell, *Purdue University*; and Roby S. Wilson, *Jet Propulsion Laboratory, California Institute of Technology* (**44**, 4, p. 884) Article
- A07-093 Navigating the Road to Autonomous Orbital Rendezvous.** David C. Woffinden and David K. Geller, *Utah State University* (**44**, 4, p. 898) Article

- A07-094 Time-Resolved I-Band Photometry of Calibration Spheres and NaK Droplets.** Doyle T. Hall, John L. Africano, and John V. Lambert, *The Boeing Company*; and Paul W. Kervin, *U. S. Air Force Research Laboratory* (**44**, 4, p. 910) Article
- A07-095 Thermal Design and Analysis of a Battery Module for a Remote Sensing Satellite.** A. Megahed, *National Authority for Remote Sensing and Space Sciences, Egypt*; and A. El-Dib, *Cairo University, Egypt* (**44**, 4, p. 920) Article based on AIAA Paper 2005-5610
- A07-096 Design and Testing of a Space Mechanism for Tether Deployment.** Carlo Menon, *ESA, Canada*; Michiel Kruijff, *Delta-Utec, The Netherlands*; and Antonios Vavouliotis, *University of Patras, Greece* (**44**, 4, p. 927) Article
- A07-097 Sizing/Optimization of a Small Satellite Energy Storage and Attitude Control System.** David J. Richie, Vaios J. Lappas, and Phil L. Palmer, *University of Surrey, England, U.K.* (**44**, 4, p. 940) Article
- A07-098 Quasi-Static Optics-Based Surface Control of an In-Plane Actuated Membrane Mirror.** Michael J. Shepherd, Richard G. Cobb, Gina A. Peterson, and Anthony N. Palazotto, *U.S. Air Force Institute of Technology* (**44**, 4, p. 953) Article based on AIAA Paper 2006-2229
- A07-099 On-Orbit Servicing: A New Value Proposition for Satellite Design and Operation.** Andrew Long, Matthew Richards, and Daniel E. Hastings, *Massachusetts Institute of Technology* (**44**, 4, p. 964) Article
- A07-100 Estimating Spare Parts Requirements with Commonality and Redundancy.** Robert C. Kline and Tovey C. Bachman, *LMI* (**44**, 4, p. 977) Article based on AIAA Paper 2006-7233
- A07-101 Building Interplanetary Trajectories with Multiple Gravity-Assisted Maneuvers.** Dmitry M. Pisarevsky, *Technion-Israel Institute of Technology, Israel*; Alexander Kogan, *Asher Space Research Institute, Israel*; and Moshe Guelman, *Technion-Israel Institute of Technology, Israel* (**44**, 4, p. 985) Article
- A07-102 Radiative Heating Methodology for the Huygens Probe.** Christopher O. Johnston and Brian R. Hollis, *NASA Langley Research Center*; and Kenneth Sutton, *National Institute of Aerospace* (**44**, 5, p. 993) Article based on AIAA Paper 2006-3426
- A07-103 Approximate Trajectories for Thermal Protection System Flight Tests Mission Design.** Urbano Tancredi and Michele Grassi, *University of Naples, "Federico II," Italy* (**44**, 5, p. 1003) Article
- A07-104 Flow Oscillation Characteristics in Conical Cavity with Multiple Disks.** Yusuke Maru, *University of Tokyo, Japan*; Hiroaki Kobayashi, Shinsuke Takeuchi, and Tetsuya Sato, *Japan Aerospace Exploration Agency, Japan* (**44**, 5, p. 1012) Article
- A07-105 Numerical Investigation of Transitional Supersonic Base Flows with Flow Control.** Jayahar Sivasubramanian, Richard D. Sandberg, Dominic A. von Terzi, and Hermann F. Fasel, *University of Arizona* (**44**, 5, p. 1021) Article based on AIAA Paper 2006-479
- A07-106 Analytic Model of Catastrophic Yaw.** J. Morote, *National Institute of Aerospace Technology, Spain* (**44**, 5, p. 1029) Article based on AIAA Paper 2007-458
- A07-107 Initial Sizing and Reentry Trajectory Design Methodologies for Dual-Mode-Propulsion Reusable Aerospace Vehicles.** Vicent Garcia Tormo and Varnavas C. Serghides, *Imperial College London, England, U.K.* (**44**, 5, p. 1038) Article based on AIAA Paper 2006-7292
- A07-108 Aerogravity Assist Maneuvers: Coupled Trajectory and Vehicle Shape Optimization.** Roberto Armellin and Michele Lavagna, *Politecnico di Milano, Italy*; Ryan P. Starkey and Mark J. Lewis, *University of Maryland* (**44**, 5, p. 1051) Article based on AIAA Paper 2006-6036
- A07-109 Interplanetary Mission Design Using Differential Evolution.** Aaron D. Olds and Craig A. Kluever, *University of Missouri-Columbia*; and Michael L. Cupples, *Science Applications International Corporation* (**44**, 5, p. 1060) Article based on AIAA Paper 06-155
