

American Institute of
Aeronautics and Astronautics

44th AIAA/ASME/SAE/ASEE
Joint Propulsion Conference and
Exhibit
2008

July 21-23, 2008
Hartford, Connecticut, USA

Volume 1 of 10

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571
www.proceedings.com

ISBN: 978-1-60560-498-5

Some format issues inherent in the e-media version may also appear in this print version.

The contents of this work are copyrighted and additional reproduction in whole or in part are expressly prohibited without the prior written permission of the Publisher or copyright holder. The resale of the entire proceeding as received from CURRAN is permitted.

For reprint permission, please contact AIAA's Business Manager, Technical Papers.
Contact by phone at 703-264-7500; fax at 703-264-7551 or by mail at
1801 Alexander Bell Drive, Reston, VA 20191, USA.

TABLE OF CONTENTS**Volume 1**

Experimental Investigation of Air and Methane Injection from In-Stream Fueling Pylons	1
<i>J. Doster, P. King, M. Gruber, C. Carter, M. Ryan, K-Y. Hsu</i>	
Swirl Effects on Shock Structure in Free Under-Expanded Supersonic-Nozzle Airflow.....	20
<i>A. Abdelhafez, A. Gupta</i>	
Combustion Performance of Supersonic Combustor with Stinger-Shaped Fuel Injector	31
<i>T. Kouchi, K. Hirano, S. Tomioka, M. Izumikawa</i>	
Performance Improved by Multistage Rockets Ejection in RBCC Engine.....	42
<i>M. Zhang, G. He, P. Liu</i>	
Innovative High-Temperature Compliant Surface Foil Face Seal Development	49
<i>H. Heshmat, J. Walton</i>	
Preliminary Test Results of Non-Contacting Finger Seal on Herringbone-Grooved Rotor	62
<i>M. Proctor, I. Delgado</i>	
Development of Non-Contacting, Low-Leakage, Large-Diameter Air Seal	76
<i>X. Zheng, G. Berard</i>	
Heat Generation Characteristics of a Carbon Fiber Brush Seal	86
<i>E. Ruggiero, J. Allen, R. Lusted</i>	
Rotating Brush Seal-Experimental Performance Evaluation	98
<i>G. Holloway, J. Mehta, L. Rosado, J. Cooke, C. Hubley</i>	
Innovative MIL-STD-1901A Compliant Ignition Systems	110
<i>M. Barglowski</i>	
Overview of Recent Development of Optopyrotechnics for Space Applications	124
<i>D. Dilhan, P. Farfal, F. Cahuzac, H. Moulard, A. Ritter</i>	
Development of a Fast-Acting, Gas Transfer System	141
<i>T. Reedy, M. Morris, W. Frank, A. Ward, M. DeCroix, J. Fonseca</i>	
Separation Systems Comparison for ARES I Launch Vehicle	146
<i>K. Duprey, E. Saucier</i>	
Cost Effective Electric Propulsion Missions to the Outer Planets	154
<i>C. Casaregola, K. Geurts, P. Pergola, M. Andrenucci</i>	
Small Satellite LEO Maneuvers with Low-Power Electric Propulsion.....	161
<i>S. King, M. Walker, C. Kluever</i>	
Mission Assessment of the Faraday Accelerator with Radio-Frequency Assisted Discharge (FARAD).....	169
<i>J. Dankanich, K. Polzin</i>	
Radioisotope Electric Propulsion (REP) Centaur Orbiter Mission Design	188
<i>J. Dankanich, S. Oleson</i>	
Trajectory Design Considerations and Computational Tools for Electric Propulsion Missions	201
<i>K. Geurts, C. Casaregola, P. Pergola, M. Andrenucci</i>	

Development of a Direct Evaporation Bismuth Hall Thruster	208
<i>D. Massey, L. King, J. Makela</i>	
Development Status of the HiVHAC Hall Thruster	223
<i>A. Mathers, D. Manzella, H. Kamhawi, R. Aadland</i>	
Application of the NEXT Ion Thruster Lifetime Assessment to Thruster Throttling	230
<i>J. Van Noord, D. Herman</i>	
Performance Characteristics of the NEXT Long-Duration Test After 16,550 h of Operation and 337 kg of Xenon Processed	243
<i>D. Herman, G. Soulard, M. Patterson</i>	
Life Tests and Measurements of Ion Thruster Accelerator Grid Erosion	266
<i>Y. Wang, H. Tang, C. Liu, H. Wang, Z. Gu, N. Guo</i>	
Time-Dependent Erosion of Ion Optics	275
<i>R. Wirz, J. Anderson, I. Katz, D. Goebel</i>	
Application of the DSMC Method for Design of a Coaxial Microthruster Nozzle	287
<i>W. Stein, A. Alexeenko</i>	
Low Power Micro Ion Engine Using Microwave Discharge	297
<i>H. Koizumi, H. Kuninaka</i>	
Development of a μPPT for CubeSat Applications	306
<i>S. Pottinger, D. Krejci, C. Scharlemann</i>	
Computational Investigation of Molecular Ion Evaporation in Electrospray Thruster	319
<i>N. Takahashi, P. Lozano</i>	
Development of an Indium mN-FEEP Thruster	325
<i>I. Vasiljevich, M. Tajmar, W. Grienauer, F. Plesescu, N. Buldrini, J. Gonzalez del Amo, B. Carnicer-Dominguez, M. Betto</i>	
Characterization of a Waveguide ECR Plasma Source	334
<i>B. Weatherford, J. Foster</i>	
Characterization of Ion Acceleration Processes in a Surface ECR Plasma Source	354
<i>B. Sommers, J. Foster</i>	
Design and Initial Tests of a Low Power Radio-Frequency Electrothermal Thruster	365
<i>T. Rutledge, M. Micci, S. Bilén</i>	
Bimodal Velocity Profile Measured by Laser-Induced Fluorescence In the Jet of an ECR Thruster	379
<i>J. Brainard, A. Reisz</i>	
Feasibility Study on Performance Enhancement Options for the ECR Ion Thruster μ10	389
<i>K. Nishiyama, S. Hosoda, R. Tsukizaki</i>	
Hybrid Propulsion New Applications & Design Tools	401
<i>G. Poirey, M. Roujan</i>	
Optimal Design of Hybrid Rocket Motors for Launchers Upper Stages	426
<i>L. Casalino, D. Pastrone</i>	
Study of Paraffin/H₂O₂ Hybrid Rockets for Launching Nanosats	436
<i>F. Costa, R. Contaifer, J. Albuquerque, S. Gabriel, R. Marques</i>	
A Parametric Analysis of Hybrid Rocket Motors for Sounding Rockets	446
<i>L. Casalino, D. Pastrone</i>	
Investigation of Combustion Instability in Small MMH-NTO Liquid Rocket Engines Using CFD	456
<i>M. Nusca</i>	

Fundamental Study on Pressure Oscillation in a Liquid Rocket Engine Combustion Chamber.....	468
<i>T. Shimizu, Y. Mizobuchi, N. Tsuboi</i>	
Development of Mechanistic Engineering Code for Combustion Instability Prediction in LRE	478
<i>A. Ramezani, H. Fatehi, H. Amanpour</i>	
Preliminary Investigation on Heat Exchange Enhanced by Sloshing	492
<i>T. Himeno, Y. Umemura, T. Watanabe, H. Aoki</i>	
Laterally Excited Sloshing Tests with Liquid Nitrogen LN2	508
<i>T. Arndt, M. Dreyer, P. Behruzi, M. Winter</i>	
Characterization of a Thermodynamic Vent System (TVS) for an On Orbit Cryogenic Reaction Control Engine (RCE) Feed System	517
<i>R. Jimenez, S. Flores, K. Romig, E. Hurlbert</i>	
Trades Between Regulated and Self-Pressurized Systems for LOX/Propylene NLV Upper Stage	531
<i>E. Ringbom, E. Besnard</i>	
Flow Analysis of Transcritical Methane in Rectangular Cooling Channels.....	548
<i>M. Pizzarelli, F. Nasuti, M. Onofri</i>	
A CFD-RTE Model for Thermal Analysis of Regeneratively Cooled Rocket Engines.....	561
<i>J. Jokhakar, M. Naraghi</i>	
Assessment of Wall-Functions k-e Turbulence Models for the Prediction of the Wall Heat Flux in Rocket Combustion Chambers	572
<i>V. Fico, L. Cutrone, F. Battista</i>	
Transpiration Cooling of a Liquid Rocket Thrust Chamber Wall	592
<i>M. Sozen, P. Davis, P. Davis</i>	
A Feasibility Study on Using Inkjet Technology, Micropumps, and MEMs as Fuel Injectors for Bipropellant Rocket Engines	602
<i>P. Glynne-Jones, M. Coletti, S. Gabriel, N. White, C. Bramanti</i>	
Results of Subcritical One-Phase Coaxial Jet Spread Angles and Subcritical to Supercritical Acoustically-Forced Coaxial Jet Dark Core Lengths	617
<i>J. Rodriguez, I. Leyva, B. Chehroudi, D. Talley</i>	
Experimental and Numerical Investigation of Large Mass Flow Rate Gas-Gas Injectors.....	629
<i>G. Cai, X. Wang, P. Jin, Z. Du, Y. Gao</i>	
Experimental Investigation of Porous Injectors for Liquid Propellant Rocket Engines.....	644
<i>J. Lux, D. Suslov, O. Haidn</i>	
Numerical Modeling of Combustion Performance for a Well-Stirred Reactor for Aviation Hydrocarbon Fuels	656
<i>A. Briones, B. Sekar, J. Zelina, R. Pawlik</i>	
Inter-Turbine Burner (ITB) Performance for Circumferential Cavity Volume Variations for Cold and Heated Fuel Injection	675
<i>B. Sekar, H. Thornburg, C. Lin</i>	
A Flamelet/Progress-Variable Approach for the Simulation of Turbulent Combustion of Real Gas Mixtures	693
<i>L. Cutrone, P. De Palma, G. Pascazio, M. Napolitano</i>	
Blowout Limits of Flames in High-Speed Airflows: Critical Damkohler Number	708
<i>C. Rasmussen, J. Driscoll</i>	
Turbulence-Flame Interactions - The Mechanisms of Flame Strain and Wrinkling	720
<i>A. Steinberg, J. Driscoll, S. Ceccio</i>	

Revisiting a Model for Combustion Instability Involving Vortex Shedding 733
B. Tulsyan, K. Balasubramanian, R. Sujith

Mixing and Combustion in Supersonic Reactive Flows 749
A. Ingenito, C. Bruno

Volume 2

Mechanisms of Jet Mixing in a Supersonic Crossflow: A Study Using Large-Eddy Simulation.....	766
<i>S. Kawai, S. Lele</i>	
Supersonic Combustion of Hydrogen Fuel Injection Locations in a Cavity-Based Combustor	782
<i>E. Jeong, S. O'Byrne</i>	
Scramjet Combustor Analysis Integrated to an Innovative Inward Turning Inlet	793
<i>F. Malo-Molina, D. Gaitonde, H. Ebrahimi</i>	
Skin-Friction Measurements in Supersonic Combustion Flows of a Scramjet Combustor ...	810
<i>T. Tsuru, S. Tomioka, K. Kudo, A. Murakami, K. Kato</i>	
A Modular Aero-Propulsion System Simulation of a Large Commercial Aircraft Engine	820
<i>J. DeCastro, J. Litt, D. Frederick</i>	
Stability Analysis of Distributed Engine Control Systems Under Communication Packet Drop	834
<i>R. Yedavalli, R. Belapurkar, A. Behbahani</i>	
Static Output Feedback-Based PI Control for Aeroengines Using Linear Matrix Inequality	848
<i>X. Wang, Y. Sun, T. Zheng, D. Tan</i>	
Active Control Simulation of Rocket Combustion Instability.....	860
<i>F. Songjiang, X. Qingfen, N. Wansheng, D. Liwei, Z. Fengchen</i>	
Analysis of Non Recoverable Stall & Other Instabilities Using Moore Greitzer Model	868
<i>K. Govil, S. Kumar</i>	
A Computational Study of Icing Effects on Performance of S-Duct Inlets	877
<i>W. Jin, R. Taghavi</i>	
Scheme and Inlet Performance of Supersonic Business Aircraft	892
<i>V. Vinogradov, V. Stepanov</i>	
Influence Factors of Unstart Boundary for Hypersonic Inlets	906
<i>J. Chang, D. Yu, W. Bao, L. Qu</i>	
Conceptual Design of Geometry-Variable Hypersonic Intake for TBCC.....	918
<i>H. Ou-Yang, Z. Zhu, M. Chen</i>	
Inlet/TBCC/Nozzle Integration Concept Design	926
<i>M. Chen, H. Tang, Z. Zhu, H. Ou-Yang, J. Zhang</i>	
Radioisotope Heated Aero-propulsion for Unmanned Flight on Titan.....	954
<i>J. Webb</i>	
MICROTURBO Families of Turbojet Engine for Missiles and Uav's From the TR60 to the New Bypass Turbojet Engine Generation	963
<i>J. Rideau, G. Guyader, A. Cloarec</i>	
Numerical Experiments on the Lift Generating Mechanisms of the GFS UVA.....	978
<i>H. Chen, Y. Sun</i>	
NASA's In-Space Propulsion Technology Project Systems Analysis Overview.....	983
<i>J. Dankanich</i>	

