

# **Asia-Pacific International Symposium on Aerospace Technology**

**(APISAT 2010)**

**Xi'an, China  
13-15 September 2010**

**Volume 1 of 2**

ISBN: 978-1-63439-698-1

**Printed from e-media with permission by:**

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



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

Copyright© (2010) by Northwestern Polytechnical University  
All rights reserved.

Printed by Curran Associates, Inc. (2015)

For permission requests, please contact Northwestern Polytechnical University  
at the address below.

Northwestern Polytechnical University  
127 West Youyi Road  
Xi'an Shaanxi, 710072, P.R. China

<http://en.nwpu.edu.cn>

**Additional copies of this publication are available from:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: 845-758-0400  
Fax: 845-758-2634  
Email: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

# TABLE OF CONTENTS

## VOLUME 1

<b>Research Activities on Supersonic Technology at JAXA</b> .....	3
<i>A. Murakami</i>	
<b>An Orbit Maneuver Optimal Algorithm Based on Time Performance Index</b> .....	7
<i>K. Xu, J. Wang, Z. Zhao, M. Wang</i>	
<b>Lateral-Directional Departure Susceptibility and Divergence of High Lift Hypersonic Vehicle</b> .....	11
<i>J. Zhao, Q. Shen, L. Zhang, L. Zhu</i>	
<b>"CST" Parametric Geometry Representations for Waveriders</b> .....	15
<i>P. Li, W. Chen, W. Guo</i>	
<b>Towards Efficient High-Dimensional Aerodynamic Shape Optimization: Surrogate Modeling Via Gradient-Enhanced Kriging</b> .....	19
<i>Z. Han, K. Zhang</i>	
<b>Numerical Study on the Performance of the Ventilation Cooling System for Helicopter Engine Nacelle in Hovering</b> .....	23
<i>Y. Xie, H. Gao, Y. Zhang, P. Chi, J. Yu</i>	
<b>The Role Analysis in Contingency Plan for A Heavy Payload Airship with Lift and Buoyancy Integration</b> .....	28
<i>H. Wang, B. Song, K. Zhang, W. An</i>	
<b>Hypersonic Vehicles Configuration Design and Aerodynamic Characteristics Study</b> .....	33
<i>S. Gao, Y. Cai, H. Xiao</i>	
<b>Knowledge Based Engineering Platform for Multidisciplinary Fuselage Design and Analysis</b> .....	37
<i>H. Wang, M. Tooren</i>	
<b>The Development of Surrogate Model Based MDO Platform-MEDOC</b> .....	41
<i>S. Chae, K. Yee, S. Obayashi, S. Jeong</i>	
<b>A Method of Separation for Captive on Top Air Launch</b> .....	45
<i>H. Yang, J. Liu, L. Shang, Y. Chen</i>	
<b>Aerodynamic Optimization Design of Wing-Body Configuration with Static Aeroelasticity Effect Consideration</b> .....	49
<i>M. Zhu, X. Yang, K. Zhong</i>	
<b>Development of Analytic Aerodynamic Model for Subsonic Blended-Wing-Body under MDO Environment</b> .....	54
<i>Y. Lin, H. Wang, R. Peng</i>	
<b>Launch Campaign of KIT Student's Experimental Rocket "Ninja-10" and "Sakura" in France</b> .....	58
<i>S. Miyamoto, K. Fukuda, K. Abe, H. Kamoda, H. Goto, K. Nishihara, A. Shiegtomi, S. Fujii, S. Sagara, K. Yonemoto</i>	
<b>Current Status of Experimental Winged Rocket Development</b> .....	62
<i>K. Yonemoto, D. Watanabe, Y. Muranaka, S. Miyamoto</i>	
<b>Military UAV Family Configuration Decision Based on Combining Expert System with Low Fidelity MDO</b> .....	66
<i>R. Peng, H. Wang, Y. Lin, N. Shan</i>	
<b>Simulation Study on Characteristic of Helicopter Nacelle Ventilation System in Forward Flight</b> .....	70
<i>X. Niu, Y. Xie, J. Yu</i>	
<b>High Angle of Attack Flight of a Tail-Sitter UAV</b> .....	75
<i>D. Kubo, K. Muraoka, N. Okada, S. Suzuki</i>	
<b>Modification of Horizontal Tail Wing of the 1953 Buhwal Aircraft for Improved Aerodynamic Performance and Stability</b> .....	79
<i>J. Oh, S. Jung, Y. Yang, T. Cho, R. Myong, K. Park</i>	
<b>An Effect of Wing Corrugation on A Gliding Flight of a Dragonfly</b> .....	82
<i>M. Hashizume, S. Sunada, K. Kawachi</i>	
<b>Aerodynamic Characteristics of "Space Wing"</b> .....	86
<i>K. Tsuji, S. Sunada</i>	
<b>Initial Design and Evaluation of a Novel Concept Regional Aircraft</b> .....	90
<i>T. Nara, M. Kanazaki</i>	
<b>The Efficient-Flight of Four-Wing Ornithopter</b> .....	95
<i>K. Hiraki, K. Fujii, O. Naoki</i>	
<b>Computational Investigation of the High Pressure Water Separator</b> .....	99
<i>W. Zhang, C. Yang, P. Ke</i>	
<b>The Effect of Winglets for the Blended Wing Body Civil Aircraft</b> .....	104
<i>Y. Xiang, X. Liu, J. Wu</i>	
<b>Novel Swing Arm Mechanism Design for Trailing Edge Flaps on Commercial Airliner</b> .....	108
<i>J. Yu</i>	
<b>Aerodynamic Effect Research of Transport Aft Body Parameters</b> .....	111
<i>L. Zhou</i>	
<b>Aircraft Structure Design Based on Modularization</b> .....	116
<i>S. Qiang, Z. Wang, G. Ji</i>	
<b>Brief History and Prospect of Typical Morphing Aircraft</b> .....	120
<i>S. Li, J. Ai</i>	
<b>The RCS Analysis of A Stealth Fighter Based on Multi-level Fast Multipole Algorithm</b> .....	124
<i>J. Wang, R. Guo, Q. Li</i>	
<b>Experiment Investigation and Principium Analysis for Vibration on Aerodynamics of a Model Airfoil</b> .....	129
<i>Y. Xie, Z. Ye, Y. Gao</i>	

