

21st AIAA International Space Planes and Hypersonic Systems and Technologies Conference (Hypersonics 2017)

Xiamen, China
6 - 9 March 2017

Volume 1 of 5

ISBN: 978-1-5108-4909-9

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.

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 34922 Uwytkug'Xcmg{'Ftkxg.'Uwky'422, Reston, VA 20191, USA.

TABLE OF CONTENTS

VOLUME 1

01: COMPUTATIONAL METHODS I

Mass-Driver- and SCRamjet-Assisted Surface-to-Orbit Modeling and Simulation (AIAA 2017-2100)	1
<i>Matthew M. Wittal, Julio C. Benavides, A. O. Clithero, R. Reksotmodjo, E. Schmidt</i>	
The Influence of Reynolds Stress on the Laminar Heat Transfer Characteristics of Hydrocarbon Fuel (AIAA 2017-2101)	8
<i>Ruoling Zhang, Shuai Zheng, Jialing Le</i>	
The Vision-based Relative Navigation Using Improved Adaptive Cubature Huber-based Filtering (AIAA 2017-2102)	19
<i>Xu Zhang, Nai-gang Cui, Xiao-gang Wang, Hu-tao Cui</i>	
Development and Validation of a Conjugate Heat Transfer Code for Regenerative Cooling Structure with OpenFOAM (AIAA 2017-2103)	29
<i>Hang Pu, Sufen Li, Ming Dong, Si Jiao, Yan Shang</i>	

02: HYPERSONIC FUNDAMENTALS AND HISTORY I

Experimental Study of Unsteady Oblique Shock Train (AIAA 2017-2104)	42
<i>Chuan Cheng, Chengpeng Wang, Keming Cheng, Yun Jiao</i>	
The Research on the Nonlinear Coupling Problem of Aerodynamics/Structure/Propulsion for Air-breathing Vehicle (AIAA 2017-2105)	54
<i>Chen Bing, Chunlin Gong, Liangxian Gu, Shuo Tang</i>	

03: MISSIONS AND VEHICLES I

Trajectory Design of a Rocket-Scramjet-Rocket Multi-Stage Launch System (AIAA 2017-2107)	71
<i>Sholto O. Forbes-Spyratos, Michael P. Kearney, Michael K. Smart, Ingo H. Jahn</i>	
United Trajectory Design Method for Return to Launch Site of Suborbital Reusable Launch Vehicle (AIAA 2017-2108)	91
<i>Qiao Hao, Sun Peng, Li Xinguo</i>	
An Improved Predictor-corrector Reentry Guidance for Low L/D Spacecraft (AIAA 2017-2109)	100
<i>Enmi Yong, Gun Li, Kaiyu Qin</i>	
Investigation of a Wide Range Adaptable Hypersonic Dual-Waverider Integrative Design Method Based on Two Different Types of 3D Inward-Turning Inlets (AIAA 2017-2110)	109
<i>Xiang Xianhong, Liu Yuan, Qian Zhansen</i>	

04: POWER AND CONTROL SYSTEMS I

Design of Lateral Control System for a Hypersonic Cruise Missile (AIAA 2017-2111)	119
<i>Yonghua Fan, Xiaofei Wu, Hongyang Xu, Fan Wang</i>	
Four-Loop Feedback Control System with Integrator Design for Hypersonic Cruise Missile (AIAA 2017-2112)	129
<i>Hongyang Xu, Yunfeng Yu, Xiaowen Guo, Fan Wang</i>	
Research on the Influence of Fluidic Thrust Vector Parameters on the Single Expansion Ramp Nozzle of the Air-breathing Hypersonic Vehicle (AIAA 2017-2113)	137
<i>Yushuai Ren, Dong Zhang, Fan Deng</i>	

05: PROPULSION COMPONENTS I

Self-excited Oscillation and the Forced Oscillation of Shock Train in a Rectangular Isolator at Mach 3 (AIAA 2017-2115)	145
<i>Xiaoqiang Fan, Bing Xiong, Yi Wang, Yuan Tao</i>	
Numerical Simulation and Optimization Design for Kerosene Turbo-Pump with Small Flow Rate (AIAA 2017-2116)	156
<i>Jin Xuan, Chibing Shen, Xianyu Wu</i>	
Turbine Based Combined Cycle Inlet Mode Transition at Different Operation Conditions (AIAA 2017-2118)	175
<i>Jun Liu, Huacheng Yuan, Ning Ge</i>	

06: PROPULSION SYSTEMS I

Multi-Port Filling of Pulsed Detonation Engines (AIAA 2017-2119)	188
<i>Frank K. Lu, Nirmal K. Umopathy, Swati C. Thirumangalath</i>	

Numerical Analysis of HyShot Scramjet Model with Different Throat Heights (AIAA 2017-2121)	199
<i>Fei Xing, Jiangqian Cai, Yue Huang, Yufeng Yao</i>	