A Review of Electrodynamic Tethers for Space Applications	991
<i>J. Sanmartin, E. Lorenzini, M. Martinez-Sanchez+C107</i>	
Initial Plasma Testing of the Ion Proportional Surface Emission Cathode.....	1003
<i>A. Wheelock, D. Cooke, M. Geis</i>	
Calculating an Admittance Function from Pulsed Tubular Grain Motor Tests	1012
<i>C. Rousseau, J. Knoetze</i>	
Grain Geometry Modifications for Instability Symptom Suppression in Solid Rocket Motor	1025
<i>C. Baczyński, D. Greatrix</i>	
Thrust Oscillations in Large Solid Rocket Boosters.....	1040
<i>E. Jacob, G. Flandro</i>	
Comparison of Different Passive Control Solutions for Reducing SRM Pressure Oscillations Using Cold Flow Experiments.....	1049
<i>J. Anthoine, M. Lema</i>	
Establishing a Cost Effective and Innovative Combustion Instability Programme	1062
<i>C. Rousseau, J. Knoetze, S. Steyn</i>	
The Analysis on the Rising Section of Experimental Pressure in Variable Thrust Pintle Solid Rocket Motor	1080
<i>X. Wei, G. He, J. Li, Z. Zhou</i>	
Development of a Micro Thruster with Large Thrust	1084
<i>K. Otomo, M. Tanabe, T. Kuwahara</i>	
3D Simulations of Pre-Ignition Transient of P80 SRM	1092
<i>S. Zaghi, B. Favini, M. Di Giacinto, F. Serraglia</i>	
Behavior of Charcoal in Black Powder on Burning Surface	1105
<i>H. Okura, K. Takahashi, M. Tanabe, T. Kuwahara</i>	
Controllable Solid Propellant Rocket Motor Stability: Deep and Rapid Variable Thrust Operations	1112
<i>G. Lombardo</i>	
Concept of Electromagnetic Projector for Satellite Launch at High Altitude	1130
<i>Y. Sun</i>	
Magnetic Propeller for Uniform Magnetic Field Levitation	1140
<i>M. Krinker, A. Bolonkin</i>	
Block Ignition Inertial Confinement Fusion (ICF) for Space Propulsion.....	1160
<i>G. Miley, H. Hora, Y. Cang, F. Osman</i>	
Advanced Linear Electron Beam Phased Propulsion	1185
<i>M. Thomas</i>	
Development of a Scramjet/Ramjet Heat Exchanger Analysis Tool (SRHEAT).....	1199
<i>E. Gamble, J. Gutierrez, D. Giel, J. Bachmann, T. Jobin, D. Williford, C. Raffoul</i>	
Heat Transfer of Aviation Kerosene at Supercritical Conditions.....	1219
<i>F. Zhong, X. Fan, G. Yu, J. Li, X. Lu, C. Sung</i>	
Hybrid Thermal Analysis on Film Cooled Ramjet Combustor	1233
<i>J. Song, H. Cho, M. Oh, M. Yu</i>	
A Scramjet Engine Model Including Effects of Precombustion Shocks and Dissociation ...	1242
<i>S. Torrez, N. Scholten, D. Micka, J. Driscoll</i>	
A Study of Brush Seal Oil Pressure Profile Including Temperature-Viscosity Effects	1264
<i>E. Duran, M. Aksit</i>	
Kevlar Fiber Brush Seals for LNG Compressors.....	1276
<i>E. Ruggiero, P. Susini, R. Lusted</i>	

On the Performance of Dynamic Shaft Seals Used in Liquid Propellant Rocket Turbopumps	1286
<i>B. Marcu, R. McGlynn, T. Ferguson</i>	
Adhesion of Silicone Elastomer Seals for NASA's Crew Exploration Vehicle	1302
<i>H. deGroh, S. Miller, I. Smith, C. Daniels</i>	
Fully Dense, Aluminum-Rich Al-CuO Nanocomposite Powders for Energetic Formulations	1318
<i>D. Stamatis, Z. Jiang, V. Hoffmann, M. Schoenitz, E. Dreizin</i>	
Deflagration-to-Detonation-Transition (DDT) in Detonating Energetic Components	1331
<i>L. Yang</i>	
Mechanical Alloying and Reactive Milling in a High Energy Planetary Mill.....	1355
<i>X. Jiang, M. Trunov, M. Schoenitz, R. Dave, E. Dreizin</i>	
Electron Dynamics in Hall Thrusters	1369
<i>E. De Marco, E. Coscarelli, M. Andrenucci</i>	
Continued Investigation of Diverging Cusped Field Thruster.....	1389
<i>D. Courtney, P. Lozano, M. Martinez-Sanchez</i>	
A Model for the Active Control of Low Frequency Oscillations in Hall Thrusters	1401
<i>S. Barral, J. Miedzik, E. Ahedo</i>	
Amplifying and Evanescent Waves in Hall Thrusters	1410
<i>E. De Marco, M. Andrenucci</i>	
Experimental Measurement of Total Sheath Fall Voltage in an MPD Thruster.....	1426
<i>D. Nakata, K. Toki, Y. Shimizu, I. Funaki, H. Kuninaka, Y. Arakawa</i>	
Flowfield Analysis in an MPD Thruster with Applied Magnetic Field.....	1434
<i>K. Kubota, I. Funaki, Y. Ok</i>	
Plasma Collection Width Measurements in a 10-cm Ring Cusp Discharge Chamber.....	1445
<i>A. Hubble, J. Foster</i>	
Collisional Scattering Into and Evaporative Cooling From a Potential Well	1463
<i>A. Wheelock, D. Cooke, N. Gatsonis</i>	
Plasma Property Measurement in a Miniature Microwave Discharge Ion Thruster by Laser Thomson Scattering	1469
<i>N. Yamamoto, S. Kondo, T. Tsuru, H. Nakashima, A. Majima, N. Yamasaki, K. Tomita, K. Uchino</i>	
Development of Electrothermal Pulsed Plasma Thrusters for OIT Electric-Rocket-Engine Onboard Small Space Ship	1476
<i>H. Tahara</i>	
Modeling of Ablation-Fed Pulsed Plasma Thruster Operation Using a New Approach to the Ablation Process	1486
<i>E. Henrikson, P. Mikellides</i>	
Method for Analyzing ExB Probe Spectra from Hall Thruster Plumes.....	1494
<i>R. Shastry, R. Hofer, B. Reid, A. Gallimore</i>	
A Method of Measuring Transient Plume Properties	1515
<i>R. Lobbia, A. Gallimore</i>	

Volume 3

Challenges in the Development of a Multi-Fidelity, Coupled Component Simulation of Complex Systems	1530
<i>R. Claus, T. Lavelle, S. Townsend, M. Turner</i>	

Conjugate Conduction-Convection Heat Transfer for Water-Cooled High-Speed Flows	1543
<i>W. Engblom, B. Fletcher, N. Georgiadis</i>	
Injector Element Instability Mode Assessment in a Laboratory-Scale Burner.....	1559
<i>R. Byrd, H. Huynh, R. Frederick</i>	
Combustion Instability Studies in a Rectangular Rocket Chamber	1581
<i>W. Marshall, S. Pal, R. Santoro</i>	
Combustion Instability of Gaseous Fuels in a Continuously Variable Resonance Chamber (CVRC).....	1592
<i>Y. Yu, S. Koeglmeier, J. Sisco, W. Anderson</i>	
Numerical Analysis of Flow-Induced Structural Vibration in the LE-7A Liquid Hydrogen Pump	1604
<i>N. Yamanishi, M. Nishimoto, S. Hori, K. Okita, C. Kato, S. Yoshimura, T. Yamada, H. Kure</i>	
Feasibility Study of Multi Objective Shape Optimization for Rocket Engine Turbopump Blade Design	1620
<i>N. Tani, A. Oyama, K. Okita, N. Yamanishi</i>	
Turbine Design and Analysis for the J-2X Engine Turbopumps.....	1632
<i>B. Marcu, K. Tran, D. Dorney, P. Schmauch</i>	
Aerodynamic analysis of the Vulcain 2 LOX Turbine Manifold.....	1645
<i>G. Paniagua, C. Sieverding, R. Van den Braembussche</i>	
Development of a Prototype Rocket Engine for a Nanosat Launch Vehicle First Stage.....	1654
<i>G. Haberstroh, E. Besnard, M. Baker, J. Garvey</i>	
Results of the VINCI Engine 2007 - 2008 Test Campaigns	1669
<i>P. Alliot, P. James, C. Fiorentino, J. Caruana, N. Balcer</i>	
Test Results of Critical Elements for Reusable Rocket Engine.....	1681
<i>M. Yoshida, S. Takada, Y. Naruo, K. Niu</i>	
LE-X -Japanese Next Liquid Booster Engine.....	1693
<i>A. Kurosu, N. Yamanishi, H. Sunakawa, M. Nishimoto, K. Okita, A. Kumakawa, A. Ogawara, T. Onga, H. Manako</i>	
Automatic Thrust and Mixture Ratio Control of LE-X	1701
<i>H. Sunakawa, A. Kurosu, K. Okita, W. Sakai, S. Maeda, A. Ogawara</i>	
Experimental and Numerical Investigation of Reduced Gravity Fluid Slosh Dynamics	1709
<i>M. Vergalla, G. Livesay, D. Kirk, H. Gutierrez</i>	
Sequential Feed System Fail-Operational Test Program.....	1718
<i>C. Morton, J. Blackmon</i>	
Modeling Chatter in a Pressure Regulator Valve with a Multi-Physics Simulation Framework	1729
<i>V. Ahuja, P. Cavallo, J. Shipman, S. Arunajatesan, A. Hosangadi</i>	
Material-Aero-Thermal Interaction Computations in the ATLLAS European Programme	1744
<i>M. Bouchez, E. Dufour, F. Cheuret, J. Steelant, P. Grenard, J. Redford, N. Sandham, G. Roberts, A. Passaro, D. Baccarella, M. Dalenbring, J. Smith</i>	
An Integrated Parametric Model for Engine and Aircraft Design and Performance Optimisation	1757
<i>A. Seitz, K. Broichhausen, S. Donnerhack, J. Seifert</i>	
Alpha Particle Dynamics in Muon-Boosted Fusion Propulsion System.....	1765
<i>T. Kammash, R. Tang, A. Gallimore</i>	
Numerical Predictions of Enhanced Ion Confinement in a Multi-Grid IEC Device.....	1772
<i>T. McGuire, R. Sedwick</i>	
Experimental ECR-GDM Thruster as a Model for Fusion Propulsion	1780
<i>J. Brainerd, A. Reisz</i>	

Chemistry and Turbulence Effects on the Numerical Simulation of Lifted H₂/N₂ Flames in Vitiated Coflow	1790
<i>M. Di Domenico, P. Gerlinger, M. Aigner</i>	
Large-Eddy Simulation of a Combustion Powered Actuator	1806
<i>S. Srinivasan, B. Giris, S. Menon</i>	
A New Approach Based on Flamelet Concept Using Tabulated Chemistry for Premixed Turbulent Combustion	1818
<i>J. Savre, N. Bertier, D. Gaffie</i>	
Investigation of Hydrogen-Air Reaction Mechanisms for Supersonic Combustion.....	1835
<i>P. Gerlinger, K. Nold, M. Aigner</i>	
Instantaneous Flow Structures in a Reacting Gas Turbine Combustor	1853
<i>S. Dhanuka, J. Driscoll, H. Mongia</i>	
An Experimental and Numerical Study of a Supersonic Burner for CFD Model Development.....	1866
<i>G. Magnotti, A. Cutler</i>	
Structure of Conical Oblique Detonation Waves.....	1880
<i>P. Harris, R. Farinaccio, R. Stowe, J. Sislian, R. Link, D. Alexander, L. Donahue</i>	
The Pulse Detonation Rocket Induced MHD Ejector (PDRIME) Concept.....	1893
<i>J. Cambier, T. Roth, C. Zeineh, A. Karagozian</i>	
Simulation of Blast Wave Propagation and Particle Motion from Detonation Containing Dense Inert Particles.....	1915
<i>K. Balakrishnan, S. Menon</i>	
Pressure and Thrust Measurements of a High-Frequency Pulsed-Detonation Tube	1930
<i>N. Nguyen, A. Cutler</i>	
Parametric Study of a High-Frequency Pulsed-Detonation Tube	1941
<i>A. Cutler</i>	
Investigations of Thrust Generated By a Valved, MultiTube PDE with Exit Nozzles	1954
<i>A. Glaser, J. Brumberg, A. Rasheed, R. Dunton, V. Tangirala</i>	
Studies of Detonation Propagation Through Tubes with Complex Geometry for PDE Applications	1968
<i>J. Li, W. Fan, H. Qin</i>	
Solid Rocket Motor Optimization	1979
<i>Y. Kamm, A. Gany</i>	
Design and Optimization of Three Dimensional Finocyl Grain for Solid Rocket Motor	1986
<i>K. Nisar, L. Guoxhu</i>	
An Exact Geometric Analysis of the Generalized Anchor Grain Configuration.....	1997
<i>M. Umbel</i>	
Cascade Studies of Tandem Blades for Axial Flow Compressors/Fans.....	2013
<i>S. Trehan, J. Sodhi, B. Roy</i>	
PIV Investigation of a High-Speed Centrifugal Compressor Diffuser: Mid-Span Loading Effects	2024
<i>B. Cukurel, P. Lawless, S. Fleeter</i>	
PIV Measurements of Blade-Row Interactions in a Transonic Compressor for Various Operating Conditions	2038
<i>J. Estevadeordal, S. Gorrell, S. Puterbaugh</i>	
Computational Investigation of a Transonic Flutter Cascade.....	2054
<i>Q. Zhang, V. Hariharan, V. Capece</i>	