<b>Airfoil Stall Suppression by Use of Different Types of Bubble Burst Control Plates Placed on NACA 0012 Airfoil</b> .....	133
<i>K. Rinoie, Y. Sunada</i>	
<b>A New Criterion to Determine the Position of Vortex Breakdown Point</b> .....	137
<i>C. Dong, X. Deng, Y. Wang, G. Wu</i>	
<b>Experimental Research on Control Surface Flow Separation Control and Lift Enhancement Mechanism by Leading Edge Blowing</b> .....	141
<i>X. Deng, P. Wu, Y. Wang, B. Ma</i>	
<b>Wind Tunnel Tests of a Ducted Fan Micro Aerial Vehicle</b> .....	145
<i>T. Shibui, T. Tsuchiya, S. Suzuki, D. Kubo</i>	
<b>Efficient Propeller Selection Method for Electric UAV Using Wind Tunnel Test Data</b> .....	149
<i>J. Ryi, C. Kim, W. Rhee, J. Choi</i>	
<b>Study on Forebody Vortex Cores Under Plasma Actuators</b> .....	153
<i>J. Wang, H. Li, X. Meng, L. Feng, L. Shijun</i>	
<b>The Mechanism of Perturbation-combined Control Technique for Asymmetric Flow over Slender Body at High Attack Angle</b> .....	158
<i>Y. Wang, J. Shan, J. Dong, X. Deng, W. Tian, X. Tian</i>	
<b>Numerical Analyses and Wind Tunnel Tests for the Aerodynamic Characteristics of the Ducted Fan for the VTOL UAV Propulsion</b> .....	162
<i>L. Cho, S. Lee, J. Cho</i>	
<b>Aerodynamic Characteristics of Cylindrical Wing</b> .....	167
<i>K. Shogo, I. Yoshinobu, K. Osamu</i>	
<b>The Experimental Study of Flow Control Using Laser Energy Deposition around High Speed Propulsion System</b> .....	171
<i>S. Lee, H. Lee, I. Jeung</i>	
<b>Experiment Investigation of Side Wall Boundary-Layer Blowing Control System of A Multi-element Airfoil Model in Wind Tunnel</b> .....	175
<i>L. Zhang, Y. Xie</i>	
<b>Longitudinal Aerodynamics at High Alpha on Several Planforms of Cranked Arrow Wing Configurations</b> .....	179
<i>D. Kwak, K. Rinoie, H. Kato</i>	
<b>Experimental Investigation of Span-wise Folding Motion in Flapping Wings</b> .....	183
<i>L. Wang, B. Song, G. Gao</i>	
<b>Effects of Forebody Models and Internal Flow Supplying Methods on An Experimental Study of A Scramjet Asymmetric Nozzle</b> .....	187
<i>W. Yang, M. He, W. Zhang, L. Qin, Y. Liu</i>	
<b>Study on the Characteristics of Separate Flow under the Influenced of Plasma Actuators on Forebody</b> .....	191
<i>Z. Zaho, C. Gao, J. Wang, X. Meng, F. Liu, S. Luo</i>	
<b>Flow Control Mechanisms Study over Conical Forebody Using Plasma Duty Cycles</b> .....	195
<i>X. Meng, J. Wang, Z. Zhao, F. Liu, S. Luo</i>	
<b>Experimental Study on Separation Shock Wave Unsteadiness in Hypersonic Shock Wave/Boundary Layer Interaction</b> .....	199
<i>H. Itoh</i>	
<b>Flow Characteristics Induced by Periodic-Pulsed Plasma over A Conical Forbody</b> .....	203
<i>H. Qin, H. Li, S. Luo, F. Liu</i>	
<b>Vortex Breakdown on Slender Flat-plate Delta Wing with Dorsal Fin</b> .....	207
<i>X. Meng, J. Cai, Z. Qiao, S. Luo, F. Liu</i>	
<b>Application of PSP to 65-deg Delta Wing at Low Speeds</b> .....	211
<i>H. Jeong, D. Seo, Y. Byun, J. Lee, S. Kim</i>	
<b>Vortexing Characteristics During Draining from Cylindrical Fuel Tanks with Inclined Bottom Surface</b> .....	215
<i>S. Eun, J. Jea, Z. Gao, H. Chang</i>	
<b>Flow Control on Elliptic Airfoil Using Synthetic Jets</b> .....	219
<i>S. Kim, C. Kim, D. Lee</i>	
<b>PIV Study on Flow Characteristics of Periodic-Pulsed Dielectric-Barrier-Discharge over A Conical Forebody</b> .....	223
<i>B. Zheng, C. Gao, Y. Li, J. Wang, F. Liu, S. Luo</i>	
<b>Scalar and Vector Analysis of the Flow Topology</b> .....	228
<i>L. Wang</i>	
<b>PIV Study on Ensemble and Phased-Locked of Periodic-Pulsed Dielectric-Barrier-Discharge over A Conical Forbody</b> .....	232
<i>C. Ma, H. Li, F. Liu, S. Luo</i>	
<b>Numerical Investigation of Transonic Flow over the Release of A Store from A Delta Wing</b> .....	236
<i>S. Yang, J. Hsieh, W. Cheng</i>	
<b>Theoretic Analysis and Experimental Investigation on Ejector/Ramjet Mode Transition of RBCC</b> .....	240
<i>C. Yan, G. He, Y. Liu, P. Liu</i>	
<b>Aero-acoustics Calculation and Noise Reducing Techniques of Multi-Blade Centrifugal Fan</b> .....	244
<i>F. Han, D. Xi, Z. Liang</i>	
<b>The Aerodynamic Design and Aeroacoustics Estimation of High-lift for Civil Transportation</b> .....	249
<i>X. Hao, W. Zhang</i>	
<b>Rotor-Stator Interaction Broadband Noise</b> .....	253
<i>I. Vinogradov, H. Xun</i>	
<b>Experimental Study for Reducing Tip Noise Generated from Trailing - Edge Flap of a Supersonic Configuration</b> .....	255
<i>Z. Lei, H. Ura, M. Noguchi</i>	