07: TEST AND EVALUATION I

Multispecies Absorption Measurement in an Ammonium Dinitramide based Thruster (AIAA 2017-2122)	211
<i>Hui Zeng, Xin Lin, Ruping Zheng, Lianzhong Chen, Fei Li, Xilong Yu</i>	
3D Prototyping Model Design for Experimental Investigation in Hypersonic Shock Tunnel (AIAA 2017-2123)	221
<i>Thiago V. Marcos, João F. Martos, Paulo G. de P. Toro, A. Oliveira, Israel D. Rego</i>	
Measurement and Calculation of Shock Stand-off Distances over Hypersonic Spheres in CO₂ (AIAA 2017-2124)	229
<i>Dongjun Liao, Sen Liu, Hexiang Jian, Aimin Xie, Zonghao Wang, Jie Huang</i>	
Numerical Investigation of the Application of Porous Material in Tandem Nozzle Supersonic Wind Tunnels (AIAA 2017-2125)	236
<i>Jie Wu, Renfu Li</i>	

08: THERMAL MANAGEMENT SYSTEMS FOR VEHICLES AND ALL SUBSYSTEMS I

Experimental Investigation of a Fuel Cooled Combustor: Cooling Efficiency and Coke Formation (AIAA 2017-2126)	248
<i>Lucio Taddeo, Nicolas Gascoin, Khaled Chetehouna, Antonella Ingenito, Fulvio Stella, Marc Bouchez, Bruno Le Naour</i>	
Aerodynamic Heating in Hypersonic Boundary Layer: Role of Dilatational Waves (AIAA 2017-2127)	261
<i>Yiding Zhu, Xi Chen, Jiechi Wu, Shiyi Chen, Cunbiao Lee, Mohamed Gad-el-hak</i>	
Heat Transfer Experimental Investigation for Piston Rod Sensor in Hydraulic Servo Actuator of Hypersonic Combustion Ramjet Engine Vectoring Nozzle (AIAA 2017-2128)	294
<i>Zheng-ze Chang</i>	
Enhanced Heat Sink by Ethanol Assisted Endothermic Catalytic Cracking of Hydrocarbon Fuels (AIAA 2017-2129)	314
<i>Guoliang Xu, Yu Cong, Shuai Chen, Chuntian Wu, Xiaodong Wang, Tao Zhang</i>	

09: COMPUTATIONAL METHODS II

Effects of Mach Number on Primary Breakup of Liquid Jets in Gas Crossflow (AIAA 2017-2131)	322
<i>Feng Xiao, Ming Bo Sun, Nan Liu, Heng Zhang, J. R. Zhang</i>	
Development of a Local Mathematical Closure Model for Hypersonic Transitional Flows (AIAA 2017-2132)	330
<i>Jiakuan Xu, Junqiang Bai, Lei Qiao, Ziyuan Fu, Nanxi Liu, Yang Zhang, Jinglei Xu</i>	

10: HYPERSONIC FUNDAMENTALS AND HISTORY II

Boundary Layer Transition Assessment on a Slender High-Speed Vehicle (AIAA 2017-2133)	348
<i>Johan Steelant, Andrea Passaro, Victor Fernandez Villace, Anatoly Gubanov, Dmitry Ivanyushkin, Yury Shvalev, Nina Voevodenko, Marco Marini, Sara Di Benedetto</i>	
Instability of Hypersonic Boundary Layer Flows Caused by Favorable Pressure Gradient and Wall-heating (AIAA 2017-2134)	371
<i>Jie Ren, Song Fu</i>	
Hypersonic Skipping Trajectory Planning for High L/D Gliding Vehicles (AIAA 2017-2135)	378
<i>Zepeng Wang, Xiaoming X. Cheng, Huijeng Li</i>	
An Efficient Integrated Aerothermoelasticity Analysis System Based on Surrogate-based Reduced Order Modeling for Hypersonic Vehicles (AIAA 2017-2136)	385
<i>Xin Chen, Guang Zuo, Yong Shi, Li Liu</i>	

11: MISSIONS AND VEHICLES II

Comparison of Return Options for Reusable First Stages (AIAA 2017-2137)	401
<i>Leonid Bussler, Martin Sippel</i>	
Sensitivity Analysis of Performance for Control-Oriented Model of an Air-Breathing Hypersonic Vehicle (AIAA 2017-2138)	420
<i>Boyi Chen, Haidong Shen, Hao Lei, Yanbin Liu, Yuping Lu</i>	
Practical Guidance Design for the Boost Phase of Hypersonic Vehicle Subject to Terminal Scramjet Transition Constraints (AIAA 2017-2139)	432
<i>Zhihong Yang, Kai Zhu, Mingwei Sun, Zenghui Wang</i>	
Research on the Design of Double Swept Waverider (AIAA 2017-2140)	438
<i>Chuanzhen Liu, Peng Bai, Yanxia Chen, Bingyan Chen</i>	