Development of a Rotary Vane Gas Cycle Heat Engine.....	2071
<i>R. Hartfield Jr.</i>	
Principle of A Novel Dual Synthetic Jets Actuator Based Continuous Flow Micro-Pump....	2081
<i>Z. Luo, Z. Xia, W. Luo, J. Hu, D. Wang, L. Huang</i>	
PIV Measurements of a Dual Synthetic Jets Actuator with a Baffle Plate	2095
<i>Z. Xiaochun, Z. Luo</i>	
Aerospike for Drag Reduction in Hypersonic Flow.....	2105
<i>R. Kalimuthu, E. Rathakrishnan</i>	
Numerical Research of Three-Dimensional Section Controllable Internal Waverider Hypersonic Inlet	2112
<i>Y. You</i>	
Leading Edge Pylon Effects on a Scramjet Pylon-Cavity Flameholder Flowfield.....	2126
<i>A. Freeborn, P. King, M. Gruber</i>	
Effect Of Inlet Disturbances On Bluff Body Stabilized Combustion	2143
<i>M. Madanmohan, S. Pandey, A. Kushari</i>	
A Computational Study on Supersonic Combustion With Strut as Flame Holder.....	2155
<i>R. Hande, A. Marathe</i>	
Performance of Sub-Scale Docking Seals Under Simulated Temperature Conditions.....	2168
<i>I. Smith, C. Daniels, P. Dunlap, B. Steinert</i>	
The Fuzzy Sealing Reliability of Flanged Connection System Considering Creep-Relaxation of Components	2179
<i>Q. Zhang, S. Dong, W. Liang</i>	
The Effect of Microscale Confinement Diameter on the Combustion of an Al/MoO₃ Thermite	2189
<i>G. Dutro, S. Son, A. Tappan</i>	
Synthesis of Aluminum-Rich Nanocomposite Powders at Cryogenic Temperatures	2202
<i>C. Badiola, M. Schoenitz, E. Dreizin</i>	
Oxidation and Ignition of Aluminum Particles in the Presence of Water Vapor	2210
<i>M. Schoenitz, S. Mohan, C. Chen, E. Dreizin</i>	
The Accelerated Aging of the Pyrotechnic Materials THPP and ZPP.....	2217
<i>W. Sanborn, D. Boyd, D. Sorensen, A. Quebral</i>	
Statistical Analysis of the Acceleration Zone Location in Hall Thrusters	2227
<i>J. Linnell, A. Gallimore</i>	
Efficiency Analysis of a Low Discharge Voltage Hall Thruster.....	2236
<i>J. Ross, L. King, J. Sommerville</i>	
Interpretation of Wall-mounted Probe Characteristics in Hall Thrusters.....	2251
<i>R. Shastry, A. Gallimore, R. Hofer</i>	
Effect of Anode Current Fluctuations on Ion Energy Distributions within a 600 W Hall Effect Thruster	2259
<i>W. Hargus, M. Nakles, R. Tedrake, B. Pote</i>	
Magnetic Field Effects on Secondary Electron Emission in Hall Thrusters.....	2269
<i>R. Santos, E. Ahedo</i>	
Numerical Modeling of a Low Energy Pulsed Inductive Thruster	2280
<i>P. Mikellides, J. Villarreal</i>	

Volume 4

On the Electrodeless MPD Thruster Using a Compact Helicon Plasma Source	2291
<i>K. Toki, S. Shinohara, T. Tanikawa, T. Hada, I. Funaki, Y. Tanaka, A. Yamaguchi, K. Shamrai</i>	
3D MFD Model Developments for Aerospace Applications.....	2300
<i>F. Battista, T. Misuri, M. Andrenucci</i>	
Electron Backstreaming Determination for Ion Thrusters.....	2323
<i>R. Wirz, I. Katz, D. Goebel, J. Anderson</i>	
Physical Parametric Studies in an Ion Engine Discharge Chamber Using a PIC-MCC Simulation	2333
<i>S. Mahalingam, J. Menart</i>	
Performance Evaluation of Powdered Propellant Pulsed Plasma Thruster	2360
<i>T. Saito, H. Koizumi, H. Kuninaka</i>	
Three Dimensional Numerical Study of Plume Characteristics of a Pulsed Plasma Thruster.....	2368
<i>Z. Qian, P. Wang, Z. Du</i>	
Validating A Plasma Momentum Flux Sensor Against an Inverted Pendulum Thrust Stand	2385
<i>B. Longmier, B. Reid, A. Gallimore, F. Chang-Diaz, J. Squire, T. Glover, G. Chavers, E. Bering III</i>	
Development of a Specific Impulse Balance for a Pulsed Capillary Discharge	2398
<i>T. Lilly, A. Pancotti, A. Ketsdever, M. Young</i>	
Sensitivity-Based Approach to Quantifying Uncertainty in Airfoil Modal Response	2406
<i>R. Sampath, B. Zhou, P. Kulkarni, A. Blair, J. Griffiths, J. Beley, S. Perrin</i>	
Nonlinear Injection Transfer Function Simulations for Liquid Propellants	2415
<i>S. Aithal, Z. Liu, R. Jensen, T. Hennerman, E. Lynch</i>	
Fan Flutter Computations Using the Harmonic Balance Method	2424
<i>M. Bakhle, J. Thomas, T. Reddy</i>	
Flow-Induced Vibratory Stress Prediction on Small Turbofan Engine Compressor Vanes Using Fluid-Structure Interaction Analysis	2431
<i>O. Mehdizadeh, C. Zhang, F. Shi</i>	
Measurement of Phase Relationship Between Vortex Shedding and an Unsteady Acoustic Field.....	2439
<i>L. O'Hara, J. Sisco, E. Portillo, W. Anderson</i>	
Modeling Swirling Jet Flows Using a Hybrid RANS/LES Methodology	2445
<i>J. Chenoweth, C. Kannepalli, S. Arunajatesan, A. Hosangadi</i>	
Supercritical High Pressure Combustion Simulation for LO_x/CH₄ Rocket Propulsion Systems.....	2459
<i>L. Cutrone, F. Battista, G. Ranuzzi</i>	
Numerical Investigation of LO₂ and LCH₄ Storage Tanks on the Lunar Surface	2480
<i>S. Barsi, J. Moder, M. Kassemi</i>	
Parametric Study of a Propellant Tank Slosh Baffle	2497
<i>S. Chintalapati, D. Kirk</i>	
Numerical Analysis of Thermal and Fluid Behavior Including Phase Change in Container	2507
<i>R. Imai</i>	

Computational Analyses of Pressurization in Cryogenic Tanks	2512
<i>V. Ahuja, A. Hosangadi, C. Lee, R. Field, H. Ryan</i>	
Fundamental Study on Coking Characteristics of LNG Rocket Engines.....	2524
<i>K. Higashino, M. Sugioka, T. Kobayashi, R. Minato, Y. Sasayama, M. Otsuka</i>	
Hydrocarbon Fueled Rocket Engine Study in MHI	2531
<i>T. Tamura, K. Niu, M. Atsumi</i>	
LOX / Methane Main Engine Igniter Tests and Modeling	2538
<i>K. Breisacher, K. Ajmani</i>	
Isolated Ground Return Electrode for Use in Gaseous and Cryogenic Propellants	2559
<i>N. Nugent, D. Helderman, W. Anderson</i>	
Three-Dimensional Modeling of Magnetic Nozzle Processes	2572
<i>H. Lorzel, P. Mikellides</i>	
Experimental Verification of Enhanced Confinement in a Multi-Grid IEC Device.....	2587
<i>C. Dietrich, R. Sedwick, L. Eurice</i>	
Fusion Driven Fission System for Space Surface Power Application	2605
<i>T. Kammarsh, R. Tang</i>	
Flame Propagation and Stabilization in High Velocity Combustion Chamber	2609
<i>M. Goldfeld, A. Starov, K. Timofeev, V. Vinogradov</i>	
Toluene Combustion in the Presence of Ceria Nanoparticles: A Shock-Tube Study	2622
<i>B. Rotavera, E. Petersen, A. Kumar, S. Seal, T. Hain</i>	
Decomposition Rate Measurements of RP-1, RP-2,n-Dodecane, and RP-1 with Fuel Stabilizers	2631
<i>M. MacDonald, D. Davidson, R. Hanson</i>	
Application of an Aerosol Shock Tube for the Kinetic Studies of n-Dodecane/ Nano-Aluminum Slurries	2637
<i>D. Jackson, D. Davidson, R. Hanson</i>	
Ignition of Methane and Ethane Blends with Oxygen at Engine Conditions.....	2650
<i>C. Aul, E. Petersen, B. Walker, H. Curran</i>	
An Experimental Investigation of Evaporative Sprays in Axial Acoustic Fields.....	2659
<i>R. Kumara Gurubaran, R. Sujith</i>	
Experimental Test Rig with Results on Atomization by Slinger Injectors	2672
<i>C. Sescu, B. Kucinschi, K. Masiulaniec, A. Afjeh</i>	
Modeling and Development of an Electronically-Controlled Active Pressure Control Device.....	2681
<i>J. Calleja, M. Caspermeyer, D. Matz, H. Jansen, D. Beaver</i>	
Hybrid Propulsion Booster Failure Detection for Crew Escape	2694
<i>T. Abensur</i>	
Generation and Analysis of Blast Waves from a Compressed Air-Driven Shock Tube	2700
<i>D. Kirk, J. Faure, H. Gutierrez, S. Svetlov, R. Hayes, K. Wang</i>	
Assymmetric Expansion of Detonation Wave in an Array of Tubes.....	2712
<i>V. Katta</i>	
Overview of Current Activities on PDE and Pulse Detonation Propulsion in China	2725
<i>H. Tang, Y. Huang, H. Liu</i>	
High-Frequency, High-Pressure, Flush Mounted Miniature Liquid Oxygen Fiber-Optic Pressure Sensor	2731
<i>M. Palmer, M. Davis, L. Vicari, M. Moser, A. Tuck, C. Linn</i>	