<b>Sound Identification and Speaker Recognition for Aircraft Cockpit Voice Recorder</b> .....	260
<i>Y. Lin</i>	
<b>The Method for Evaluating Aircraft Operational Lateral Noise Levels</b> .....	264
<i>Y. Shen, Y. Zhou, G. Yan</i>	
<b>An Observer for Phased Microphone Array Signal Processing with Nonlinear Output</b> .....	269
<i>B. Long, H. Xun</i>	
<b>Optimization of Blade Tip Planform for A Quiet Helicopter Rotor</b> .....	275
<i>J. Xu, W. Song, R. Xu, Z. Han</i>	
<b>The Drag Reduction Design for Transonic Airfoil with Consideration of Laminar Transition</b> .....	279
<i>L. Wang, W. Song, K. Zhang, X. Yang</i>	
<b>Curvature-Corrected Surface Boundary Condition for the Euler Equations on Cartesian Grids</b> .....	283
<i>W. Sang, L. Xu, X. Lei</i>	
<b>A New Numerical Method of Modeling Ice Accretion</b> .....	288
<i>J. Hu, Z. Liu, L. Zhang</i>	
<b>Solving Fluid/Rigid Body Interaction Problem by a Cartesian Interface Method</b> .....	292
<i>B. Zhang, Y. Liu, L. Qin, G. Wang</i>	
<b>Influence of Injection Angle on the Mixing Efficiency in Supersonic Flow with a Transverse Sonic Jet</b> .....	296
<i>Z. Gao, C. Lee</i>	
<b>P.-Multigrid Solution of Discontinuous Galerkin Discretizations of Euler Equations on Unstructured Meshes</b> .....	301
<i>H. Hao, Y. Yang</i>	
<b>Low-diffusion Preconditioning Roe's Scheme and Simulation of Low-speed Flows</b> .....	305
<i>N. Cao, S. Wu</i>	
<b>Prediction of Transition over Airfoils by Using Parabolized Stability Equation</b> .....	309
<i>D. Park, S. Park</i>	
<b>A New Kinetic-Based Solver for Solving Compressible Flow on Arbitrary Polyhedral Grids</b> .....	314
<i>S. Li, G. Yang</i>	
<b>Development of Parallel LES and Numerical Simulation of Hypersonic Turbulent Flows</b> .....	319
<i>H. Zou, P. Li</i>	
<b>A Multiblock Flow Solver with Multigrid Accelerating Technique</b> .....	323
<i>G. Li, F. Li, W. Sang, Z. Zhou</i>	
<b>Investigation on Longitudinal Optimum Location of Nacelles and Pylons on Transport Aircraft</b> .....	328
<i>J. Yu, W. Sang, X. Lei</i>	
<b>Numerical Simulation of Ice Accretion on Airfoil Based on Spring Analogy</b> .....	332
<i>Y. Zhang, W. Sang, X. Lei</i>	
<b>A Waverider Design Method Based on Given Shapes of Shock and Lower Surface</b> .....	336
<i>C. Jiang, J. Zhang, C. Lee</i>	
<b>Comparison of Typical Turbulence Models in Design of Commercial Aircraft</b> .....	341
<i>J. Liu, Y. Zhang, W. Zhang</i>	
<b>Numerical Code Validations and Quantitative Analyses of Ice Accretion Shapes</b> .....	345
<i>C. Son, S. Oh, K. Yee</i>	
<b>The Effect of Icing on Aerodynamic Characteristics of Main Wing Section of the KC-100 Aircraft</b> .....	350
<i>C. Lee, S. Jung, S. Shin, R. Myong, T. Cho</i>	
<b>Efficient Approach for CFD-based Aerodynamic Optimization Using Multi-Stage Surrogate Model</b> .....	354
<i>T. Long, L. Liu, L. Peng</i>	
<b>Application of Method of Characteristics in Three Dimensional Supersonic Flows of Nozzles</b> .....	359
<i>N. Zaw, G. Liang</i>	
<b>Comparison of Performances of FLux Difference and Advection Upstream Splitting Method on Aerodynamic Characteristics of A Tail Finned Body Configuration</b> .....	363
<i>M. Sohail, Z. Muhammad, M. Younis, Z. Tun, T. Rahman, M. Afzal</i>	
<b>Combustion Instability and LES Analysis in Hybrid Rocket Motor</b> .....	367
<i>B. Kim, C. Lee, N. Yang</i>	
<b>The Tether Cable Motion Analysis of Mid-sized Aerostat Using Non-linear Cable Dynamics</b> .....	371
<i>W. Kang, I. Lee, D. Lee, C. Yeom, H. Lee, D. Kim</i>	
<b>Three-dimension Numerical Simulation of A Supersonic Flow with Transverse Hydrogen Jet</b> .....	375
<i>C. Yu, L. Yang</i>	
<b>Numerical Simulation and Aerodynamic Analysis of the WIG Craft Flying over Waves Based on Overset Technique</b> .....	379
<i>M. Du</i>	
<b>Preliminary Design of Ground Platefor Wind Tunnel Test with CFD</b> .....	383
<i>M. Lee, C. Kim, D. Lee</i>	
<b>Trajectory Simulation of Chaff Dipoles of Slender Circular Cylinder</b> .....	387
<i>H. Nam, O. Kwon</i>	
<b>Surface-Flow Patterns A Swept-Back Wing</b> .....	391
<i>S. Yen, C. Hsu</i>	
<b>Numerical Investigation on the Muzzle Flow Field Based on Level Set Method</b> .....	395
<i>B. Zhang, Y. Liu, L. Qin, G. Wang</i>	
<b>Numerically Analyzing More Efficiently High-Lift Aerodynamics of Transport Aircraft with Omni-tree Cartesian Grids</b> .....	399
<i>W. Sang, Q. Liu, X. Lei</i>	