12: POWER AND CONTROL SYSTEMS II

A Guidance Scheme for Air-launched Solid Launch Vehicle (AIAA 2017-2141)	452
<i>Qian Zhang, Zhi Xu, Hong Bei, Bao F. Yan</i>	
Penetration Trajectory Programming for Air-Breathing Hypersonic Vehicles in Cruise Duration with Control Constraints and Flight Dynamics Uncertainties (AIAA 2017-2142)	461
<i>Hang Guo, Wenxing Fu, Bin Fu, Kang Chen, Jie Yan</i>	
Onboard and Analytic Prediction Algorithm of the Range-to-go for the Lifting Vehicle (AIAA 2017-2143)	476
<i>Ye Yang, LuYang Liang, Hao Wu, Yongji Wang</i>	
Exploring Hypersonic Flight Vehicle's Altitude Tracking Control with Attack Angle Constraints Based on Barrier Lyapunov Function (AIAA 2017-2144)	483
<i>Xiaochuan Ma, Chen Kang, Wenxing Fu, Jie Yan</i>	

13: PROPULSION COMPONENTS II

Design and Performances Analysis of the Integrated Curved Cone Waverider-Inlet (AIAA 2017-2145)	494
<i>Xuzhao He, Jialing Le</i>	
Mixing Characteristics of Fuel Injection in Supersonic Combustor Considering Upstream Streamwise Vortices (AIAA 2017-2146)	505
<i>Jian Teng, Xunhuang Zhou, Yi-qing Li, Yancheng You</i>	
Numerical Study of the Discrete Staggered Staged Sonic Jet Interaction in a Supersonic Crossflow (AIAA 2017-2147)	514
<i>He-Yong Xu, Huiqiang Yang, Zheng-Yin Ye, Dong Zhang</i>	
Large Eddy Simulation of the Flame Propagation Process in an Ethylene Fueled Scramjet Combustor in a Supersonic Flow (AIAA 2017-2148)	536
<i>Zun Cai, Zhenguo Wang, Mingbo Sun, Xue-Song Bai</i>	

14: PROPULSION SYSTEMS II

A Comparative Study on Millimeter-scale Flame Jet and Detonation Diffraction in a Rectangular Chamber (AIAA 2017-2149)	556
<i>Jiannan He, Wei Fan, Yeqing Chi, Jiawei Zheng, Wenlong Zhang</i>	
Study on the Dynamic Characteristics of the Thrust Measurement System in Pulse Detonation Engines (AIAA 2017-2150)	567
<i>Yun Wang, Wei Fan, Jiannan He</i>	
Thermodynamics Cycle Analysis of a One-dimensional Scramjet Model in Different Combustion Modes (AIAA 2017-2151)	578
<i>Wenjie Ma, Zhiren Yin, Chengjian Pan, Bo Li, Hang Zhang</i>	

15: TEST AND EVALUATION II

Experimentally Simulating Gas Giant Entry in an Expansion Tube (AIAA 2017-2152)	589
<i>Christopher M. James, David Gildfind, Richard G. Morgan, Steven Lewis, Timothy McIntyre</i>	
Experiments to Determine Surface Catalytic Recombination Coefficients of Ultra High Temperature Ceramics in High Temperature Dissociated Flows (AIAA 2017-2153)	620
<i>Liping Liu, Yiguang Wang, Guoling Wang, Haojun Ma, Jie Luo</i>	
Multi-parameter Measurements Approach Based on 2-d Interferometric Rayleigh Scattering with Structured Illumination (AIAA 2017-2154)	630
<i>Sheng Wang, Jin-hai Si, Zhi-yun Hu, Jing-feng Ye, Zhen-rong Zhang, Jun Shao, Jing-ru Liu</i>	
Pressure and Heat Flux Calibration of the Long-test-duration Hypervelocity Detonation-driven Shock Tunnel (AIAA 2017-2155)	643
<i>Qiu Wang, Ji Wei Li, Pan Lu, Jin Ping Li, Wei Zhao, Zonglin Jiang</i>	

16: THERMAL MANAGEMENT SYSTEMS FOR VEHICLES AND ALL SUBSYSTEMS II

Heat-augmented Trajectory Optimization of Hypersonic Cruise Vehicle (AIAA 2017-2156)	651
<i>Wang Wenkai, Zhongxi Hou, Duoneng Liu, Jiexing Yang, LiLi Chen, Bingjie Zhu</i>	
Dimensional Expanding Precise Time Integration (DE-PTI) for Transient Heat Transfer Analysis of Thermal Protection Systems (AIAA 2017-2157)	672
<i>Wenxiang Zhu, Jiawen Liu, Jianyao Yao, Ning Hu, Jianqiang Xin</i>	

17: PROPULSION COMPONENTS III

Numerical Investigation of Fuel Pre-injection with Different Injector Configurations in Hypersonic Inlet (AIAA 2017-2158)	682
<i>Chengxiang Zhu, Ruofan Qiu, Rongqian Chen, Yancheng You</i>	

Numerical Study of Curved Surface with Wall Pressure and Mach Number Distribution Using Aerodynamic Combination (AIAA 2017-2159)	688
<i>Lin Zhang, Qianghong Chen, Yong Qiu, Minghai Li, Kun Yuan Zhang</i>	
Numerical Study on Near-blowoff Characteristics of Cavity-stabilized Premixed Flames in Supersonic Flows (AIAA 2017-2160)	698
<i>Hongbo Wang, Peibo Li, Yanxiang Zhang, Ming Bo Sun</i>	
Control Factor of “Separation Bubble” Scale in Hypersonic Inlet (AIAA 2017-2161)	711
<i>Peng-Fei Xiong, Han-Chen Bai, Chen Jun, Zhen-Feng Wang</i>	