Development of a Hyperspectral Tomography Sensor for Practical Propulsion Devices.....	2739
<i>L. Ma, W. Cai</i>	
Parametric Investigation on the Essential Flow Factors Commanding Steady Operations of the Second Throat Exhaust Diffuser	2749
<i>J. Lim, B. Park, W. Yoon, Y. Lee</i>	
Design of a Robust High Altitude Rocket Motor Igniter.....	2758
<i>K. Norrie, M. Judge, K. Ford, P. Curran, A. Atwood</i>	
Experimental and Theroetical Investigations of Thrust Variations with Pintle Positions using Cold Gas	2771
<i>J. Lee, J. Kim, H. Jang, J. Oh</i>	
Solid Propellant Combustion Under Laser Heating	2776
<i>A. Kakami, T. Takai, T. Tachibana</i>	
Two Approaches for Condensed-Phase Modeling in Solid Rocket Motor Flows	2787
<i>F. Creta, A. Attili, B. Favini, M. Di Giacinto</i>	
Nano Additives and Plateau Burning Rates in Composite Solid Propellants	2798
<i>M. Stephens, E. Petersen, D. Reid, R. Carro, S. Seal</i>	
Effects of Aluminum Oxide Particles and Gas Properties on the Thermal Response of Solid Rocket Nozzle Liners	2818
<i>K. Hwang, Y. Yim</i>	
Aerodynamic Loading Effects on Mistuned IBR Resonant Response.....	2832
<i>Y. Choi, P. Lawless, S. Fleeter</i>	
Vane Clocking Effects on the Resonant Response of an Embedded Rotor.....	2843
<i>Y. Choi, N. Key, S. Fleeter</i>	
An Unsteady Pressure Perturbation Approach for High Cycle Fatigue of Turbomachinery Components	2857
<i>N. Garafolo, S. Sawyer</i>	
A Validation on A New Slip Factor Model for Mixed-flow Impellers	2865
<i>S. Huang, Z. Liu, Y. Lu, Y. Yan, X. Lian</i>	
Optimization of Antimatter Rocket Performance.....	2871
<i>R. Frisbee</i>	
Design Considerations for the Interstellar Ramjet	2907
<i>B. Cassenti</i>	
NESC Independent Assessment of Pyrovalve Ground Test Anomalies	2924
<i>M. Hagopian, R. Saulsberry, S. McDougle</i>	
Estimation of Temperature and Other Properties in Pyrotechnic Reactions Using Pressure Measurments and Application of Thermodynamic Equilibrium Code	2933
<i>S. Woods, R. Saulsberry, C. Keddy, H. Julien</i>	
Measurement of Debris in the Flow from Pyrotechnic Reaction Using an Instrumented Hopkinson Pressure Bar	2941
<i>M. Groethe, S. McDougle, R. Saulsberry</i>	
Material Properties Effects on Pyrotechnic Initiator Output	2950
<i>T. Hinkel, F. Salazar</i>	
Hall Thrusters Design and Optimization.....	2959
<i>E. De Marco, M. Andrenucci</i>	
HET Scaling Methodology: Improvement and Assessment.....	2972
<i>T. Misuri, M. Andrenucci</i>	

NEXT Study of Thruster Extended-Performance II (NEXT STEP II)	2980
<i>M. Patterson</i>	
R&D on 10,000sec Isp Ion Engine Driven by Microwave	3001
<i>H. Hayashi, H. Kuninaka, M. Usui, S. Hosoda, H. K</i>	
Thermally Stress-Free Grid Mounting with Hinges for Ion Thrusters	3007
<i>Y. Hayakawa, H. Yoshida, Y. Ohkawa, K. Miyazaki, S. Kitamura, H. Nagano</i>	
NASA's Evolutionary Xenon Thruster (NEXT) Component Verification Testing.....	3016
<i>D. Herman, L. Pinero, J. Sovey</i>	
Current and Temperature Thresholds for Short-Term Oxygen Poisoning of Hollow Cathodes.....	3027
<i>A. Capece, J. Polk</i>	
Development of a High Power Cathode Heater	3035
<i>A. Mathers</i>	
Life Test of a Graphite-Orificed Hollow Cathode.....	3042
<i>Y. Ohkawa, Y. Hayakawa, H. Yoshida, K. Miyazaki, S. Kitamura, K. Kajiwara</i>	
Electromagnetic Acceleration Characteristics of a Laser-Electric Hybrid Thruster.....	3048
<i>H. Horisawa, Y. Sasaki, I. Funaki</i>	

Volume 5

Experiments on a Propellant-less Electric Propulsion Using Photon Pressure	3058
<i>K. Toki, N. Asakura, T. Ohtsuka</i>	
Laboratory Simulation of Magnetoplasma Sail.....	3066
<i>K. Ueno, I. Funaki</i>	
Laboratory-Model Integrated-System FARAD Thruster.....	3079
<i>K. Polzin, M. Rose, R. Miller</i>	
Acceleration of a Plasma Flow by Oscillating Magnetic Mirrors	3087
<i>R. Deresz, J. Richard</i>	
ST7-DRS Mission Colloid Thruster Development.....	3095
<i>N. Demmons, V. Hruby, D. Spence, T. Roy, E. Ehrbar, J. Zwahlen, R. Martin, J. Ziemer, T. Randolph</i>	
ST7-DRS Colloid Thruster System Development and Performance Summary	3113
<i>V. Hruby, D. Spence, N. Demmons, T. Roy, E. Ehrbar, J. Zwahlen, R. Martin, J. Ziemer</i>	
In-FEEP Qualification Test Program for LISA Pathfinder	3145
<i>C. Scharlemann, M. Tajmar, A. Genovese, N. Buldrini, R. Schnitzer</i>	
Delivery of Colloid Micro-Newton Thrusters for the Space Technology 7 Mission	3153
<i>J. Ziemer, T. Randolph, G. Franklin</i>	
Status Update for the Peregrine 100km Sounding Rocket Project.....	3168
<i>J. Dyer, E. Doran, G. Zilliac, K. Lohn</i>	
Handling Considerations of Nitrous Oxide in Hybrid Rocket Motor Testing.....	3177
<i>J. Campbell, F. Macklin, Z. Thicksten</i>	
Development of a Hybrid Rocket Motor Using a Diaphragm for a Small Test Rocket	3184
<i>M. Grosse, G. Schlatzke</i>	
Energy Based Solutions of the Bidirectional Vortex.....	3196
<i>T. Saad, J. Majdalani</i>	
On the Compressible Bidirectional Vortex.....	3210
<i>B. Maicke, J. Majdalani</i>	

Reacting Flow CFD Model of Throttling in the Army's Impinging Stream Vortex Engine.....	3223
<i>M. Nusca, N. Mathis, S. Michaels</i>	
Combustion and Regenerative Cooling Characteristics of LOX/Methane Engine.....	3242
<i>H. Kawashima, A. Kumakawa, T. Onodera, S. Yoshida, N. Azuma, K. Aoki, H. Negishi, K. Okita, H. Manako, T. Koganezawa, T. Kaneko</i>	
Compatibility of Methane Fuel with LOX/Methane Engine Combustion Chamber Cooling Channels.....	3249
<i>N. Azuma, M. Sato, M. Tadano, M. Sato, T. Masuoka, S. Moriya</i>	
Development and Testing of a Prototype LOX/Propylene Upper Stage Engine.....	3258
<i>K. Gemba, D. Verma, E. Besnard</i>	
Operational Conditions of P4.1 Altitude Simulation for VINCI Upper Stage Engine	3270
<i>K. Schäfer, H. Zimmermann, C. Pauly</i>	
Auxiliary Propulsion System Analysis Tool for Sizing On-Orbit Propulsion Systems	3278
<i>B. Lusby, K. Romig, M. Smith</i>	
Generalized Propulsion System for Panel ExTension SATellite (PETSAT).....	3288
<i>H. Sahara, S. Nakasuka, C. Kobayashi</i>	
Liquid Oxygen / Liquid Methane Testing of the RS-18 at NASA White Sands Test Facility (WSTF)	3296
<i>J. Melcher, J. Allred</i>	
Performance Increase Verification for a Bipropellant Rocket Engine.....	3305
<i>S. Henderson, F. Lu, K. Wilson, D. Krismer, S. Miller, R. Wilson, L. Alexander, J. Chapman</i>	
Effect of Chamber Backpressure on Swirl Injector Fluid Mechanics	3315
<i>R. Kenny, J. Hulk, N. Rhys</i>	
Study on Atomization Process of Liquid Sheet Formed by Impinging Jets.....	3331
<i>C. Inoue, T. Watanabe, T. Himeno</i>	
High-Frequency Flame Oscillation Observed at a Coaxial LOX/LH₂ Injector Element	3345
<i>Y. Nunome, M. Takahashi, A. Kumakawa, K. Miyazaki, S. Yoshida, T. Onga</i>	
Quantifying the Variation of the Mass Flow Rate Generated in a Simplex Swirl Injector by Pressure Fluctuation	3353
<i>T. Khil, S. Kim, S. Cho, Y. Yoon</i>	
The Effects of the Ambient Pressure on Self-Pulsation Characteristics of a Gas/Liquid Swirl Coaxial Injector	3363
<i>J. Im, Y. Yoon</i>	
Cryo-Tracker Mass Gauging System Hardware and Flight Qualification Risk Reduction Program	3374
<i>M. Haberbusch, L. Walls</i>	
Liquid Hydrogen Cryo-Tracker Systems	3384
<i>M. Haberbusch</i>	
Long Term Space Storage and Delivery of Cryogenic Propellants for Exploration	3395
<i>C. McLean, G. Mills, M. Riesco, D. Plachta, M. Meyer, E. Hurlbert</i>	
Ultrasonic Flow Meter for Satellite Propellant Gauging and Ground Test Facilities	3412
<i>R. Matthijssen, P. Van Put</i>	
On-Orbit Propulsion and Methods of Momentum Management for the International Space Station.....	3419
<i>S. Russell, V. Spencer, K. Metrocavage, R. Swanson, U. Kamath</i>	
Distributed Integrated Design Environment for Solid Rocket Motor.....	3425
<i>X. HongYu, C. Yue, L. ChunMei, W. Xun</i>	

Modeling of a Unique High-Temperature Turbine Engine Variable Guide Vane Actuator	3435
<i>M. Caspermeyer, D. Shields, H. Jansen, B. Watts, R. White</i>	
Design of a Model Execution Framework: Repetitive Object-Oriented Simulation Environment (ROSE).....	3440
<i>J. Gray, J. Briggs</i>	
Atmospheric Mining in the Outer Solar System: Orbital Transfer Vehicles and Outer Planet Moon Base Options.....	3468
<i>B. Palaszewski</i>	
Spectral-Selective Solar Thermal Micro-Thruster	3492
<i>S. Finogenov, O. Kudrin, K. Seo</i>	
Fundamental Characteristics of a Low - Fluence CW Laser Thruster.....	3499
<i>S. Sumida, H. Horisawa, I. Funaki</i>	
Concept Study of a Beamed Energy Propulsion Craft as Workhorse of a Future Space Transportation Architecture.....	3505
<i>A. Herbertz, Y. Oda, K. Komurasaki</i>	
Gas Injection Strategies in Confined Subsonic Cross-Flow for Wave Rotor Fueling	3517
<i>S. Wijeyakulasuriya, R. Nalim</i>	
Simultaneous Equivalence Ratio and Flame Structure Measurements in Multipoint Injectors Using PLIF	3531
<i>F. Grisch, M. Orain, E. Jourdanneau, C. Guin</i>	
Characterization of Various Properties of Gel Fuels with Regard to Propulsion Application.....	3542
<i>K. Madlener, H. Ciezki, J. von Kampen, B. Heislbetz, A. Feinauer</i>	
Preliminary Model of the Transient Combustion of Organic-Gellant-Based Gel Fuel Droplets	3554
<i>A. Kunin, B. Natan, J. Greenberg</i>	
Simplified Rheological Modeling of Metallized Gel Fuels.....	3569
<i>V. Chernov , B. Natan</i>	
Experimental Investigation of Gelled Fuel with High Vapor Pressure Species and Metal Additives	3579
<i>A. Desyatkov, K. Madlener, H. Ciezki</i>	
Experimental Evaluation of Gel Fuel Droplet Burning Rates at Sub and SuperCritical Conditions	3591
<i>D. Bar-or , B. Natan</i>	
Aspiration Efficiencies of a Soot-Particulate Sampling Probe with Dilution Under Gas Turbine Conditions	3600
<i>A. Briones, S. Stouffer, A. Bichal, H. Kang, A. Altman</i>	
Characterization and Simulation of the Thermoacoustic Instability Behavior of an Advanced, Low Emissions Combustor Prototype	3619
<i>J. DeLaat, D. Paxson</i>	
Wave Disk Engine for Micro-Scale Power Generation	3635
<i>P. Akbari, R. Nalim, S. Wijeyakulasuriya, N. Mueller</i>	
Performance Analysis of a Hybrid Pulse Detonation Combustor/Gas Turbine System	3646
<i>N. Caldwell, E. Gutmark</i>	
Study on an Autonomous-Drive Valve System of Pulse Detonation Engines.....	3656
<i>K. Matsuoka, J. Yageta, H. Yamaguchi, J. Kasahara, T. Yajima</i>	