<b>Numerical Simulation of Gust Response for UAV Airfoil</b> .....	403
<i>X. Xu, X. Zhu, Z. Zhou, M. Chang</i>	
<b>Novelty Combining Discontinuous Galerkin Method with Nonuniform Time Steps Technology</b> .....	407
<i>Y. Guo, Y. Yang, H. Hao</i>	
<b>Aerodynamic Research of Flapping/Gliding Flight in Low Reynolds Number Flow</b> .....	410
<i>W. Yang, B. Song, W. Song</i>	
<b>Numerical Investigation of Jet Interaction Flow Field Using High-order Low-dissipative Scheme</b> .....	414
<i>H. Zhen, C. Lee</i>	
<b>Unsteady Simulations of Propeller Flows Based on Dynamic Patched-Grid</b> .....	420
<i>Z. Xia, Y. Yang, J. Jiao</i>	
<b>High Resolution, High Order, Low Dissipative Numerical Scheme for Hypersonic Flows</b> .....	424
<i>M. Younis, T. Rahman, M. Sohail, Z. Muhammad, Z. Tun</i>	
<b>Numerical Simulation of Fluid-solid-thermal Interaction in Hypersonic Flows</b> .....	428
<i>P. Li, S. Wu</i>	
<b>Multi-Objective Aerodynamic Optimization of Truck Deflector Using Genetic Algorithm and CFD Method</b> .....	432
<i>X. Zhao, T. Han, Q. Yang</i>	
<b>Restarted GMRES + LUSGS Implicit Method for Solution of 3D Navier-Stokes Equations</b> .....	435
<i>L. Chen, B. Song, W. Song</i>	
<b>Numerical Investigation of Multi-element Vitiated-air Heater for Scramjet Testing</b> .....	439
<i>C. Chen, X. Xu</i>	
<b>Analysis of Shock and Vortex Breakdown Behavior in Unsteady Transonic Flow on A Slender Delta Wing</b> .....	444
<i>X. Li, Y. Yang, J. Jiao</i>	
<b>Numerical Prediction of Dynamic Derivatives Based on Computational Fluid Dynamics</b> .....	448
<i>Y. Zhang, S. Zhang, R. Wei</i>	
<b>Simulation of Oscillating Airfoil and Rectangular Wing Flow Using Dynamic Cartesian Grids</b> .....	452
<i>S. Zhang, Y. Zhang, W. Zhang</i>	
<b>Higher Order Low Dissipative Scheme Limiters Comparison for Hypersonic Blunt Cone</b> .....	456
<i>M. Sohail, M. Younis, T. Rahman, Z. Muhammad, Z. Tun</i>	
<b>Inviscid and Viscous Computation on Aerodynamic Characteristics of a Conventional Projectile</b> .....	460
<i>M. Sohail, T. Rahman, M. Younis, Z. Tun, Z. Muhammad, Z. Maqbool</i>	
<b>Control of Juncture Flows</b> .....	464
<i>M. Younis, Z. Hua, Z. Oo, Z. Muhammad, H. Bo</i>	
<b>Computation of Drag over Launch Vehicle Fairing Configurations by Using Viscous Modeling</b> .....	468
<i>Z. Tun, T. Rahman, Z. Maqbool, M. Afzal, Z. Muhammad, M. Younis, M. Sohail</i>	
<b>Secondary Instability Control of Compressible Flow by Suction for A Swept Wing</b> .....	472
<i>G. Xu, S. Fu</i>	
<b>Numerical Investigation of Turbulent Transition by A Correlation-Based Model on Unstructured Meshes</b> .....	475
<i>J. You, O. Kwon</i>	
<b>A Monte Carlo Analysis of Lunar Lander Dynamics at Touchdown</b> .....	481
<i>Y. Lu, C. Wang, F. Zeng, G. Wang</i>	
<b>Dynamic Model of Flapping Wing Micro-Aerial-Vehicle</b> .....	485
<i>G. Gao, B. Song, L. Wang, W. Yang, X. Ding</i>	
<b>Development of Software-based Spacecraft Simulator for LEO Flight Software Development &amp; Verification</b> .....	489
<i>J. Choi, J. Lee, S. Yang, Y. Cheon</i>	
<b>An Integrated Digital Simulation Platform for Soft Landing Mechanism</b> .....	494
<i>S. Song, C. Wang</i>	
<b>Influence of Human Pilot's Task Performance After Air Turbulence</b> .....	498
<i>Y. Honda, O. Kobayashi</i>	
<b>The Method Evaluated the Result of Flight Procedure Based on Virtual Terminal</b> .....	502
<i>X. Zhao, L. Li</i>	
<b>Unmanned Aerial Vehicles Flight Testing Denoising Based on SVD</b> .....	506
<i>Z. Deng, T. Zhang, L. Wang</i>	
<b>The Pilot's Compensatory Controllability Effected by the Angular Motion Cue</b> .....	510
<i>K. Yuta, K. Osamu</i>	
<b>An Analysis of Dutch Roll in High Angle of Attack</b> .....	514
<i>Q. Liu, Y. Huang, L. Wu</i>	
<b>Analysis of Fuel Efficiency in Highly Congested Arrival Flows</b> .....	518
<i>G. Claus, N. Sakae</i>	
<b>Decentralized Task Assignment of Multiple UAVs Based on the Communication Strategy for Dynamic Environments</b> .....	522
<i>H. Choi, Y. Kim</i>	
<b>A Metric for Air Traffic Complexity</b> .....	526
<i>C. Zhang, M. Hu, J. Zhang</i>	
<b>BP-Neural Network-Based MTTR Calculation Method</b> .....	530
<i>K. Jiang, Q. Cui, X. Ju</i>	
<b>Research Status of Air Traffic Flow Models</b> .....	534
<i>X. Yang, B. Liu, B. Xiao</i>	
<b>A Feasible Method of Improving Utilization of the Frequency Resource of Communications Satellite</b> .....	538
<i>L. Zhou, H. Shao, X. Ma, H. Bu, C. Wang</i>	

<b>Safety Factors Affecting the Rejected Takeoff on Short Runways and Countermeasures</b> .....	542
<i>F. Zhang, D. Wang, B. Jiang</i>	
<b>Application of the Uncertain Multiple Attribute Decision-making in Mixed Operating Conditions of Air Traffic Control Program</b> .....	546
<i>K. Chen</i>	
<b>A Comprehensive Method To Evaluate Environmental Worthiness of Salt Fog, Fungus and Humidity for Airborn Equipments</b> .....	549
<i>X. Wang, Y. Yao, X. Liu</i>	
<b>3D Antenna Strategy Analysis</b> .....	554
<i>S. Liang, S. Zhang, C. Li</i>	
<b>The Loop of the Coplanar Flying-around Maintenance Based on the Relative Orbit Decline Rate</b> .....	559
<i>G. Li, J. Xia, C. Han</i>	
<b>Attitude Control of Ultra-Low-Earth-Orbit Spacecraft Based on the Rarefield Gas Parameter Identification</b> .....	564
<i>Z. Dang, H. Liu, Q. Liu, S. Liu</i>	
<b>Error Analysis and Improvement of Geostationary Satellite's Propellant-Remaining Estimation</b> .....	569
<i>Y. Li, J. Wang, J. Liu, W. He, S. Xu</i>	
<b>Research on Variation of Momentum Wheel Rotation Speed for Three-axis-stabilized GEO Satellite</b> .....	572
<i>B. Jiang, P. Zhang, Y. Fu, J. Zhao, J. Shang</i>	
<b>RAIM Algorithm Under the Assumption of Simultaneous Two-faulty Satellite</b> .....	576
<i>N. Cai, Y. Ni</i>	
<b>New Method of Satellite Telemetry Monitoring</b> .....	580
<i>W. Zhu, F. Wu, J. Wang, Z. Yang, Y. Zhang</i>	
<b>The Research on the Influence of Thruster Pulse Control to the Satellite Attitude</b> .....	584
<i>Y. Geng, C. Yang, B. Ren, N. Li, Y. Zhang</i>	
<b>Wireless Communication and Power Transmission for A MAV Flight</b> .....	590
<i>M. Ishiba, A. Oda, H. Sawahara, K. Komurasaki, Y. Arakawa</i>	
<b>Error Dynamics-based Guidance Law of Unmanned Aerial Vehicles for Stationary Target Observation</b> .....	593
<i>M. Kim, Y. Hong, C. Ahn, Y. Kim</i>	
<b>Control-oriented Modeling for Hypersonic Vehicle Control</b> .....	597
<i>Q. Wei, X. Huang</i>	
<b>Optimal Ascent Guidance for Air-Breathing Hypersonic Flight Vehicle</b> .....	600
<i>H. Li, Z. Li</i>	
<b>FCOS: A Partitioned Operating System Towards the Integrated Modular Avionics</b> .....	604
<i>X. Tang, Z. Zhu, N. Cheng</i>	
<b>Hierarchy-structured Dynamic Inversion Flight Control for Silent Supersonic Technology Demonstrator Airplane</b> .....	608
<i>R. Tsuruta, Y. Miyazawa, J. Kawaguchi, T. Ninomiya, H. Suzuki</i>	
<b>Research on the Configuration of Airborne Infrared Flare Dispenser</b> .....	612
<i>Y. Hu, B. Song</i>	