18: COMPUTATIONAL METHODS III

Numerical Study of Hypersonic Aerodynamics and Heating on a Cylinder at Mach 6 (AIAA 2017-2162)	716
<i>LiLi Chen, Zheng Guo, Zhongxi Hou, Wenkai Wang, Chunhua Huang</i>	
Two Compressibility Corrections to Flamelet/Progress Variable Model for Supersonic Combustion (AIAA 2017-2163)	727
<i>Fanli Shan, Lingyun Hou, Zheng Chen, Jun Chen, Bingwei Su</i>	
Development of a Navier-Stokes Code for Hypersonic Nonequilibrium Simulations (AIAA 2017-2164)	737
<i>Jiaao Hao, Jingying Wang, Chunhian Lee</i>	
Development of an Efficient Kinetic Particle based Hybrid DSMC - DCL Numerical Approach for Hypersonic Rarefied Flows (AIAA 2017-2165)	746
<i>G. Malaikaman, Kumar Rakesh</i>	

19: HYPERSONIC FUNDAMENTALS AND HISTORY III

Quasi-one-dimensional Analysis on Thrust Performance of Ramjet and Scramjet (AIAA 2017-2166)	770
<i>Si-yuan Huang, Yu Tan, Xiang-Dong Li, Hu Ren, Hongbin Li</i>	

VOLUME 2

Intrusive and Non-Intrusive Quantification of Binary Mixture Composition from Strut Injectors in Supersonic Flow (AIAA 2017-2167)	780
<i>Cody R. Ground, Davide Vigano, Luca Maddalena</i>	
Trajectory-Based Fluid-Thermal-Structural Coupled Analysis for Mars Entry Capsule (AIAA 2017-2168)	797
<i>Xiaofeng Yang, Lei Liu, Guangyue Dai, Wei Tang, Yewei Gui, Yanxia Du</i>	
Analysis of the Preservation of Element Ratio in Hypersonic Thermochemical Nonequilibrium Flow (AIAA 2017-2169)	809
<i>Ming Zeng, Dan Xu, Mingming Ge, Peng Jin</i>	

20: MISSIONS AND VEHICLES III

Advanced Simulations of Reusable Hypersonic Rocket-Powered Stages (AIAA 2017-2170)	823
<i>Martin Sippel, Leonid Bussler, Alexander Kopp, Sven Krummen, Cecilia Valluchi, Jascha Wilken, Ysolde Prevèreaud, Jean-Luc Verant, Emmanuel Laroche, Frederic Sourgen, Davide Bonetti</i>	
Aerodynamic Performance Analysis of A New Conception Hypersonic Aircraft (AIAA 2017-2171)	851
<i>Xiaoyong Ma, Shidong Zhong, Yu Xiao, Wei Li, Zhigang Zhang, Yi Zhang</i>	
Impulsive Relative Hovering of Space Plane and Trajectory Safety Analysis (AIAA 2017-2172)	857
<i>Cheng Bo, Jianping Yuan, Weihua Ma, Yingjing Qian</i>	
Aerodynamic Configuration Design and Optimization for Hypersonic Vehicles (AIAA 2017-2173)	867
<i>Yi Feng, Shenshen Liu, Wei Tang, Yewei Gui</i>	

21: POWER AND CONTROL SYSTEMS III

Strapdown Inertial Navigation Algorithm for Hypersonic Boost-Glide Vehicle (AIAA 2017-2174)	876
<i>Kai Chen, Lin-yuan Zhang, Xiang Wang, Ming-xin Liu, Yun-feng Yu, Jie Yan</i>	
A Unified Angle Control Scheme for Hypersonic Vehicle Based on Disturbance Rejection (AIAA 2017-2175)	885
<i>Minman Piao, Kai Zhu, Mingwei Sun, Zengqiang Chen</i>	
The Research on the Dynamic Decoupling Current Control Algorithm of PMSM in Aerospace Servo System (AIAA 2017-2176)	897
<i>Zhiyuan Yu, Jianming Li, Yun Du, Erbao Lu</i>	

22: PROPULSION SYSTEMS III

Design of Hypersonic Forebody by the Combination of Bump and Waverider Surfaces (AIAA 2017-2177)	905
<i>Eiman B. Saheby, Guoping Huang, Anthony Hays</i>	

Analysis of Influence Factors on Performances for Divergent RBCC Engine Under the Fight Condition of Ma3 (AIAA 2017-2178)	922
<i>Peng Cui, Wanwu Xu, Qinglian Li, Jian Chen</i>	
Analysis of the Integral Characteristics of HEXAFly-INT Facility Module (AIAA 2017-2179)	932
<i>Nikolay Kukshinov, Vadim Aleksandrov, Alexander Prokhorov, Alexander Rudinskiy</i>	