Development of Transient Pulse Detonation Engine Cycle Analysis and Performance Prediction (PDE-CAPP) Code	3664
<i>M. Mawid</i>	
Experimental Investigation of Ignition-Detonation Time in Two-Phase Valveless Pulse Detonation Engines.....	3679
<i>Z. Wang, L. Zheng, C. Yan</i>	
Characterization of Nozzle Erosion Phenomena in a Solid-Propellant Rocket Motor Simulator.....	3686
<i>B. Evans, K. Kuo, P. Ferrara, J. Moore, E. Boyd</i>	
A Replacement for Obsolete Graphite Phenolic.....	3697
<i>G. Williams, J. Murray</i>	
Experimental Rocket Motor Applied in Evaluate the Ablation Performance of Ablation Resistance Materials	3708
<i>X. Wei, G. He, J. Li, P. Liu, W. Wang</i>	
Advanced 3rd Stage (A3S) Carbon-Carbon Exit Cone.....	3712
<i>R. Fawcett, J. Hornick, D. Backlund, T. Pichon, A. Foucault</i>	
Design of a Solid Rocket Motor for Characterization of Submerged Nozzle Erosion	3725
<i>A. Cortopassi, E. Boyer, R. Acharya, K. Kuo</i>	
Numerical Investigation of Roll Torque Induced by Solid Rocket Motor Internal Flow	3742
<i>T. Shimada, N. Sekino, M. Fukunaga</i>	
Mass Transfer in the Recirculation Zone of Ducted Rocket.....	3766
<i>T. Kuwahara, K. Obuchi, K. Takahashi, M. Tanabe</i>	
A Hybrid Approach for Design Optimization of Wagon Wheel Grain for SRM	3772
<i>K. Nisar, L. Guozhu</i>	
Powering Exploration: The Ares I Crew Launch Vehicle and Ares V Cargo Launch Vehicle.....	3778
<i>S. Cook, T. Vanhooser</i>	
Progress on Ares First Stage Propulsion.....	3790
<i>A. Priskos, B. Tiller, R. Garson</i>	
NASA Ares I Crew Launch Vehicle Upper Stage Overview	3799
<i>D. Davis, J. McArthur</i>	
NASA Ares I Crew Launch Vehicle Upper Stage Avionics and Software Overview	3808
<i>C. Nola, L. Blue</i>	
Regeneration and Intercooling in Gas Turbine Engines for Propulsion Systems	3814
<i>R. Andriani, U. Ghezzi</i>	

Volume 6

Multi-Combustor Engines for Military Aircraft.....	3821
<i>A. Lee, R. Singh, S. Probert</i>	
Performances of a Two-Combustor Turbofan Engine Under Design and Off-Design Conditions	3834
<i>A. Lee, R. Singh, S. Probert</i>	
An Experimental Study of Water Injection Into a Rolls-Royce Model 250-C20B Turboshaft Gas Turbine	3846
<i>D. Golden, M. Cerza, D. Myre</i>	
Defect Diagnostics of Gas Turbine Engine Using Hybrid SVM-ANN with Module System in Off-Design Condition.....	3870
<i>D. Seo, W. Choi, T. Roh, D. Choi</i>	

Rate-Dependent Plasticity Effects in Pyrotechnically-Driven Tensile Failure.....	3885
<i>H. Lee</i>	
Analysis of Gas Dynamic Waves in Explosively Actuated Valves	3895
<i>K. Gonthier, B. Paul, B. Okhuysen</i>	
Explosion Hazard Analysis of the Space Shuttle External Tank Separation Camera Housings.....	3907
<i>J. Melcher, J. Brewer</i>	
Multiphysics Model of Ammonia Borane Pyrolysis to Hydrogen Gas For Fuel Cell Applications.....	3919
<i>M. Mallery, U. Pasaogullari, C. Mal</i>	
Conceptual Design Method and Sizing Examples for a Turbojet Baseline Missile	3926
<i>E. Fleeman</i>	
Application of Fuel Cells Technology in Micro Air Vehicles - A Senior Design Project	3947
<i>R. Daines, S. Longshore, J. Sall, R. Mankbadi</i>	
LOX-LCH₄ Test Facility at Purdue University	3959
<i>D. Helderman, N. Nugent, S. Meyer, W. Anderson</i>	
Update on the XIPS 8-cm Thruster Prototype	3965
<i>W. Tighe, K. Chien, J. Ahn, E. Solis, J. Hurtado, R. Spears</i>	
Ongoing Wear Test of a XIPS 25-cm Thruster Discharge Cathode	3975
<i>J. Polk, D. Goebel, W. Tighe</i>	
Qualification of Commercial XIPS Ion Thrusters for NASA Deep Space Missions.....	3988
<i>D. Goebel, J. Polk, R. Wirz, J. Snyder, I. Mikellides, I. Katz</i>	
Dawn Ion Propulsion System - Initial Checkout After Launch.....	4002
<i>J. Brophy, C. Garner, S. Mikes</i>	
NEXT Long-Duration Test Plume and Wear Characteristics After 16,550 h of Operation and 337 kg of Xenon Processed.....	4031
<i>D. Herman, G. Soulas, M. Patterson</i>	
Langmuir Probe Measurements in the Discharge Channel of a 6-kW Hall Thruster	4055
<i>B. Reid, A. Gallimore</i>	
Turbulence Measurements in a 100 W Hall Thruster	4069
<i>E. De Marco, M. Andrenucci</i>	
Efficacy of Electron Mobility Models in Hybrid-PIC Hall Thruster Simulations.....	4077
<i>R. Hofer, I. Katz, D. Goebel, K. Jameson, R. Sullivan, L. Johnson, I. Mikellides</i>	
Performance Analysis of a Medium-Power Helicon Thruster	4106
<i>D. Palmer, M. Walker, M. Manete, J. Carlsson</i>	
Operation of an Annular Helicon Plasma Source.....	4117
<i>D. Palmer, M. Walker</i>	
Feasibility Study of Medium-Power Helicon Thruster.....	4129
<i>D. Pavarin, M. Manente, M. Walker, D. Palmer</i>	
Flow Control Micro-Valve for the ST7-DRS Colloid Thruster	4143
<i>J. Zwahlen, V. Hruby, C. Campbell, N. Demmons, E. Ehrbar, C. Freeman, R. Martin, T. Roy, D. Spence, T. Randolph, J. Ziemer</i>	
Colloid Thruster Propellant Conditioning and Storage for the NASA ST7 Mission	4153
<i>D. Spence, J. Zwahlen, V. Hruby, N. Demmons, T. Roy, R. Martin, E. Ehrbar, W. Connolly, J. Ziemer, T. Randolph</i>	
Modeling of N₂O Decomposition Events	4162
<i>A. Karabeyoglu, J. Dyer, J. Stevens, B. Cantwell</i>	

Firing Performance of Advanced Hydrogen Peroxide Catalytic Beds in a Monopropellant Thruster Prototype.....	4191
<i>L. Torre, A. Pasini, L. Romeo, L. d'Agostino</i>	
Thermal and Catalytic Decomposition of AN-, ADN and HNF-Based Ionic Monopropellants	4209
<i>K. Farhat, C. Kappenstein, Y. Batonneau</i>	
Tank Trade Study - An Overview	4220
<i>W. Tam, I. Ballinger, D. Jaekle Jr.</i>	
Optimized Manufacturing Methods for Large Light-Weight Overwrapped Titanium Satellite Propellant Tanks	4239
<i>J. Hegels</i>	
Propellant Tank with Surface tension PMD for Tight Center-of-Mass Propellant Control.....	4245
<i>W. Tam, I. Ballinger, D. Jaekle</i>	
Liquid Acquisition Device Testing with Sub-Cooled Liquid Oxygen	4267
<i>J. Jurns, J. McQuillen</i>	
Hydrazine/MON-3 High Pressure Pump Prototype.....	4278
<i>H. Kagawa, A. Okayasu, T. Ota</i>	
Progress Status of TPX LH₂-Turbopump Demonstration Program	4286
<i>P. Fayolle, J. Nguyen Duc, B. Pouffary, J. Dehouve</i>	
Single Shaft Turbopump Expands Capabilities of Upper Stage Liquid Propulsion	4293
<i>V. Rachuk, A. Dmitrenko, M. Buser, A. Minick</i>	
High Suction Specific Speed LOX Pump: Design, Analysis and Testing	4308
<i>J. Busby, B. Batton, R. Furst, A. Hosangadi</i>	
Small Nuclear Rocket Engine and Stage Benchmark Model.....	4316
<i>B. Schnitzler, S. Borowski</i>	
Thermal Hydraulic and Structural Analysis of Nuclear Thermal Propulsion Reactor Core Components	4329
<i>M. Stewart, B. Schnitzler</i>	
Evaluation of Recent Upgrades to the NESS (Nuclear Engine System Simulation) Code	4338
<i>J. Fittje, B. Schnitzler</i>	
GOX/Methane Injector Effects on Combustion Efficiency.....	4356
<i>R. Saffell, M. Moser</i>	
Effects of Main Swirl Direction on High-g Combustion	4365
<i>W. Anderson, J. Radtke, P. King</i>	
A Computational and Experimental Assessment of the Damkohler Number Similarity for Static Flame Stability in Augmentor Flows	4377
<i>H. El-Asrag, H. Pitsch, W. Kyung Kim, H. Do, G. Munga</i>	
Active Combustion Control Using a Fluidic Oscillator for Asymmetric Fuel Flow Modulation	4395
<i>D. Guyot, B. Bobusch, C. Paschereit, S. Raghu</i>	
Oscillatory Response of a Ducted Non-Premixed Flame: Variable Density and Shear-Layer Effects	4414
<i>S. R. Chakravarthy, C. Balaji</i>	
Unstable Combustion Induced by Fine AP Particles in Composite Propellants.....	4428
<i>M. Tanaka, Y. Seki, K. Urakawa</i>	
Numerical Investigation of Magnetohydrodynamic Flow Control Through a Nozzle	4437
<i>W. Taitano, S. Hayashibara</i>	

Computational Investigation of Effective Angle of Turning in Thrust Vectored Nozzles	4464
<i>A. Singh, A. Kushari</i>	
New Developments in Shrouds and Augmentors for Subsonic Propulsion Systems	4484
<i>M. Werle, W. Presz Jr.</i>	
Development of a Mixer Model to Compare Mixed and Unmixed HBPR Turbofans	4502
<i>T. Rayee, D. Verstraete, P. Hendrick</i>	
Imaging Sensor for Chemical Species, Temperature and Pressure Measurements	4509
<i>S. Chen, J. Silver, D. Kane, D. Bomse</i>	
P80 Nozzle Development & Qualification Synthesis	4524
<i>D. Boury, E. Gautronneau, M. Durant, C. Cros, E. Vari</i>	
Thermal Decomposition Kinetics of Aged Solid Propellant Based on Ammonium Perchlorate - AP/HTPB Binder	4533
<i>J. Rocco, K. Iha, R. Silva, R. Gonçalves</i>	
Interior Ballistics Simulation of Projectile Launch System Utilizing Tubular Solid Propellant.....	4540
<i>H. Miura, A. Matsuo, Y. Nakamura</i>	
Continuum Damage Mechanics Modeling of Solid Propellant.....	4552
<i>R. Kunz</i>	
Solid Propellant Application in High Speed Underwater Projectiles and Bullets	4561
<i>M. Ziraksaz</i>	
High Pressure Hydraulic Propulsion	4569
<i>Y. Kamm, J. Kanelbaum, A. Gany</i>	
Thrust Oscillations in Solid Rocket Motors	4576
<i>J. Guery, F. Godfroy, S. Ballereau</i>	

Volume 7

From Concept to Design: Progress on the J-2X Upper Stage Engine for the Ares Launch Vehicles.....	4591
<i>T. Byrd</i>	
Refinements in the Design of the Ares V Cargo Launch Vehicle for NASA's Exploration Strategy	4609
<i>J. Sumrall, S. Creech</i>	
Designing the Ares I Crew Launch Vehicle Upper Stage Element and Integrating the Stack at NASA's Marshall Space Flight Center	4622
<i>N. Otte, G. Lyles, J. Reuter, D. Davis</i>	
Ares Launch Vehicle Development Awakens Historic Test Stands at NASA-MSFC	4637
<i>D. Dumbacher, R. Burt, J. Hammond</i>	
High Fidelity URANS Analysis of Swirl Generation and Fan Response to Inlet Distortion	4652
<i>J. Yao, S. Gorrell, A. Wadia</i>	
Development of Circumferential Grooves for Axial Compressors Based on Flow Mechanisms.....	4663
<i>M. Hembera, H. Kau, F. Danner</i>	
Alternate Method of Determining Detonation Transfer Reliability.....	4673
<i>B. Neyer, D. Diemunsch, D. Knick, T. Stoutenborough, R. Tomasoski</i>	
Percussion Primers: An Alternative Approach to Evaluate Output Performance	4681
<i>T. Blachowski, G. Teowee</i>	