## VOLUME 2

<b>Design of An MIMO PID Flight Controller Based on Integral-Type Optimal Servomechanism</b> .....	616
<i>Y. Ito, H. Kondo, Y. Ochi</i>	
<b>Robust LMI Control for Hypersonic Flight Vehicles Based on Specified Region Pole Assignment</b> .....	620
<i>H. Li, L. Zhao</i>	
<b>A Robotic UAV System for Formation and Flocking</b> .....	624
<i>W. Lu, M. Lee</i>	
<b>Emergency Guidance Law for Reusable Transportation System</b> .....	628
<i>S. Ueno, Y. Mizuo, S. Ishimoto</i>	
<b>UAV Path Planning in the Presence of Unknown Environments</b> .....	632
<i>Y. Lee, H. Choi, Y. Kim</i>	
<b>Preliminary Study and Experiments on Water Landing of the Japanese ISS Cargo Return Vehicle Using A Ram-Air Parachute</b> .....	636
<i>M. Ito, K. Hiraki</i>	
<b>Initial Guess Structure for the Optimal Lunar Landing Trajectory</b> .....	640
<i>D. Cho, D. Lee, H. Bang</i>	
<b>Three Dimensional Path Planning Based on Modified Potential Model for UAV Collision Avoidance</b> .....	644
<i>H. Shin, J. Soe, Y. Kim</i>	
<b>Trajectory Optimization Using Algorithm and Its Implementation of FPGA for Real Time System</b> .....	648
<i>M. Shintaro, Y. Koichi</i>	
<b>Target Observability Enhanced Impact Angle Control Guidance Law Using Composite Non-linear Feedback Control</b> .....	652
<i>C. Lee, T. Kim, M. Tahk</i>	
<b>Safety Improvement Test of A GPS Based AGV System Using A Dead Reckoning Algorithm</b> .....	656
<i>W. Kang, E. Lee, J. Park, M. Heo, E. Sim</i>	
<b>Calibration of Inertial Measurement Units Using Pendulum Motion by Extended Kalman Filter</b> .....	660
<i>K. Lee, S. Jang, H. Lee, K. Choi</i>	
<b>Trajectory Planning for Hypersonic Glide Vehicle Entry Guidance</b> .....	664
<i>C. Wang, X. Li</i>	

<b>Modeling &amp; Simulation of Laser Meteorology Observation System in Spaceflight Launch Pad</b> .....	668
<i>T. Xu, M. Wang, Y. Lin</i>	
<b>Study on the Effectiveness Evaluation Method of Formation Beyond Visual Range Air Combat Based on Genetic BP Neural Network</b> .....	673
<i>X. Liang, J. Huang, Y. Zhou</i>	
<b>Wavelet Filtered Regression as A Novel System Identification Method</b> .....	N/A
<i>M. Naruoka, T. Hino, T. Tsuchiya</i>	
<b>Design the Filter to Calibrate of Magnetometer's Hard Iron Distortion Error with Sun LOS Vector</b> .....	678
<i>H. Lee, S. Jang, C. Ryoo, K. Choi</i>	
<b>Trajectory Design Optimization of Suborbital Launch Vehicle Based on Intelligent Evolutionary Algorithms</b> .....	682
<i>C. Wang, X. Li</i>	
<b>Multi-Stage Air Defense Missile Trajectory Optimization Using Gauss Pseudospectral Method</b> .....	686
<i>Z. Liu, C. Dong</i>	
<b>Research on Geomagnetic-Navigation-Oriented Geomagnetic Field Modeling Methods</b> .....	690
<i>L. Zhao, H. Zhang, L. Chen</i>	
<b>The Design and Implementation of Virtual Aircraft Instruments</b> .....	695
<i>J. Gao, Y. Fu, L. Xu</i>	
<b>Design Methodology of Vehicle Management System for Unmanned Combat Aerial Vehicle</b> .....	699
<i>L. Gao, W. Wu, L. Jia</i>	
<b>A Study on System-Level Power Management in View of STM32</b> .....	703
<i>B. Yu</i>	
<b>Rapid Transfer Alignment Simulation for Missile Onboard Helicopter</b> .....	707
<i>P. Li, F. Lu, L. Li, H. Ji</i>	
<b>Powered Parafoil Lateral-directional Attitude Angle Control with Adaptive Neural Network</b> .....	710
<i>L. Liu, J. Yan</i>	
<b>Tether-dragging Maneuver Strategy and Tether Control Method</b> .....	715
<i>L. Sun, G. Zhao, H. Huang, C.-J. Huang</i>	
<b>IFPC System Design and Simulation for HALE UAV</b> .....	720
<i>R. Wang, X. Zhu, Z. Zhou</i>	
<b>Control-Relevant Analysis for Parametric Modeling Scramjet-Powered Hypersonic Vehicle</b> .....	724
<i>H. Li, Z. Li</i>	
<b>Dynamic Programming-Based Multiple Point Target Detection Using K-means Clustering Algorithm</b> .....	728
<i>D. Won, K. Kim, S. Shim, M. Tahk</i>	
<b>Fatigue Behaviour in Friction Stir Welded 2198-T8 Al-Li Alloy Joint for Integral Metal Fuselage Application</b> .....	739
<i>Y. Ma, Z. Wang</i>	
<b>Reliability Analysis Based on Hybrid Response Surface Method for Laminated Composites</b> .....	744
<i>S. Lee, I. Kim</i>	
<b>Topology Optimization of Parts in A Satellite Structure Under Stress and Frequency Constraints</b> .....	748
<i>W. Wang, S. Chen</i>	
<b>Simulation Analysis on Ballistic Limit of Interior Equipment behind Spacecraft Structure Wall</b> .....	752
<i>H. Quan, G. Jia, H. Huang</i>	
<b>Evaluation of FSW Fatigue Crack Growth Rate Based on Crack Closure Phenomenon</b> .....	756
<i>S. Fujita, T. Okada, M. Asakawa, K. Kuwayama, T. Nakamura, S. Machida</i>	
<b>A Copular Based Approach to On-orbit Satellite Breakup Simulation</b> .....	760
<i>T. Wang, H. Huang, G. Jia</i>	
<b>Debris Protection Capability Numerical Simulation of Multi-layer Insulation</b> .....	765
<i>G. Zhou, G. Jia</i>	
<b>Microstructure and Mechanical Properties of Nitrogen Flux Alternating AlTiN Composite Multilayer Coatings</b> .....	769
<i>Q. Luo, Y. Lu, Y. Lou, Z. Zhao, H. Yang</i>	
<b>Widespread Corrosion Damage Assessment Approach of Aircraft</b> .....	773
<i>K. Ren, Y. Dong, P. Liu, W. Yan</i>	
<b>Geometrical Nonlinear Analysis of Thin Composite Plates Based on DKT Element</b> .....	777
<i>M. Moshfeghi, X. Yonghui, M. Sadr</i>	
<b>Computational Simulation of Corrosion Damage Evolution of Aircraft Lap Joints</b> .....	781
<i>K. Ren, P. Liu, Y. Dong, W. Yan</i>	
<b>Composite Scarf Repair with Different Materials in Airframe Structures</b> .....	785
<i>L. Li, S. Tan</i>	
<b>Faults Analysis and Solving Methods in Ground Operation of A Micro Turbojet Engine</b> .....	790
<i>W. Chen, F. Du, S. Ding, Y. Li</i>	
<b>Effects of Temper on Exfoliation Corrosion of 7150 Alloy</b> .....	801
<i>C. Huang, X. Wan</i>	
<b>Mechanical Property of Friction Stir Welded Butt Joint in 2mm Thick Aluminum Alloy</b> .....	805
<i>T. Okada, S. Machida</i>	
<b>Non-numeric Pressure Recovery Analysis of Exhaust Ejector Duct in High Altitude Testing Facility</b> .....	809
<i>G. Owino, C. Kong</i>	
<b>Estimation of the Solubility Parameter of Carbon Fiber by Inverse Gas Chromatography</b> .....	813
<i>F. Shi, Z. Dai, B. Zhang, X. Chen</i>	
<b>An Accelerating Method of Aircraft Fatigue Spectrum with the Equivalent Damage</b> .....	816
<i>Y. Ning, X. Wang</i>	