23: TEST AND EVALUATION III

Experimental Study of Hypersonic Flutter of a Blunt-leading-edge Trapezoidal Wing (AIAA 2017-2180)	937
<i>Chen Ji, Wei Jiang, Jian Zhu, Ziqiang Liu, Feng Li</i>	
Slot Injection of Hydrogen into a Supersonic Air Flow (AIAA 2017-2181)	946
<i>Mengmeng Zhao, David R. Buttsworth, Rishabh Choudhury, Ray Malpress, Fei Xing</i>	

24: THERMAL MANAGEMENT SYSTEMS FOR VEHICLES AND ALL SUBSYSTEMS III

Evaluation of Heat Flux on HIMICO Considering the Ablation of TPS (AIAA 2017-2182)	957
<i>Takenori Miwa, Hideyuki Taguchi, Akiko Matsuo, Kenta Watanabe</i>	
Investigation of Probabilistic Design Method for Multi-layer Thermal Protection System (AIAA 2017-2183)	972
<i>Jianqiang Xin, Jianyao Yao, Wenhui Hong, Qiang Qu, Xiaojing Xu</i>	
Thermo-mechanical Analysis and Optimization of Lightweight Corrugated-core Sandwich Integrated Thermal Protection System for Hypersonic Vehicles (AIAA 2017-2184)	981
<i>Tingwu Ji</i>	
Study on the Thermal Characteristics of Composite Phase Change Materials for Thermal Management (AIAA 2017-2185)	1005
<i>Yanxia Du, Guangming Xiao, Lei Liu, Dong Wei, Xiaofeng Yang, Yewei Gui</i>	

26: PROPULSION COMPONENTS IV

Numerical Simulation of Ignition Process in Multi-cavity Combustors at High Supersonic Flight Condition (AIAA 2017-2186)	1015
<i>Liangjie Gao, Lu Wang, Zhansen Qian</i>	
Measurements of the Streamwise Vortices in a Hypersonic Inward Turning Inlet (AIAA 2017-2187)	1022
<i>Rong Huang, Zhufei Li, Dongwen Zhan, Jiming Yang, Anyuan Yu, Yingchuan Wu</i>	
The Phenomena of Sudden Change in Hypersonic Inlets Self-Starting Capability (AIAA 2017-2188)	1031
<i>Yinan Jia, Lianjie Yue, Xinyu Chang</i>	
Investigation of Ignition, Flameholding and Combustion Characteristics of a Kerosene Fueled Scramjet Combustor (AIAA 2017-2189)	1043
<i>Deyong Shi, Wenyan Song, Yanhua Wang, Qiang Fu, Yu-hang Wang</i>	

27: COMPUTATIONAL METHODS IV

A Comparative Study of Elliptical and Round Scramjet Combustors by Improved Delayed Detached Eddy Simulation (AIAA 2017-2190)	1056
<i>Wei Yao, Yueming Yuan, Xiaopeng Li, Jing Wang, Xuejun Fan</i>	
The Effect of Thermal Conduction and Radiation on the Aerodynamic Heating of a Blunt Body (AIAA 2017-2191)	1076
<i>Tao Chen, Min Xu, Shu R. Zeng, En Q. Qian, Lei Liu</i>	
Modeling of Hypersonic Three-Dimensional Boundary Layer Transition Using a Criteria-Based Method (AIAA 2017-2192)	1085
<i>Ling Zhou, Rui Zhao, Renfu Li, Chao Yan, Weilin Zheng</i>	
Topology Structure Stability and Global Stability Analysis of Hypersonic Wake Flow over Blunt body (AIAA 2017-2193)	1106
<i>Zhu Dehua, Shen Qing</i>	

28: HYPERSONIC FUNDAMENTALS AND HISTORY IV

Reproducing Non-Uniform Surface Temperature Profiles on Hypersonic Cruise Vehicles in Impulsive Wind Tunnels (AIAA 2017-2194)	1119
<i>Jai Vennik, Andrew J. Neely, Sean Tuttle, Rishabh Choudhury, David R. Buttsworth, Jouke H. S. de Baar</i>	
Thermochemical Non-equilibrium Effects of Shock Reflection Hysteresis in Steady Supersonic Flows (AIAA 2017-2195)	1139
<i>Li Ji, Shunhua Yang</i>	
Surface Recombination Effects on Aero-heating of High Enthalpy Flows (AIAA 2017-2196)	1148
<i>Miao Wenbo, Yanxin Yin, Chunsheng Nie, Yonghui Dong, Xiaoli Cheng, Bangcheng Ai</i>	

29: MISSIONS AND VEHICLES IV

Trajectory and Guidance Scheme Design for Free Flight Test of Hypersonic Vehicle (AIAA 2017-2197)	1159
<i>Helene Piet-Lahanier, Laurent Serre</i>	
Planform Parameter Study and Wing Twist Distribution Optimization of a Supersonic Transport Configuration (AIAA 2017-2198)	1164
<i>Ziyuan Fu, Junqiang Bai, Nanxi Liu, Yu Zhang, Jiakuan Xu</i>	
Effects of Shock Impingement on Aerothermal and Aerodynamic Performance for High-pressure Capturing Wings (AIAA 2017-2199)	1177
<i>Li Guang-li, Kai Cui, Xiao Yao, Yingzhou Xu</i>	
Study on Compression Surface Deformation of Waveriders (AIAA 2017-2200)	1184
<i>Yingzhou Xu, Kai Cui, Guang-li Li, Xiao Yao</i>	