A Technical Review of the Problems Encountered in Leak Testing Small Cavity Ordnance Devices.....	4687
G. Neff, J. Neff	
Pyrotechnic Shock Testing: Real Test Laboratory Experiences at Ensign-Bickford Aerospace and Defense	4695
S. Keon	
Single-Stage Axial Compressor for the Study of Rotating Stall Suppression	4703
F. Carpenter, S. Johnson, P. Cizmas, O. Rediniotis	
Reduced Gravity Testing of the Nanoparticle Field Extraction Thruster.....	4714
S. Morris, B. Drenkow, T. Liu, T. Biehle, J. Munski, H. Han	
Effect of Cathode Position on Hall-Effect Thruster Performance and Near-Field Plume Properties.....	4732
J. Sommerville, L. King	
Low Power Cylindrical Hall Thruster Performance and Plume Properties	4752
K. Diamant, J. Pollard, Y. Raitses, N. Fisch	
Development of BEPPA: An Object-Oriented Parallel Code for Full 3-D Spacecraft Plume Analysis and Satellite Design	4763
D. Allison, J. Baldwin, M. Scharfe	
Performance of Heavy Ionic Liquids with Porous Metal Electrospray Emitters	4777
R. Legge, P. Lozano	
Onset Voltage Modeling of Micromachined Colloid Thrusters	4787
R. Krpoun, H. Shea	
Near Plume laser Induced Fluorescence Velocity Measurements of a 600 W Hall Thruster.....	4795
W. Hargus, C. Charles	
The Role of Current-Free Double-Layers in Plasma Propulsion.....	4805
E. Ahedo, M. Martínez Sánchez	
Effects of Sheath Instability on Properties of a Hall Thruster.....	4817
D. Sydorenko, I. Kaganovich, Y. Raitses	
Laser-Electrostatic Acceleration Characteristics of a Laser-Electric Hybrid Thruster.....	4823
T. Ono, Y. Uchida, H. Horisawa, I. Funaki	
Low Power Behavior of The High Power Electrodeless Plasma Thruster	4832
G. Emsellem, S. Larigalde	
Operational Characteristics of a Low-Energy FARAD Thruster	4840
K. Polzin, M. Rose, R. Miller	
Neutralization for Micro Propulsion - Experiments and SPIS Simulations.....	4848
J. Mateo-Velez, J. Roussel, T. Tondu, F. Boulay, D. Sarrai, E. Chesta	
Experimenal Characterization of a Carbon Nanotube Field Emission Cathode.....	4856
L. Williams, M. Walker, V. Kumsomboone, W. Ready	
On the Role of Vortex Shedding in Hybrid Rockets Combustion Instability	4865
C. Carmicino, A. Russo Sorge	
The Bidirectional Vortex with Sidewall Injection	4884
E. Halpenny, J. Majdalani	
Intrinsic Flow Oscillation in Channel Flow with Wall Blowing.....	4914
Y. Na, C. Lee	

Development of an Analytical Solution to the Heat Transfer Equation in the Burning Paraffin Fuel.....	4923
<i>A. Davidy</i>	
Energy Based Mean Flow Solutions for Slab Hybrid Rocket Chambers	4932
<i>T. Saad, J. Majdalani</i>	
Mixing Lengths of Reacting and Nonreacting Coaxial Injectors in a Laboratory Rocket Combustor	4948
<i>S. Schumaker, J. Driscoll</i>	
Numerical Simulation of Mixing Between Established Gas Flow and Start-up Injected Gas Inside a Chamber.....	4960
<i>D. Voytovych, C. Merkle, R. Lucht</i>	
Fate of Cryogenic Fluid Flow and Atomization from a Sheer Coaxial Injector Under Pre-Ignition Conditions	4983
<i>V. Gautam, A. Gupta</i>	
Performance Modeling and Analysis of H₂O₂ Catalytic Pellet Reactors.....	4999
<i>A. Pasini, L. Torre, L. Romeo, L. d'Agostino</i>	
Comparative Characterization of Advanced Catalytic Beds for Hydrogen Peroxide Thrusters.....	5014
<i>L. Romeo, L. Torre, A. Pasini, L. d'Agostino, F. Calderazzo</i>	
Green Propellants Perspectives for Future Missions	5025
<i>Y. Maisonneuve, D. Valentian, N. Cucco, A. Souchier, M. Muszynski</i>	
Diagnostic Development for Oxygen / Hydrogen Rocket Flowfield Characterization	5035
<i>J. Locke, S. Pal, R. Santoro</i>	
Large Eddy Simulation of Flame-Turbulence Interactions in a GH₂-GO₂ Shear Coaxial Injector	5050
<i>M. Masquelet, S. Menon</i>	
Measurement and Analysis of Heat Transfer in a Multi-Element Hydrogen/Oxygen Rocket Combustor	5068
<i>M. deRidder, D. Helderman, N. Nugent, W. Anderson</i>	
The Influence of Compressibility on Film Cooling Effectiveness.....	5077
<i>K. Dellimore, A. Marshall, C. Cadou</i>	
Ground Testing NTP Systems: A Review of Potential Test Options and Recommendation on Preferred Approach.....	5092
<i>T. Hill, J. Werner</i>	
Nuclear Thermal Propulsion for Human Exploration and Potential Threat Mitigation of Near Earth Objects	5104
<i>S. Borowski, D. McCurdy, T. Packard</i>	
Analysis of a Grooved-Ring Reactor Concept for Nuclear Thermal Rocket Propulsion	5114
<i>D. Kirk, M. Ashemimry, J. Apeloig, W. Emrich</i>	
Fuels Irradiation Testing - A Critical Component of an Affordable Integrated NTP Ground Test Strategy	5131
<i>B. Schnitzler, M. Stewart</i>	
Ammonia Borane Based-Propellants.....	5142
<i>J. Lee, M. Weismiller, T. Connell, G. Risha, R. Yetter, P. Gilbert, S. Son</i>	
Research on Aluminum-Water Propulsion System.....	5153
<i>Y. Sun</i>	

A Study of Flame Spread Over Convectively Ignited Solid Fuel in a Sudden-Expansion Combustor.....	5160
<i>J. Yang, F. Hsiao, Y. Lin</i>	
Combustion and Characterization of Nanoscale Aluminum and Ice Propellants.....	5170
<i>T. Sippel, S. Son, G. Risha, R. Yetter</i>	
Onset of Thermo-Acoustic Instability in a Non-Premixed Backward Facing Step Combustor	5180
<i>O. J. Shreenivasan, S. R. Chakravarthy</i>	
Premixed Flame Kinematics in an Axially Decaying, Harmonically Oscillating Vorticity Field	5191
<i>D. Shin, T. Lieuwen, S. Shanbhogue</i>	
Comparison Between Numerically Simulated and Experimentally Measured Flowfield Quantities Behind a Pulsejet.....	5207
<i>T. Geng, D. Paxson, F. Zheng, A. Kuznetsov, W. Roberts</i>	
Determination of Thermochemical Properties of Aerospace Materials	5219
<i>A. Davidy, A. Achlama, H. Levy, R. Grosfeld, I. Abramovich</i>	
A Novel Approach to Analytically Capture the Change in Propellant Recession Speed due to Propellant Porosity	5232
<i>L. Hunter, J. Kuttler, R. Thellen, A. Hayes, B. Leary, J. Emhoff, M. Lebovic</i>	
Two-Phase Internal Flow-Field Characterization of a Solid Rocket Motor Model	5247
<i>B. Toth, J. Anthoine, J. Steelant</i>	
Design and Validation of a Six Degree of Freedom Rocket Motor Thrust Stand	5258
<i>D. Kirk, Z. Brimhall, N. Divitotawela, J. Atkinson, H. Peebles</i>	
Experimental and Numerical Investigation of Taylor Flow in a Cold Flow Model of SRM	5273
<i>D. Laboureur, B. Toth, J. Anthoine</i>	
Computational Modeling of Solid Grain Designs on Nozzle Erosion	5282
<i>Y. Chen, B. Wu</i>	
Assessing the Mixedness of Composite Solid Rocket Propellants Using Fluorescent Particles.....	5290
<i>T. Sammet, M. Stephens, B. Corbin, E. Petersen</i>	
Thrust Vector Model and Solid Rocket Motor Firing Validations.....	5298
<i>E. Orbekk</i>	
Space Shuttle Transition Management Status.....	5310
<i>E. Henderson, G. Norbraten</i>	
NASA's In-Space Propulsion Technology Project: An Overview of Product Status	5322
<i>T. Kremic</i>	
Combining the Cruise and Pegasus Missiles for Spy Micro-Satellite Launching (Part Two: Primary Sketch)	5329
<i>M. Ziraksaz</i>	
Numerical Design and Optimization of Casing Treatments for Transonic Axial Compressors	5336
<i>M. Hembera, F. Danner, H. Kau, G. Brignole</i>	

Volume 8

Initial Characterization of Three-Dimensional Flow Separation in a Compressor Stator	5347
<i>S. Bailie, G. Hile, S. Puterbaugh</i>	
Supersonic Combustion Research Laboratory Uncertainty Analysis	5361
<i>S. Smith, A. Scheid, D. Eklund, M. Gruber, H. Wilkin, T. Mathur</i>	

Influence of Thermochemistry on Mach Reflection in Hypersonic Flow.....	5381
<i>M. Sharma, J. Austin, N. Glumac</i>	
Boundary Layer Separation Control by Nanosecond Plasma Actuator.....	5387
<i>D. Roupasov, A. Starikovskii, A. Nikipelov, M. Nudnova</i>	
Kinetic Mechanism of Plasma-Assisted Ignition of Hydrocarbons	5413
<i>I. Kosarev, N. Aleksandrov, S. Kindusheva, S. Starikovskaia, A. Starikovskii</i>	
Laser-Based Measurements of OH, Temperature, and Water Vapor Concentration in a Hydrocarbon-Fueled Scramjet	5435
<i>M. Gruber, C. Carter, M. Ryan, G. Rieke</i>	
Reaction Zone Imaging in a Dual-Mode Scramjet Combustor Using CH-PLIF.....	5453
<i>D. Micka, J. Driscoll</i>	
Large-Eddy Simulation of Non-equilibrium Plasma-Assisted Combustion in Supersonic Flow	5465
<i>K. Miki, J. Schulz, S. Menon</i>	
Three-Component Velocimetry in a Scramjet Combustor.....	5481
<i>C. Smith, C. Goyne</i>	
A Hermeticity Study of Selected CAD/PAD Devices	5499
<i>T. Blachowski, A. Dalton, K. Rink, B. Poulsen, C. Fischer</i>	
Historic Overview of Explosive Transfer Line Technology	5510
<i>D. Novotney</i>	
U.S. Navy and the CAD/PAD Joint Program Office Electronic Time Delay Cartridge: SDI Development Program - 2008 Update.....	5515
<i>T. Blachowski, A. Tirmizi, G. Teowee, D. Culhane</i>	
Parachute Mortars; An Engineering Review	5526
<i>I. Whalley</i>	
Creation of Onset Voltage Hash by Anode Spots in Magnetoplasmadynamic Thrusters.....	5533
<i>L. Uribarri, E. Choueiri</i>	
Preliminary Development and Testing of a Self-Injecting Gallium MPD Thruster	5548
<i>R. Thomas, R. Burton, K. Polzin</i>	
Miniature Valve for Xenon Thrusters	5560
<i>A. Lengyel, R. Wirz</i>	
Research and Development of Hall-Effect Thrusters at Osaka Institute of Technology	5568
<i>H. Tahara</i>	
The Erosion Prediction Impact on Current Hall Thruster Model Development.....	5584
<i>W. Eagle, I. Boyd, S. Trepp, R. Sedwick</i>	
Permanent Magnet Hall Thruster for Satellite Orbit Raising with Low Energy Consumption	5595
<i>J. Ferreira, D. Mourão, J. Campos de Souza, G. Pôssa, G. Sandonato</i>	
Hall Effect Thrusters Ceramics Sputtering Yield determination by Monte Carlo Simulation.....	5609
<i>T. Tondu, V. Viel-Inguimbert, J. Roussel, S. D'Escrivan</i>	
High-Sensitivity Boron Nitride Sputter Erosion Measurements by Continuous- Wave Cavity Ring-Down Spectroscopy	5619
<i>A. Yalin, L. Tao, R. Sullenberger, M. Oya, N. Yamamoto, A. Galli</i>	
Preliminary Results of Low Energy Sputter Yields of Boron Nitride due to Xenon Ion Bombardment	5633
<i>J. Topper, B. Rubin, A. Yalin, C. Farnell</i>	