<b>Testing and Evaluation of Composite Aerospace Structures-Challenges and Opportunities</b> .....	820
<i>M. Scott, R. Thomson, A. Gunnion, X. Liu</i>	
<b>Postbuckling of Shape Memory Alloy Reinforced Composite Laminated Plates</b> .....	824
<i>S. Kuo, L. Shiau, S. Chang</i>	
<b>An Experimental Study on Static Strength of Interference-fit Composite Joint with Blind Pumping Bolt Fastener</b> .....	828
<i>J. Wei, P. Jia, G. Jiao</i>	
<b>Investigation on Failure Behaviors and Optimization of Composite <math>\pi</math> Joint</b> .....	832
<i>C. Ye, G. Jiao, B. Wang, D. Zha</i>	
<b>A Study on Separating Force Between Laminate Composite Part and Tool</b> .....	836
<i>S. Lee, M. Lee, C. Cho, M. Ansari, S. Kim, D. Kim</i>	
<b>Experimental Investigation on Z-pin Joint under Hydrothermal Environment</b> .....	840
<i>B. Wang, S. Cao, G. Jiao, Y. Cheng, L. Zhao</i>	
<b>Trade-off Study on Structural Configuration of Cryogenic Composite Tank for Reusable Launch Vehicles</b> .....	844
<i>Y. Morino</i>	
<b>Strain-based Failure Prediction for Composite Specimen Model Using Strain Amplification Factor</b> .....	848
<i>M.-J. Kim, Y. Park, H. Kim, J. Park</i>	
<b>Study on Strength Recovery of Impact Damaged Composite Laminate by External Patch Repair</b> .....	852
<i>C. Kong, H. Park, S. Lim</i>	
<b>Mechanical Performance of Composite Laminate with Oblique Splicing Ply</b> .....	856
<i>L. Liang, P. Jiang, G. Jiao</i>	
<b>Thermal Decomposition Process in Modified Aromatic Amine-Based Polybenzoxazines Investigated by TGA and Cone Calorimeter</b> .....	860
<i>Y. Li, X. Yi</i>	
<b>Thermal Deploying Technology of Damaged Area In Carbon Fiber / Bismaleimide Resin Laminates</b> .....	865
<i>W. Hou, W. Zhang, M. Ding, X. Liu, Z. Wang</i>	
<b>Contrast Studies of Compression After Impact of Two Material Systems</b> .....	869
<i>Y. Cheng, G. Jiao, B. Wang, W. Pan</i>	
<b>Heat-insulating Material Anti-Overload Performance Opposite Experiment</b> .....	873
<i>K. Xu, Y. Liu, J. Li, S. Liu</i>	
<b>Flexural Strength Analysis of Continuous Fiber Reinforced Ceramic Matrix Composites</b> .....	877
<i>C. Yang, G. Jiao, B. Wang</i>	
<b>Research on Strength Model for Combined Fabric Tether of Kevlar Fiber</b> .....	881
<i>Z.-L. Zheng, G. Zhao, H. Huang, R. Cai</i>	
<b>The Effect of Diisocyanate Isomer Composition on Optical and Adhesive Properties of Polyurethanes Based on 4,4'-Dicyclohexyl Methane Diisocyanate</b> .....	885
<i>J. Hou, L. Li, W. Liu, Y. Yan, X. Chen</i>	
<b>Effect of Chain Extender on Adhesive and Optical Properties of Transparent Polyurethane Elastomers</b> .....	888
<i>J. Hou, L. Li, W. Liu, Y. Yan, X. Chen</i>	
<b>Aircraft Flight Vibration Prediction Technology</b> .....	892
<i>G. Wang, M. Xu, D. Li</i>	
<b>Uncertain Optimal Design Using Non-probabilistic Interval Set-Theoretic Based Method and Probabilistic Method for Dynamic Response Problem</b> .....	896
<i>L. Zhang, Z. Qiu</i>	
<b>Numerical Analysis for the Safe Range of AOA under Bird Impact on Unmanned BWB</b> .....	901
<i>J. Lee, S. Lee, Y. Kim, C. Cho, J. Yoon</i>	
<b>The Dynamic Mechanisms Performance and Constitutive Model of 30CrMnSiA High Strength Alloy Steel</b> .....	905
<i>Y. Lin, X. Fu, Y. Yang, T. Suo</i>	
<b>Stability and Nonlinear Dynamics of Cylinder in Axial Flow</b> .....	909
<i>J. Jin, Z. Qin, D. Zhong</i>	
<b>Three Degree-of-freedom Aeroelastic Stability Evaluation of Cruise Missile Wing by the Monte Carlo Method</b> .....	913
<i>Z. Xu, J. Wu, X. Xue</i>	
<b>Consideration for Flutter Prediction Parameters</b> .....	917
<i>T. Hiroshi</i>	
<b>Research into the Problem of Aeroelasticity Based on Generalized Quasi-variational Principles of Elasto-dynamics</b> .....	921
<i>J. Yu</i>	
<b>A Comparison of Conventional and Ultrafast-convert VP-GTAW Welds of High Strength Aluminum Alloy</b> .....	930
<i>B. Cong, B. Qi, M. Yang, W. Li</i>	
<b>A Study of Creep Characteristics for J-85 Engine Turbine Blade</b> .....	934
<i>M. Lee, W. Han, B. Lee, S. Yoo, J. Park</i>	
<b>Size Effects on Residual Stress Profile and K<sub>red</sub> Calculation in 2195 FSW Samples</b> .....	938
<i>Z. Wang, Y. Ma</i>	
<b>Study on Atmospheric Corrosion of 7B04 Aluminum Alloy in Seashore Area</b> .....	942
<i>M. Liu, J. Cai, X. Zhang, Z. Sun, F. Lu</i>	
<b>Finite Element Analysis for Effect Factor to Cold Rolling Residual Stress of 7075 Aero Aluminum Alloy ThickPlate</b> .....	946
<i>H. Li, Y. Zhang</i>	
<b>Reactive Twin-magnetron Sputtering of Ti<sub>1-x</sub>Nb<sub>x</sub>O<sub>2</sub> Transparent Conducting Oxide Films</b> .....	950
<i>Y. Wang, Y. Yan, J. Wu, X. Chen</i>	
<b>New Material Development for Aircraft Landing Gears through Sumitomo's Landing Gear Design Experiences</b> .....	954
<i>T. Norio, S. Toyohiro, N. Shinichi, I. Shoji</i>	