30: POWER AND CONTROL SYSTEMS IV

Control of Flexible Launch Rockets Based on Self-adaptive Filtering (AIAA 2017-2201)	1194
<i>Hongyun Liu, Pei Wang, Ke Zhang</i>	
Research on Non-fragile Robust Control of High-Speed Reentry Vehicle (AIAA 2017-2202)	1200
<i>Hao Wu, Jie Lian, Jianwu Wu, Yongji Wang</i>	
Capturability of Retro-Augmented Proportional Navigation Guidance Law Against Higher Speed Maneuvering Target (AIAA 2017-2203)	1210
<i>Lei Sun, Pu Lian, Xiaofei Chang</i>	

31: PROPULSION SYSTEMS IV

RCS and Aerodynamic Parameters Identification of The Reentry Spacecraft from Chang'E Flight Test (AIAA 2017-2204)	1223
<i>Xiaoqian Cheng, Ran Xin, Liaoni Wu, Zhiming Guo</i>	
Studies on the Double-Solution Problem of the Mach Number at the Mixer Outlet of the Supersonic Ejector (AIAA 2017-2205)	1231
<i>Qi Lin, Hanchen Bai, Zhigong Tang</i>	
IDDES of Supersonic Combustion of Hydrogen and Supercritical Kerosene using Flamelet Approach (AIAA 2017-2206)	1239
<i>Junsu Shin, Hong-Gye Sung</i>	
Study of the Characteristic Mach Number Equivalent Thermo-Process Analysis Method for Dual-mode Scramjet (AIAA 2017-2207)	1261
<i>Jun Chen, Han-Chen Bai, Sen Liu</i>	

32: TEST AND EVALUATION IV

Main Achievements of the Rocket Technology Flight Experiment ROTEX-T (AIAA 2017-2208)	1271
<i>Ali Guelhan, T. Thiele, F. Siebe, F. Klungenberg, R. Kronen, A. Stamminger, F. Scheuerflug, A. Kallenbach, W. Jung</i>	
Unsteady Pressure Measurement of Cavity Flow In a Hypersonic Wind Tunnel Using Fast Response PSP (AIAA 2017-2209)	1289
<i>Jingbo Yu, Hongwei Wang, Xingju Xiang, Lianfeng Wei, Huang Zhan</i>	
An Experimental Investigation with Phosphorescent Imaging Technique on Spray Flow in Heated Air (AIAA 2017-2210)	1300
<i>Fang Chen, Yuanxiang Li, Hengyu Meng, Yanzhi Wang, Hong Liu, Haixing Li, Hui Hu</i>	
Development of Ultra-fast Temperature Sensitive Paints for Hypersonic High Speed Flows (AIAA 2017-2211)	1308
<i>Jan Martinez Schramm, Frank Edzards, Klaus Hannemann</i>	

33: THERMAL MANAGEMENT SYSTEMS FOR VEHICLES AND ALL SUBSYSTEMS IV

Permselectivity Bench to Study Permeation Along Porous Tube (AIAA 2017-2212)	1321
<i>Hussain Najmi, Eddy El Tabach, Khaled Chetehouna, Nicolas Gascoïn, Ludovic Lamoot, Francois H. Falempin</i>	
Properties of Oxidation Coking Deposition Layer of Aviation Kerosene (AIAA 2017-2213)	1330
<i>Xinyan Pei, Lingyun Hou, Dingrui Zhang, Xiaoxiong Zhang</i>	
Performance Analysis and Enhancement of Magnetohydrodynamic Heat Shield System For Hypersonic Vehicles (AIAA 2017-2214)	1341
<i>Kai Li, Jun Liu, Weiqiang Liu</i>	

34: PROPULSION COMPONENTS V

Shock Oscillation and Pressure Fluctuation in Unstarted Hypersonic Inlet Flow (AIAA 2017-2215)	1354
<i>Longsheng Xue, Chengpeng Wang, Yun Jiao, Junqi Zhao, Keming Cheng, Pei Xu</i>	

Experimental Study of Kerosene Ignition in a Round Scramjet Combustor with Cone-Struts and Cavity Flame Holders (AIAA 2017-2216)	1371
<i>Dongqing Zhang, Wenyan Song, Lili Liu, Bin Liu</i>	
Design and Research on Parallel-type TBCC 3D Nozzle (AIAA 2017-2217)	1379
<i>Lili Liu, Wenyan Song, Dongqing Zhang</i>	