A Fast Method of Fully Characterizing Sputtering Angular Dependence	5648
<i>M. Gorrilla, L. Brieda, M. Nakles, A. Barrie</i>	
Ion Energies in an Open-Diode Hollow Cathode Discharge.....	5657
<i>A. Grubisic, J. Polk</i>	
Developmental Progress of the Nanoparticle Field Extraction Thruster	5674
<i>T. Liu, B. Drenkow, L. Musinski, A. Gallimore, B. Gilchrist, J. Mirecki-Millunchick, D. Morris</i>	
Nanoparticle Field Extraction Thruster (nanoFET): Introduction to, Analysis of, and Experimental Results from the “No Liquid” Design Option.....	5690
<i>L. Musinski, T. Liu, B. Gilchrist, A. Gallimore, I. Eu, J. Mirecki-Millunchick, D. Morris</i>	
Radioisotope Electric Propulsion (REP): A Near-Term Nuclear Propulsion System	5709
<i>G. Schmidt, D. Manzella, H. Kamhawi, T. Kremic, L. Dudzinski</i>	
Background Pressure Effects on Internal and Near-Field Ion Velocity Distribution of the BHT-600 Hall Thruster	5717
<i>M. Nakles, W. Hargus</i>	
Laser-Induced Fluorescence of Singly-Charged Xenon in a 6-kW Hall Thruster Plume	5726
<i>W. Huang, B. Reid, T. Smith, A. Gallimore</i>	
Simulation of Hall Thruster Plumes in a Vacuum Chamber Using a Hybrid Method.....	5739
<i>T. Huismann, I. Boyd</i>	
Cryogenic Pressure Control Modeling for Ellipsoidal Space Tanks in Reduced Gravity	5750
<i>A. Lopez, G. Grayson, F. Chandler, L. Hastings, A. Hedayat</i>	
Surface Tension PMD Tank for On Orbit Fluid Transfer	5759
<i>W. Tam, I. Ballinger, D. Jaekle</i>	
Single Crystal Silicon as a Macro-World Structural Material: Design of Compact, Lightweight High Pressure Vessels	5776
<i>T. Garza, A. Epstein</i>	
Catalyst Bed Sizing of 50 Newton Hydrogen Peroxide Monopropellant Thruster	5785
<i>S. An, S. Kwon</i>	
Development of a Liquid Propellant Rocket Utilizing Hydrogen Peroxide as a Monopropellant	5794
<i>J. Lee, S. An, S. Kwon</i>	
Acoustics of Rocket Combustors Equipped with Absorber Rings	5798
<i>M. Oschwald, Z. Farago</i>	
Scaling of Performance in Liquid Propellant Rocket Engine Combustion Devices	5808
<i>J. Hulka</i>	
Nonlinear Acoustic Damping Induced by Gas-Liquid Scheme Injector in an Acoustic Tube	5829
<i>I. Park, J. Park, C. Sohn</i>	
On Destructive Liquid Rocket Resonant Combustion	5834
<i>R. Litchford, W. Luo</i>	
CARDIM Rocket Engine Design Tool	5851
<i>A. Iannetti, G. Albano, J. Masse</i>	
A Reduced Order Model for Preliminary Design and Performance Prediction of Tapered Inducers: Comparison with Numerical Simulations	5866
<i>L. d'Agostino, L. Torre, A. Cervone, A. Milani, A. Pasini</i>	
Structural Analysis of Propulsion System Components of an Indigenous Cryogenic Rocket Engine	5878
<i>A. Asraff, R. Muthukumar, T. Ramnathan, C. Balan</i>	

An Overview of Advanced Concepts for Space Access	5885
<i>A. Ketsdever, M. Young, A. Pancotti, J. Mossman</i>	
Advanced Linear Electron Beam Phased Propulsion	5912
<i>M. Thomas</i>	
Gravity Laws and Gravitational Wave Phenomenon: the Need for Dark Mass or Dark Energy?.....	5926
<i>P. Murad,</i>	
Gravity-Like Fields and Space Propulsion Concepts	5940
<i>W. Dröscher, J. Hauser</i>	
Analysis of Electrogravitics, Electrokinetics and Potential for Space Travel	5959
<i>T. Valone</i>	
Thermal Stability and Heat Transfer Characteristics of RP-2	5968
<i>M. Billingsley</i>	
Supercritical Initiative Cracking of Endothermic Fuel Model Compound n-Dodecane with 1-Nitrop propane	5978
<i>G. Liu, Y. Han, W. Guo, X. Zhang, L. Wang, Z. Mi</i>	
Coke and Its Precursor Formation During n-Dodecane and Toluene Supercritical Catalytic Cracking.....	5983
<i>W. Guo, X. Zhang, G. Liu, G. Chen, Z. Mi</i>	
Thermal Oxidative Stabilities of Endothermic Fuel Model Compounds with Pressure Different Scanning Calorimeter.....	5991
<i>G. Liu, C. Yu, X. Zhang, Z. Mi</i>	
Catalytic Cracking of China No. 3 Aviation Kerosene Under Supercritical Conditions	5996
<i>X. Fan, F. Zhong, G. Yu, J. Li, C. Sung</i>	
Experimental Investigation of Powdered Metals Fuel Ramjet.....	6005
<i>Z. Xia, H. Shen, J. Hu, B. Liu</i>	
Novel Ramjet Propulsion System with H₂O₂-Kerosene Rocket as an Initial Accelerator	6011
<i>G. Park, H. Lim, S. Kwon</i>	
Numerical Simulations Of A Model Solid Rocket Motor Ignition Overpressure Wave	6020
<i>J. Troyes, F. Vuillo</i>	
Delayed Detached Eddy Simulation of a Premixed Methan Air Flame behind a Backward Facing Step.....	6037
<i>B. Sainte-Rose, N. Bertier, S. Deck</i>	
Integrated System Health Management (ISHM) for Test Stand and J-2X Engine: Core Implementation	6050
<i>F. Figueroa, J. Schmalzel, R. Aguilar, M. Schwabacher, J. Morris</i>	
Methodology of Complex Diagnosing System for Aviation GTE	6058
<i>P. Abdullayev</i>	
Vibration Characteristics of Cracked Rotating Beams Using Higher Order Finite Element Technique	6071
<i>Z. Yu, X. Xu, X. Zhu, F. Chu</i>	
Faults Diagnosis of Bearing Using Mathematical Morphology Method	6079
<i>R. Hao, W. Lu, F. Chu</i>	
mLIFE - Integrated Rocket Motor Life Prediction Software System	6087
<i>T. Marvin, J. Steele, C. Byington, J. Rice</i>	
Studies on Boundary Layer Effects on Starting Transients of Dual Thrust Motors	6095
<i>V. Sanalkumar, V. Hiremath, I. Rao</i>	

Volume 9

An Ignition-to-Burn Out Analysis of SRM Internal Ballistic and Performances	6104
<i>M. Di Giacinto, B. Favini, E. Cavallini, F. Serraglia</i>	
Reusability Studies for Ares I and Ares V Propulsion	6123
<i>T. Williams, A. Priskos, A. Schorr, G. Barrett</i>	
Laser-Based Measurements of Gas-Phase Chemistry in Energetic Materials Combustion	6137
<i>F. Grisch, M. Orain, N. Dorval, F. Cauty</i>	
Status on Replacing Rayon Based Carbon Phenolic Ablatives in the MK-104 Motor	6150
<i>G. Williams, J. Murray</i>	
Thermophysical Properties Characterization of Thermoplastic Polyurethane Elastomer Nanocomposites.....	6161
<i>D. Ho, J. Koo, J. Lee, O. Ezekoye</i>	
Uncertainty Assessment of Solid Propellant Burn Rate Characterization at UAH	6196
<i>M. Marshall, J. Evans, D. Lineberry, M. Moser, R. Frederick</i>	
Numerical Study on Acoustic Radiation for Designing Launch-Pad of Advanced Solid Rocket	6206
<i>S. Tsutsumi, K. Fukuda, R. Takaki, E. Shima, K. Fujii, K. Ui</i>	
Thermonuclear Reflect AB-Reactor for Aerospace	6216
<i>A. Bolonkin</i>	
AB-Space Propulsion	6234
<i>A. Bolonkin</i>	
Crew and Cargo Landers for Human Exploration of Mars - Vehicle System Design	6253
<i>M. Benton</i>	
Fuel Stabilization Unit Proof of Concept Engine Demonstration	6278
<i>L. Spadaccini, G. Tillman, J. Gentry, A. Chen</i>	
Forced Response Method for Annular Combustors: Stationary Acoustic Pressure Wave Excitations.....	6293
<i>S. Baik, M. Dede</i>	
Near-Field Flow Measurements of a 2:1 Elliptic Jet with Cylindrical Tabs	6303
<i>S. Verma, L. Venkatkrishnan, S. Sudhakar</i>	
An Experimental Research of the Performance of the Trapped-Vortex Combustor	6316
<i>x. He, j. Zhang, J. Xu, J. Su, M. Wei</i>	
Facilities, Instrumentation, and Modeling for Fluid Filled Tube Experimentation	6324
<i>R. Wills, J. Ervin, L. Gaa</i>	
Full Coverage Film Cooling: Comparison of Experimental and Numerical Data	6335
<i>B. Michel, P. Gajan, A. Strzelecki, B. Wagner, N. Savary, A. Kourta</i>	
Effect of Non-Symmetrical Lateral Diffusion on Film Cooling Effectiveness from a Row of Shaped Holes	6347
<i>H. Zuniga, V. Krishnan, J. Kapat</i>	
Numerical Methods of Protection of Gas Turbine Blades From Influence of High Temperature	6355
<i>R. Mammadov, A. Samedov, A. Pashayev, R. Sadiqov</i>	
Numerical Investigation of the HyShot Supersonic Combustion Configuration	6368
<i>M. Kindler, T. Blacha, M. Aigner, M. Lempke, P. Gerlinger</i>	
Analysis of the Rocket Plug Nozzle Combined Cycle Propulsion System	6380
<i>D. Wood, O. Demaneuf, B. Landrum</i>	

Evolutionary Algorithm Based Approach for RBCC Engines Optimization	6396
<i>D. Pastrone, M. Rosa Sentinella</i>	
Comparison of Scramjet and Shramjet Propulsion for an Hypersonic Waverider Configuration.....	6409
<i>D. Couture, A. deChamplain, R. Stowe, P. Harris</i>	
Integrated Flow Field Calculation of Combustor and Inlet in Variable Flow Ducted Rocket	6421
<i>Q. Fei, H. Guoqiang, L. Jiang, L. Peijin</i>	
Systematic Optimization Approach for Scramjet/Ramjet Heat Exchanger Analysis Tool (SRHEAT)	6427
<i>E. Gamble, D. Giel, C. Raffoul</i>	
Experimental Investigation of Transpiration Cooling with Subsonic and Supersonic Flows at Moderate Temperature Levels	6440
<i>T. Langener, J. von Wolfersdorf, T. Laux</i>	
Heat Transfer Measurement on Slot Film Cooling of Ramjet Combustor.....	6451
<i>K. Lee, J. Song, M. Oh, M. Yu, H. Cho</i>	
Structural Optimization and Design of Cooling Channel Considering Heat Transfer Deterioration of Endothermic Hydrocarbon Fuel.....	6460
<i>W. Zhou, W. Bao, D. Yu, Y. Duan</i>	
Thermal Management System Performance Analysis of Hypersonic Vehicle Based on Closed Brayton Cycle.....	6467
<i>W. Bao, W. Zhou, J. Qin</i>	
Radiosotope Electric Propulsion Centaur Orbiter Spacecraft Design Overview	6476
<i>S. Oleson, M. McGuire, T. Sarver-Verhey, J. Juergens, T. Parkey, J. Dankanich</i>	
Electric Propulsion Thruster Assembly for Future Small Geostationary Comsats	6501
<i>O. Duchemin, F. Marchandise, N. Cornu, E. Bourguignon</i>	
Lifetime Qualification Standards for Electric Thrusters for Deep-Space Missions	6510
<i>J. Brophy, J. Polk, T. Randolph, J. Dankanich</i>	
Plasma Potential Measurements in the Discharge Channel of a 6-kW Hall Thruster	6529
<i>B. Reid, A. Gallimore</i>	
Modeling Electron Transport Within the Framework of Hydrodynamic Description of Hall Thrusters.....	6545
<i>M. Keidar, L. Brieda</i>	
Oscillation Reduction of an Anode-Layer-Type Hall Thruster by Azimuthal Propellant Nonuniformity.....	6553
<i>Y. Fukushima, S. Yokota, K. Komurasaki, Y. Arakawa</i>	
Effects of Cathode Electron Emission of Hall Thruster Discharge	6561
<i>Y. Raitses, E. Granstedt, A. Smirnov, E. Merino, N. Fisch</i>	
Modeling of the Anodic Plasma in Hall Thrusters	6568
<i>M. Keidar</i>	
Effects of Neutral Density on Electron Temperature and Mobility in a Cross-field Trap	6580
<i>E. Fossum, L. King</i>	
Plasma Properties in the Magnetic Nozzle of an Electron Cyclotron Resonance Plasma Source	6590
<i>J. Rovey, R. Stubbers, B. Jurczyk, F. Manley, D. Ruzic, M. Williams</i>	
Plasma-Neutral Heat Transfer in Coaxial RF Argon Discharges	6602
<i>W. Stein, A. Alexeenko, I. Hrbud</i>	
An Ion Machined Accelerator Grid for the ECR Ion Thruster μ20.....	6616
<i>Y. Toyoda, K. Nishiyama, S. Hosoda, Y. Shimizu, H. Kuninaka</i>	