<b>Stress Calculation and Fault Simulation of the High Temperature Pneumatic Duct System</b> .....	958
<i>H. Shi, Y. Cai, Y. Wang, J. Fan, Y. Jiang, C. Liu, Y. Du</i>	
<b>Reliability Evaluation Utilizing Data from Accelerated Life Tests and Field Failure Observations</b> .....	962
<i>Q. Wang, Y. Wu, Y. Fu</i>	
<b>A Simplified Approach to Multi-Body Simulation for Transport Accident Investigation</b> .....	966
<i>J. McCarthy, A. Lim, S. Roshanzamir, C. Bil, G. Clark</i>	
<b>Bearing Fault Diagnosis Based on Information Fusion</b> .....	970
<i>D. Zhang, M. Huang, M. Huang</i>	
<b>Development of Design Methodology to Meet Uncontained Rotor Burst Airworthiness Requirements</b> .....	974
<i>Y. Fu, L. Liang</i>	
<b>One Approach for Improvement of FMEA in Risk Analysis and Design Optimization</b> .....	977
<i>M. Huang, Q. Wang, Y. Li</i>	
<b>A Signal Based Fault Detection for the Engine Crankshaft Faults of the FAR23 Aircraft</b> .....	981
<i>B. Cho, Y. Beak, J. Kim, H. Lee</i>	
<b>Numerical Investigation of the Effects of Swept Blade on the Aerodynamic Performance of A Highly Loaded Transonic Two-Stage Fan</b> .....	987
<i>H. Jin, D. Jin, X. Gui</i>	
<b>Numerical Study of the Impact of Rotor Casing Bleeding Structure on the Performance of An Axial Compressor</b> .....	993
<i>B. Zhao, S. Li, S. Zhou</i>	
<b>Three-dimensional Design Optimization for Fir-tree Root of Turbine Blade with Finite Element Method</b> .....	998
<i>D. Ma, D. Zhang, Y. Xie</i>	
<b>Numerical Investigation of New Swept Transonic Compressor Rotor on Design and Off Design Conditions</b> .....	1002
<i>S. Myat, Y. Wang</i>	
<b>Experimental Investigation of Aerodynamic Characteristic of A High-loaded Working Cascade with Reactance 0.45</b> .....	1007
<i>G. Zheng, Y. He</i>	
<b>Affection of Asymmetric IGV Circumferential Distribution on the Rotor in A Low Speed Axial Compressor</b> .....	1010
<i>J. Yan, W. Yuan, S. Zhou</i>	
<b>Numerical Study on Three Dimensional Unsteady Flow of A High Pressure Gas Turbine Stage</b> .....	1015
<i>P. Li, D. Zhang, J. Lan, Y. Xie</i>	
<b>Aerodynamic Propeller Design Using Optimization Method and Genetic Algorithm Generation</b> .....	1019
<i>X. Zhao, J. Wang, W. Fu, T. Han</i>	
<b>Aerodynamic Shape Optimization Design of Rotor Airfoils Based on Control Theory</b> .....	1023
<i>B. Zna, X. Yang, H. Huang</i>	
<b>Prediction of Disk Friction Loss of Centrifugal Compressor Impeller Disk for Aircraft Gas Turbine Engine</b> .....	1028
<i>H. Kim, L. Cho, J. Cho</i>	
<b>Numerical Investigation of Lobe Length on Performance of Lobed Forced Mixer Nozzles</b> .....	1032
<i>Y. Xie, Y. Liu</i>	
<b>Hydrogen Generation Control on PEMFC Propulsion System for UAV</b> .....	1038
<i>J. Hong, J. Park, H. Sung, S. Shin, S. Nam</i>	
<b>Experimental Research on Vibration Control for Rotor System of A Micro Turbojet Engine</b> .....	1042
<i>W. Chen, F. Du, S. Ding, Y. Li</i>	
<b>Application Research about Engine Ability Failure Fuzzy Diagnosis</b> .....	1048
<i>Z. Wang, S. Yao, S. Nin</i>	
<b>Development of GUI Type On-line Condition Monitoring Program for A Turboprop Engine in High Altitude Operation Using Inverse Performance Model</b> .....	1051
<i>C. Kong, K. Kim, S. Lim</i>	
<b>Parametric Analysis for Intercooled Recuperated Turbofan Engines</b> .....	1056
<i>M. Chen, S. Luo, M. Cao, H. Tang</i>	
<b>Design Considerations of RBCC-powered Vehicle</b> .....	1060
<i>X. Lv, G. He, P. Liu, Y. Liu</i>	
<b>Affective Factors Investigation on Variable Thrust Pintle Motor Performance</b> .....	1064
<i>D. Chegn, G. He, X. Lv, J. Li, X. Wei, Y. Wang</i>	
<b>Investigation for Local Erosion Characteristics in the Combustion Chamber of Dual Pulse Motor</b> .....	1068
<i>Y. Liu, C. Wang, Y. Liu</i>	
<b>3-D Burnback Analysis of Finocyl Grain Configuration with Variational Design Method</b> .....	1072
<i>Q. Cai, F. Bao, H. Hu, Y. Liu, L. Ding</i>	
<b>Design and Testing of A Soft-clapboard Dual Pulse Solid Rocket Motor</b> .....	1076
<i>X. Cao, Y. Liu, J. Ren, C. Wang</i>	
<b>A Study on Integrated Aerodynamic-Ramp-Injector / Gas-Portfire in A Supersonic Combustor: Part Two, Experimental Aspects</b> .....	1079
<i>B. Wei, M. Yan, Y. Yang, M. Lu, L. Tian, X. Shi, X. Xu</i>	
<b>Numerical Study on Air-breathing Mode for Multi-pulsed Laser Propulsion</b> .....	1084
<i>J. Song, Y. Hong, M. Wen, H. Huang</i>	
<b>Research on the Optimization Design of Variable-geometry Scramjet</b> .....	1088
<i>J. Li, W. Song, W. Wang, F. Luo</i>	
<b>Cavitation Auto-oscillation in Inducer Pump-pipes System</b> .....	1092
<i>M. Zhang, B. Li, L. Zhang</i>	
<b>Numerical Simulation of Combustion in Combustion Chamber of Solid-Fuel Ramjet</b> .....	1097
<i>X. Lin, X. Wu, Q. Xia</i>	