35: PROPULSION COMPONENTS V

Fast Computation Scheme for Gravity Anomaly Along Glide Trajectory Based on Extension Approximation (AIAA 2017-2218)	1388
<i>Huan Zhou, Zhijian Ding, Wei Zheng, Guojian Tang</i>	
Large Eddy Simulation of Compressibility Effects on Supersonic Boundary Layer Transition and Turbulence (AIAA 2017-2219)	1395
<i>Suozhu Wang, Gang Chen, Huaping Zhen, Zhenping Zhao, Xiaoxuan Li, Yifeng Yang, Pu Xue</i>	
Numerical Study on Counter-Gradient Transport Phenomenon in Turbulent Premixed Flames (AIAA 2017-2220)	1406
<i>Fang Chen, Dali Yu, Wenxuan Huang, Hong Liu</i>	

36: HYPERSONIC FUNDAMENTALS AND HISTORY V

Experimental Investigation on Fuel Distribution Using Kerosene-PLIF in a Scramjet Combustor with Dual Cavity (AIAA 2017-2221)	1414
<i>Xi P. Li, Weidong Liu, Leichao Yang, Jiajian Zhu, Yu Pan, Bin An</i>	
Numerical Analysis of the Aerodynamic Heating in Hypersonic Thermo-Chemical Nonequilibrium Flows (AIAA 2017-2222)	1434
<i>Jingying Wang, Jiaao Hao, Guangsheng Du</i>	
Low Speed Stability Analysis of a Hypersonic Vehicle Design Using CFD and Wind Tunnel Testing (AIAA 2017-2223)	1441
<i>Jonathan Jeyaratnam, Tamas Bykerk, Dries Verstraete</i>	

37: MISSIONS AND VEHICLES V

Vehicle and Mission Design of a Future Small Payload Launcher (AIAA 2017-2224)	1451
<i>Christie Maddock, Federico Toso, Lorenzo Ricciardi, Alessandro Mogavero, Kin Hing Lo, Sriram Rengarajan, Konstantinos Kontis, Andy Milne, Jim Merrifield, David Evans, Michael West, Stuart McIntyre</i>	
Dual Waverider Concept for inlet-airframe Integration with Controllable Wall Pressure Distribution (AIAA 2017-2225)	1471
<i>Yi-qing Li, Xiaogang Zheng, Jian Teng, Yancheng You</i>	
Numerical Investigation for the Effects of Gaps and Machines on Aerodynamic Characteristics of a Rocket (AIAA 2017-2226)	1484
<i>Shao Jie Guo, Zhongyan Yang, Peipei Zhou</i>	
Hypersonic Aerodynamic Characteristics of Lifting Bodies Having Variations in Body Shape (AIAA 2017-2227)	1491
<i>Peipei Zhou, Junbo Zhao, Guiru Zhang, Bin Wang</i>	

38: POWER AND CONTROL SYSTEMS V

Control Effect of Arc-driven Plasma Synthetic Jet on Supersonic Shockwave (AIAA 2017-2228)	1498
<i>Di Jin, Min Jia, Huimin Song, Yun Wu, Fanyu Li</i>	
Particle Swarm Optimization for the Hypersonic Vehicle Robust Control System Design (AIAA 2017-2229)	1511
<i>Xiaomeng Yin, Yongji Wang, Lei Liu, Xing Wei</i>	
Efficient Trajectory Planning for Solid Rocket-Powered Launch Vehicles based on the Newton-Kantorovich/Pseudospectral Approach (AIAA 2017-2231)	1524
<i>Xiaoming X. Cheng, Huijeng Li, Ran Zhang, Zhenning Zhang</i>	

39: PROPULSION SYSTEMS V

Numerical Simulation of Electric Sail Propulsion in the Ionosphere Plasma Environment (AIAA 2017-2232)	1543
<i>Guangqing Xia, Yajie Han, Liuwei Chen, Maolin Chen</i>	

VOLUME 3

Asymmetric Combustion Characteristics of Transverse Ethylene Injection in a Rectangular Supersonic Combustor with Single-side Expansion (AIAA 2017-2233)	1550
<i>Ming Bo Sun, Zhan Zhong, Tianyun Gao, Hongbo Wang, Jianhan Liang</i>	
Detonation Interaction with Boundary Layer in Supersonic Combustible Mixture (AIAA 2017-2234)	1564
<i>Weiqiang Chen, Jianhan Liang, Xiaodong Cai, Zhiyong Lin</i>	

40: TEST AND EVALUATION V

Enhancement of Free Flight Force Measurement Technique for Scramjet Engine Shock Tunnel Testing (AIAA 2017-2235)	1576
<i>Klaus Hannemann, Jan Martinez Schramm, Sebastian Karl, Stuart J. Laurence</i>	
A New Aerodynamic Layout for Large-scale Conventional Hypersonic Wind Tunnel (AIAA 2017-2236)	1590
<i>Tiejun Wang, Xiaoye Zhu, Xiaoguo Guo</i>	
Identification of Flutter Boundary for a Hypersonic Vehicle Wing As X-15 by Experiment and Numerical Simulation (AIAA 2017-2237)	1596
<i>Li Guo, Jinan Lv, Chen Ji, Ziqiang Liu</i>	
Some Aspects of Building Effective Automated Process Control Systems Model Hypersonic Stand (AIAA 2017-2238)	1605
<i>Alexander Kozeroed, Maria Kostinskaya, Konstantin Arefyev, Marlen Ananyan, Dmitry Zhirmov</i>	