- A07-110 Passive Stability Design for Solar Sail on Displaced Orbits.** Shengping Gong, Junfeng Li, and Hexi Baoyin, *Tsinghua University, China (ROC)* (**44**, 5, p. 1071) Article
- A07-111 End-to-End Analysis of Solar-Electric-Propulsion Earth Orbit Raising for Interplanetary Missions.** Grant Bonin and Tarik Kaya, *Carleton University, Canada* (**44**, 5, p. 1081) Article
- A07-112 Hammersley Sampling and Support-Vector-Regression-Driven Launch Vehicle Design.** Mateen-ud-Din Qazi and Linshu He, *Beijing University of Aeronautics and Astronautics, China (ROC)*; and Permoon Mateen, *University of the Punjab, Pakistan* (**44**, 5, p. 1094) Article
- A07-113 System Approach to Performance Verification of the Planck Cryogenic Spacecraft.** Ravinder S. Bhatia, Claudio Damasio, and Bernard Guillaume, *ESA, The Netherlands* (**44**, 5, p. 1107) Article
- A07-114 Optimized Gore/Seam Cable-Actuated Shape Control of Gossamer Membrane Reflectors.** H. A. DeSmidt, *University of Tennessee*; Kon-Well Wang, *The Pennsylvania State University*; and Houfei Fang, *Jet Propulsion Laboratory, California Institute of Technology* (**44**, 5, p. 1122) Article based on AIAA Paper 2006-1902
- A07-115 Noise Transmission Studies of an Advanced Grid-Stiffened Composite Fairing.** Steven A. Lane, *U.S. Air Force Research Laboratory*; Scott Kennedy, *CSA Engineering*; and Robert Richard, *Boeing-SVS* (**44**, 5, p. 1131) Article
- A07-116 Experimentally Validated Model of a Membrane Strip with Multiple Actuators.** Jamil M. Renno and Daniel J. Inman, *Virginia Polytechnic Institute and State University* (**44**, 5, p. 1140) Article
- A07-117 Storm-Time Equatorial Density Enhancements Observed by CHAMP and GRACE.** Sean L. Bruinsma, *Centre National d'Etudes Spatiales, France*; and Jeffrey M. Forbes, *University of Colorado* (**44**, 6, p. 1154) Article based on AIAA Paper 2006-6172
- A07-118 Satellite Drag Variability at Earth, Mars, and Venus due to Solar Rotation.** Jeffrey M. Forbes, *University of Colorado*; Sean Bruinsma, *Centre Nationale D'Etudes Spatiales, France*; Frank G. Lemoine, *NASA Goddard Space Flight Center*; Bruce R. Bowman, *U.S. Air Force Space Command*; and Alex Konopliv, *Jet Propulsion Laboratory, California Institute of Technology* (**44**, 6, p. 1160) Article based on AIAA Paper 2006-6393
- A07-119 Atmospheric Density During the Aerobraking of Mars Odyssey from Radio Tracking Data.** Erwan Mazarico and Maria T. Zuber, *Massachusetts Institute of Technology*; Frank G. Lemoine and David E. Smith, *NASA Goddard Space Flight Center* (**44**, 6, p. 1165) Article based on AIAA Paper 2006-6391
- A07-120 Application of Accelerometer Data to Atmospheric Modeling During Mars Aerobraking Operations.** R. H. Tolson, *North Carolina State University*; G. M. Keating, *George Washington University*; R. W. Zurek, *Jet Propulsion Laboratory, California Institute of Technology*; S. W. Bougher, *University of Michigan*; C. J. Justus, *Morgan Research Corporation*; and D. C. Fritts, *NorthWest Research Associates, Inc.* (**44**, 6, p. 1172) Article based on AIAA Paper 2006-6397
- A07-121 Zonal Wind Calculations from Mars Global Surveyor Accelerometer and Rate Data.** Darren T. Baird, *Jet Propulsion Laboratory, California Institute of Technology*; Robert H. Tolson, *North Carolina State University*; Stephen Bougher and Brian Steers, *University of Michigan* (**44**, 6, p. 1180) Article based on AIAA Paper 2006-6390
- A07-122 Mars Thermospheric Winds from Mars Global Surveyor and Mars Odyssey Accelerometers.** Geoff Crowley, *Atmospheric and Space Technology Research Associates*; and Robert H. Tolson, *North Carolina State University* (**44**, 6, p. 1188) Article
- A07-123 Drag Sail for End-of-Life Disposal from Low Earth Orbit.** Peter C. Roberts and Patrick G. Harkness, *Cranfield University, England, U.K.* (**44**, 6, p. 1195) Article
- A07-124 Comparison of TIMED Satellite Drag with Solar EUV Experiment (SEE) Measurements.** Donald L. Woodraska, Thomas N. Woods, and Francis G. Eparvier, *University of Colorado* (**44**, 6, p. 1204) Article based on AIAA Paper 2006-6169
- A07-125 Density and Winds in the Thermosphere Deduced from Accelerometer Data.** Eric K. Sutton, R. Steven Nerem, and Jeffrey M. Forbes, *University of Colorado* (**44**, 6, p. 1210) Article based on AIAA Paper 2006-6170