<b>Optimal Fuel Balancing Method for Fractionated Spacecraft</b> .....	1101
<i>m. Hu, G. Zeng, J. Song</i>	
<b>Optimization and Analysis of Stirling Engine for Space Power Application</b> .....	1105
<i>Y. Zhang, Y. Xing</i>	
<b>A Study on Integrated Aerodynamic-Ramp-Injector / Gas-Portfire in A Supersonic Combustor : Part One, Numerical Aspects</b> .....	1109
<i>M. Yan, B. Wei, X. Shi, X. Xu</i>	
<b>Hierarchical Validation Method in Virtual Experiment of Liquid Rocket Engine</b> .....	1115
<i>N. Duan, L. Zhang, Z. Zhu</i>	
<b>Numerical Analysis on Meso-combustion Characteristics of 2-D Layered Sandwich Propellant Model with Oxygenated Binder</b> .....	1119
<i>Z. Zhou, Y. Yang, X. Xia, W. Zhou</i>	
<b>Spray Combustion Dynamics in A Supersonic Propulsion System</b> .....	1123
<i>S. Kim, Y. Yeom, H. Sung</i>	
<b>Thrust Requirements for RBCC Powered Hypersonic Cruise Vehicles</b> .....	1127
<i>X. Lv, G. He, P. Liu</i>	
<b>Experimental Studies on Separated Water-based Rocket Propulsion System</b> .....	1131
<i>Z. Lin, C. Wang, Y. Liu</i>	
<b>Research on Scramjet Full Flowpath Design and Numerical Simulation</b> .....	1135
<i>J. Li, W. Song, Y. Xiao, F. Luo</i>	
<b>Two-stage High Vacuum Supersonic Air Ejector Numerical Study</b> .....	1139
<i>Z. Wang, J. Zhou</i>	
<b>Optimization Design Method for the Two-dimensional Scramjet Intake Considering Total Pressure Recovery</b> .....	1143
<i>H. Jo, H. Lee, I. Jeung</i>	
<b>Analyzing Burning Process of Liquid Rocket Engine Through Value Simulation</b> .....	1147
<i>G. Wang, Z. Wang</i>	
<b>Feedback Control of Combustion Instabilities Using A Helmholtz Resonator with An Oscillating Volume</b> .....	1151
<i>D. Zhao</i>	
<b>CFD Simulation of Kerosene-Fueled Supersonic Combustion Ramjet Combustor Experiments</b> .....	1156
<i>T. Wan, L. Chen, J. Wang, X. Fan, X. Chang</i>	
<b>Numerical Simulation on A Reacting Flow of A Small Gas Turbine Combustor with Various Spray Conditions</b> .....	1160
<i>S. Kim, S. Jo, I. Jeung, H. Park, S. Na</i>	
<b>Large Eddy Simulation on Swirl Direction Effect of Can Type Combustor with Multi-Swirl Injectors</b> .....	1164
<i>K. Yoo, J. Kim, H. Sung, L. Zhang, V. Yang</i>	
<b>Infrared Radiation and Sunlight Scatter Computing and Visual Simulation on Vacuum Plume</b> .....	1168
<i>W. Shen, D. Zhu, G. Cai</i>	
<b>Tightly Coupled Simulations in the SRM with Large Aft-Fin</b> .....	1172
<i>S. Gao, H. Qiang, W. Zhou, Z. Zhou</i>	
<b>Ignition Performance of Double Vortex Combustor</b> .....	1176
<i>R. Zhang, W. Fan, T. Zhang</i>	
<b>Experimental and Numerical Studies on Fuel Injection and Combustion of Solid-Liquid Rocket Ramjet</b> .....	1180
<i>Z. Lin, W. Yang, L. Qin, Y. Liu</i>	
<b>Numerical Simulation of Internal Flow in Nitrous Oxide/Propane Coaxial Swirling Injector</b> .....	1184
<i>D. Wang, G. Liang</i>	
<b>Dynamic Characteristics of A Simplex Swirl Injector by the Pressure Fluctuation of Low Frequency Range</b> .....	1188
<i>T. Khil, Y. Chung, V. Bazarov, Y. Yoon</i>	
<b>SPH Method with Surface Tension and Its Application in Droplets Colliding</b> .....	1192
<i>H. Qiang, F. Chen, W. Gao</i>	
<b>A Study of Liquid Jets Atomization in Supersonic Crossflow through Holographic Diagnostics</b> .....	1196
<i>L. Chen, W. Song</i>	
<b>Numerical Simulation of Thermal Contact Resistance Between Divergence Cone Interface on Composite Nozzle</b> .....	1200
<i>X. Zheng, D. Zhang</i>	
<b>Attitude Liquid Rocket Engine Combustor Heat Transfer Integrated Computation Method Research</b> .....	1204
<i>H. Hu, F. Bao, Y. Sun, L. Ding, H. Wei</i>	
<b>Simulation Study of An Original Membrane-based Dehumidification Aircraft Environment Control System</b> .....	1208
<i>C. Wang, W. Yuan, Y. Li</i>	
<b>Experimental Study on A New Type Phase Change Cooling Unit</b> .....	1213
<i>P. Chi, H. Gao, J. Yu</i>	
<b>Industry and University Collaboration: Preparing Workplace Ready Aerospace Graduates</b> .....	1218
<i>C. Bil, T. Steiner, D. Love</i>	
<b>Investigation Into the Crashworthiness of ISOFIX Child Restraints in Aircraft</b> .....	1223
<i>A. Shrimpton, G. Clark, C. Bil</i>	
<b>Regular Distance Measures Between Intuitionistic Fuzzy Sets</b> .....	1226
<i>J. He, M. Zheng, Z. Shi</i>	
<b>Regulatory Considerations for Civil UAS Development</b> .....	1230
<i>J. Wen, Y. Lu, C.-J. Li</i>	
<b>Author Index</b>	