Numerical Modeling of a Miniature Radio-Frequency Ion Thruster.....	6622
<i>V. Mistoco, S. Bilén</i>	
Two-Dimensional Simulation of a Radio-Frequency Ion Thruster Discharge	6637
<i>M. Tsay, M. Martinez-Sanchez</i>	
Pegases: Plasma Propulsion with Electronegative Gases.....	6650
<i>A. Aanesland, G. Leray, P. Chabert</i>	
Low Power Planar Antenna Inductive Discharge Ion Source.....	6656
<i>E. Gillman, J. Foster, P. Cummings</i>	
Current Sheet Formation in a Conical Theta Pinch Faraday Accelerator with Radio-frequency Assisted Discharge	6668
<i>A. Hallock, E. Choueiri, K. Polzin</i>	
Thrust and Specific Impulse Measurements of the Ferroelectric Plasma Thruster	6683
<i>S. Kovaleski, M. Kemp</i>	
Operating Characteristics of a Re-Generable Field Emission Cathode for Low- Power Electric Propulsion	6688
<i>J. Makela, L. King</i>	
Spatially Mapping the Ion Energy Distributions in Hollow Cathode Discharges	6699
<i>J. Przybylowski, J. Polk, J. Shepherd</i>	
Hollow Cathode Life-Time Prediction from Low Work Function Surface Coverage Evolution	6711
<i>M. Coletti, S. Gabriel</i>	
Assessments of Hollow Cathode Wear in the Xenon Ion Propulsion System (XIPS) by Numerical Analyses and Wear Tests	6735
<i>I. Mikellides, I. Katz, D. Goebel, J. Polk</i>	
Rapid Turn-Around Flight Testing of a Next-Generation Prototype RLV.....	6752
<i>J. Garvey, E. Besnard</i>	
Space Transportation System Life Cycle Cost Assessment and Control	6769
<i>J. Robinson, R. Rhodes, E. Zapata, D. Levack</i>	
Towards Direct Numerical Simulations of Transitional/Turbulent Airfoil Wakes.....	6783
<i>M. Rai</i>	
A Hybrid RANS/KES Model for External and Internal Flow Applications	6813
<i>M. Zaki, S. Menon, L. Sankar</i>	
Unsteady CFD Simulations of Contra-Rotating Propeller Propulsion Systems	6828
<i>A. Stuermer</i>	
Valentine Glushko - A Pioneer of Rocket Propulsion and Practical Cosmonautics.....	6844
<i>R. Doulatov, I. Rossikhin, S. Doulatov</i>	
50 Years of Atlas Propulsion Systems	6851
<i>D. Heald</i>	

Volume 10

Validation of High-Fidelity CFD Simulations for Rocket Injector Design.....	6866
<i>P. Tucker, S. Menon, C. Merkle</i>	
Three-Dimensional Hybrid RANS/LES Simulations of a Supercritical Liquid Nitrogen Jet	6886
<i>A. Hosangadi, C. Lee, C. Kannepalli, S. Arunajatesan</i>	
CFD Analysis of Swirl Atomizers	6903
<i>V. Bazarov, J. Hinckel, H. Villa Nova</i>	

Numerical Design Investigation of Hydro-mechanical Pulsator for Liquid Rocket Injector Research	6914
<i>B. Madhanabharatam, V. Bazarov, C. Chen</i>	
Interfacial Area Modeling for Eulerian Spray Simulations in Liquid Rocket Engines	6923
<i>D. Banuti, S. Karl, K. Hannemann</i>	
Conceptual Study for A 1400-kN Class Coolant-Bleed-Cycle Aerospike-Nozzle Engine	6930
<i>T. Tomita, S. Moriya, T. Ito</i>	
Numerical Studies of Thrust Production in 2-D Supersonic Bell Micronozzles	6938
<i>W. Louisos, D. Hitt</i>	
Solving the Flow Separation Issue: A New Nozzle Concept	6947
<i>L. Boccaletto</i>	
Experimental and Numerical Study on Performance of Extendible Nozzle for Altitude Compensation	6960
<i>M. Sato, T. Kimura, S. Moriya, M. Tadano, M. Sato, T. Masuoka, M. Yoshida</i>	
3D Novoltex® and Naxeco® Caron-Carbon Nozzle Extensions; Matured, Industrial and Available Technologies to Reduce Programmatic and Technical Risks and to Increase Performance of Launcher Upper Stage Engines	6968
<i>A. Lacombe</i>	
TMF Panel Test: Close-to-Reality Simulation of Thermo-Mechanical Fatigue Processes in Heat-Loaded Walls	6978
<i>A. Gernoth, J. Riccius, O. Haidn, L. Brummer, B. Mewes, C590K. Quering</i>	
Design and Commissioning of a Combustion Chamber for Cooling and Material Investigations	6988
<i>C. Kirchberger, G. Schlieben, R. Wagner, H. Kau</i>	
Preliminary Study of Heat Transfer Correlation Development and Pressure Loss Behavior in Curved High Aspect Ratio Coolant Channels	7005
<i>J. Nathman, J. Niehaus, J. Sturgis, A. Le, J. Yi</i>	
Heat Transfer Simulations in Liquid Rocket Engine Subscale Thrust Chambers	7017
<i>H. Negishi, A. Kumakawa, N. Yamanishi, A. Kurosu</i>	
Circumferential Behavior of Tangential Film Cooling and Injector Wall Compatibility in a High Pressure LOX/GH₂ Subscale Combustion Chamber	7032
<i>R. Arnold, D. Suslov, B. Weigand</i>	
Demonstration Tests Results for 1 Lbf Long Life Monopropellant Thruster	7044
<i>J. Gervasi, M. Marvin, K. Josten, H. Conomos, R. Driscoll</i>	
Design of a Mars Airplane Propulsion System for the Aerial Regional-Scale Environmental Survey (ARES) Mission Concept	7056
<i>C. Kuhl</i>	
870lbf Reaction Control System Tests Using LOx/Ethanol and LOx/Methane at White Sands Test Facility	7074
<i>M. Villemarette, E. Hurlbert, T. Angstadt, J. Collins, T. Peters</i>	
Characterization of Gas-Centered Swirl-Coaxial Injector Stability in a Subscale Multi-Element Combustor	7091
<i>B. Pomeroy, J. Sisco, J. Eckstein, W. Anderson</i>	
Computational Simulations of the Effect of Chamber Diameter on Single-Element Rocket Combustor Instability	7098
<i>G. Xia, R. Smith, W. Anderson, C. Merkle</i>	
Acoustic Stability of Model Injector Flames Using H₂-CH₄ Fuel Mixture	7117
<i>Q. Diao, A. Ghosh, K. Yu</i>	

Development of a Hybrid RANS-LES All-Speed Algorithm for Liquid Rocket Combustion	. 7132
<i>S. Thakur, J. Wright</i>	
Advanced Non-Gray Radiation Module in the Loci Framework for Combustion CFD	..... 7146
<i>S. Rani, E. Luke</i>	
Evaluation of Curved Element Discontinuous Galerkin Meshes	..... 7164
<i>E. Collins, E. Luke</i>	
Effect of Nickel Coating on Aluminum Combustion and Agglomeration in Solid Propellants	..... 7175
<i>Y. Yavor, A. Gany</i>	
Combustion of Aluminum Particles in the Transition Regime Between the Diffusion and Kinetic Limits	..... 7187
<i>P. Lynch, N. Glumac, H. Krier</i>	
Behaviour of Nano-Aluminum in Solid Propellant Combustion	..... 7194
<i>K. Jayaraman, S. Chakravarthy, R. Sarathy</i>	
Experimental Study of Ignition of Magnesium Powder by Electro-Static Discharge	..... 7203
<i>E. Beloni, E. Dreizin</i>	
Characterization of Aluminum at the Surface of Fine-AP/HTPB Composite Propellants	..... 7213
<i>J. Mullen, M. Brewster</i>	
An Investigation of Novel Metal Complexes as Composite Propellant Burn Rate Modifiers	..... 7229
<i>P. Gilbert, C. Zaseck, R. Nazario, S. Son</i>	
History of Ducted Rocket Development at Bayern-Chemie	..... 7235
<i>H. Besser</i>	
Fit for Mission-Design Tailoring Aspects of Throttleable Ducted Rocket Propulsion Systems	..... 7255
<i>H. Besser, H. Weinreich, G. Kurth</i>	
Air Intake Development for Supersonic Missiles	..... 7271
<i>G. Kurth, C. Bauer</i>	
Status of Ramjet Programs in the United States	..... 7282
<i>P. Hewitt</i>	
Flying Routinely - Flying Successfully: Sustainable Carbon Phenolic Nozzles	..... 7292
<i>R. Ellis, S. Peake, B. Broquere</i>	
Development of an On-Board Failure Diagnostics and Prognostics System for Solid Rocket Booster	..... 7304
<i>V. Smelyanskiy, S. Uckun, D. Luchinsky, V. Osipov</i>	
Towards Identifying Rocket Motor Failure Modes Using Computational Fluid Dynamic and Finite Element Codes	..... 7318
<i>C. Dennis, J. Belfield, K. Rawley, P. Sutton, J. Earl</i>	
The French Deterrent Force SRMs: Genesis of Flexseals	..... 7329
<i>M. Berdoyes, M. Calabro</i>	
Extending the Capabilities of a High-Speed Wind Tunnel to Secondary Flow Measurements in Transonic Linear Turbine Cascades	..... 7341
<i>F. Taremi, S. Sjolander, H. Abo El Ella</i>	
Vibration Performance of a Two-Stage Turbine Rotor	..... 7355
<i>T. Darvishzadeh, V. Yaghoubi</i>	
Analysis of Axial Turbines Behavior by means of Comparing Experimental and Theoretical Results	..... 7365
<i>M. Karimi, A. Hajilouy</i>	

Multi-Core Processors: An Enabling Technology for Embedded Distributed Model-Based Control	7376
<i>A. Behbahani, N. Gibson, M. Rangarajan</i>	
Expectation and Vision for True modular Distributed Engine Control – Beyond 1st Project	7387
<i>M. Jakovljevic, L. Fulcher, D. Benson</i>	
Sensing Challenges for Controls and PHM in the Hostile Operating Conditions of Modern Turbine Engine	7398
<i>A. Behbahani, K. Semega</i>	
Communication Needs Assessments for Distributed Turbine Engine Control.....	7410
<i>D. Culley, A. Behbahani</i>	
Electric Propulsion Electronics Activities in Europe	7424
<i>M. Gollor, S. Weinberg, M. Boss, E. Bourguignon</i>	
NEXT Ion Propulsion System Progress Towards Technology Readiness	7440
<i>S. Benson, M. Patterson, J. Snyder</i>	
Analysis of System Margins on Deep Space Missions Using Solar Electric Propulsion.....	7452
<i>D. Oh, D. Landau, T. Randolph, P. Timmerman, J. Chase, J. Sims, T. Kowalkowski</i>	
Angularly-Resolved ExB Probe Spectra in the Plume of a 6-kW Hall Thruster.....	7482
<i>B. Reid, R. Shastry, A. Gallimore, R. Hofer</i>	
An Ammonia Microresistojet (MRJ) for Micro Satellites.....	7503
<i>M. Robin, T. Brogan, E. Cardiff</i>	
Flight Test and Analysis of a Multi-Chamber Aerospike Engine	7514
<i>M. Baker, A. Shibuya, D. Verma, C. Bostwick, P. Skaar, E. Besnard</i>	
Performance Characteristics of an Annular Conical Aerospike Nozzle with Freestream Effects.....	7531
<i>S. Verma</i>	
Jet Engine Control Using Ethernet with a BRAIN.....	7541
<i>B. Hall, M. Paulitsch, D. Benson, A. Behbahani</i>	
Mini-Helicon Plasma Thruster Characterization	7559
<i>O. Batishchev</i>	
Ultrafast Laser Ablation for Space Propulsion	7571
<i>O. Batishchev, J. Cambier, A. Batishcheva</i>	
Tungsten and Barium Transport in the Internal Plasma of Hollow Cathodes	7587
<i>J. Polk, I. Mikellides, I. Katz, A. Capece</i>	
In-Space Performance of "KAGUYA" Lunar Explorer Propulsion Subsystem.....	7607
<i>I. Masuda, D. Goto, H. Kagawa, K. Kajiwara, T. Sasaki, M. Tamura, M. Takahashi</i>	
Video Presentation ; A Journey to the distant Moon -Tracking the SELENE "KAGUYA"-....	7618
<i>H. Kagawa, S. Sobue, I. Masuda</i>	
Video Presentation "KAGUYA HDTV Movies and Data Collection"	7619
<i>H. Kagawa, S. Sobue, I. Masuda</i>	

Author Index