A07-126 Neutral Density Measurements from the Gravity Recovery and Climate Experiment Accelerometers. Byron D. Tapley, John C. Ries, Srinivas Bettadpur, and Minkang Cheng, *University of Texas at Austin* (**44**, 6, p. 1220) Article based on AIAA Paper 2006-6171

A07-127 Aeroheating Analysis for the Mars Reconnaissance Orbiter with Comparison to Flight Data. Derek S. Liechty, *NASA Langley Research Center* (**44**, 6, p. 1226) Article based on AIAA Paper 2006-3890

A07-128 Gas-Kinetic Scheme for Continuum and Near-Continuum Hypersonic Flows. Wei Liao and Li-Shi Luo, *Old Dominion University*; and Kun Xu, *The Hong Kong University of Science and Technology, (ROC)* (**44**, 6, p. 1232) Article based on AIAA Paper 2007-0120

A07-129 Assessment of Wind Tunnel and Computational Fluid Dynamics Transonic Base Pressure Using Flight Data. Makoto Ueno, Yukimitsu Yamamoto, and Masaaki Yanagihara, *Japan Aerospace Exploration Agency, Japan*; Mechel Leplat, *ONERA, France*; and Jean Oswald, *Centre National d'Études Spatiales, France* (**44**, 6, p. 1241) Article based on AIAA Paper 2007-4566

A07-130 Polymer Nanostructured Materials for Propulsion Systems. Joseph H. Koo, *University of Texas at Austin*; Louis A. Pilato and Gerry E. Wissler, *KAI, LLC* (**44**, 6, p. 1250) Article based on AIAA Paper 2005-3606

A07-131 Tradeoff Performance of Hybrid Low-Thrust Propulsion System. Giovanni Mengali and Alessandro A. Quarta, *University of Pisa, Italy* (**44**, 6, p. 1263) Article

A07-132 Reaction Motors (Thiokol) Family of Packaged Liquid Rocket Engines. Harold Davies, Retired (**44**, 6, p. 1271) Article

A07-133 Aerobraking Cost and Risk Decisions. David A. Spencer, *Jet Propulsion Laboratory, California Institute of Technology*; and Robert Tolson, *North Carolina State University* (**44**, 6, p. 1285) Article

A07-134 Very-Small-Satellite Design for Distributed Space Missions. David J. Barnhart, Tanya Vladimirova, and Martin N. Sweeting, *University of Surrey, England, U.K.* (**44**, 6, p. 1294) Article

A07-135 Assessment of Two Low-Reynolds-Number k - ϵ Models in Turbulent Boundary Layers with Surface Roughness. Meng-Huang Lu and William W. Liou, *Western Michigan University* (**44**, 6, p. 1307) Article based on AIAA Paper 2007-1448

A07-136 Measurement of In-Plane Motion of Thin-Film Structures Using Videogrammetry. Jack Leifer, *Trinity University*; Jonathan T. Black, Suzanne W. Smith, Ning Ma, and Janet K. Lumpp, *University of Kentucky* (**44**, 6, p. 1317) Article based on AIAA Paper 2006-1805

A07-137 Collisionless Gas Expanding into Vacuum. Chunpei Cai, *ZONA Technology*; and Iain D. Boyd, *University of Michigan* (**44**, 6, p. 1326) Technical Note