42: PROPULSION COMPONENTS VI

The Application of the Characteristics Tracing Method (AIAA 2017-2239)	1609
<i>Hongyang Liu, Jiangtao Huang, Yuxin Zhao, Jing Yu, Yong-gang Yu, Wei-qiang Guo</i>	
Analytical Modeling of Internal Flow Structures in the Isolator of Scramjet Engines (AIAA 2017-2240)	1616
<i>Yub Heo, Hong-Gye Sung, Ju-Yong Lee</i>	
Experimental Study on Supercritical/Subcritical Injection Characteristics of RP-3 Aviation Kerosene (AIAA 2017-2241)	1630
<i>Shuai Shen, Wei Fan, Zhou Zhou, Le Jin, Jin Zhang, Jian L. Li</i>	
Numerical Investigation on the Performance of the Pulse Detonation Engine with Injected Flows (AIAA 2017-2242)	1641
<i>Qibin Zhang, Wei Fan, Ke Wang, Wei Lu, Rongxiao Dong, Yongjia Wang</i>	

43: COMPUTATIONAL METHODS VI

A Weighted Nonlinear Filter Based High-order Finite Difference Scheme and Its Application to Supersonic Jet Flows (AIAA 2017-2243)	1649
<i>Yixin Yang, Kahanda Korralage J. Ranga Dinesh, Zhenguo Wang, Ming Bo Sun, Hongbo Wang</i>	
Sonic Boom Signature Analysis for a Type of Hypersonic Long-range Civil Vehicle (AIAA 2017-2244)	1661
<i>Yan Leng, Zhansen Qian</i>	
Application of Unified Gas-kinetic Scheme for Hypersonic Non-equilibrium Flow (AIAA 2017-2245)	1669
<i>Zhao Wang, Hong Yan, Qibing Li, Kun Xu</i>	
Numerical Dissipation Control in an Adaptive WCNS Scheme for High-speed Flows (AIAA 2017-2246)	1682
<i>Guo-yan Zhao, Ming Bo Sun</i>	

44: HYPERSONIC FUNDAMENTALS AND HISTORY VI

Branching and Synchronization of Fast and Slow Modes in High-velocity Boundary Layers (AIAA 2017-2247)	1702
<i>Zhiyong Liu, Min Yu</i>	
Supersonic Film Cooling Simulation with a DG Method (AIAA 2017-2248)	1712
<i>Xiaotian Shi, Fengjun Liu, Ning Hu, Guiru Zhang, Caiqian Yue, Xiangjiang Yuan</i>	
Experimental Demonstration of Plasma-Based Flameholder in a Model Scramjet (AIAA 2017-2249)	1724
<i>Sergey B. Leonov, Alec Houpt, Brock Hedlund</i>	

45: MISSIONS AND VEHICLES VI

Return and Abort Trajectory Optimisation for Reusable Launch Vehicles (AIAA 2017-2250)	1736
<i>Federico Toso, Christie Maddock</i>	
Trajectory Planning for Cooperative Flight of Two Hypersonic Entry Vehicles (AIAA 2017-2251)	1747
<i>Zixuan Liang, Jianglong Yu, Zhang Ren, Qingdong Li</i>	
Comparison of Faceted and Blunt Lifting Bodies for Re-Entry Flight (AIAA 2017-2252)	1759
<i>Viola Wartemann, Hendrik Weihs, Thino Eggers</i>	
Separation Modeling Of the Internal Air-Launch Rocket from a Cargo Aircraft (AIAA 2017-2253)	1774
<i>Bo Gao, Shuo Tang, Zhi Xu</i>	

46: POWER AND CONTROL SYSTEMS VI

Normal Acceleration Reduce Guidance and Control for Sub-orbit Vehicle Re-entry (AIAA 2017-2254)	1785
<i>Wenhao Li, Xinxin Xiao, Heng Zhang</i>	
On Active Decoupling Control for Horizontal-Lateral Direction of Hypersonic Flight Based on HIFOO (AIAA 2017-2255)	1798
<i>Shunjian Ma, Kai Zhu, Mingwei Sun, Zenghui Wang, Zengqiang Chen</i>	

High-altitude and Low-speed Reentry Guidance for Suborbital Reusable Launch Vehicle Returning to Launch Site (AIAA 2017-2256)	1807
<i>He Lei, Xiaodong Yan, Yakun Shen, Liu Liyang</i>	
A New Strategy to Online Aerodynamic Parameter Identification based on Lyapunov Theory (AIAA 2017-2257)	1823
<i>Huai Qiu, Xiaobin Xu, Tengji Li, Peng Sun, Leitao Guo</i>	

47: PROPULSION SYSTEMS VI

Future Prospect of Solar Sails by Comparing Two Light Propulsion Sailing Schemes (AIAA 2017-2259)	1841
<i>Li Jiang, Aiming Shi, Zhixuan Qin</i>	
Thermal Environment of Pylon at Different Mode in RBCC (AIAA 2017-2260)	1849
<i>De-kun Yan, Guo-qiang He, Fei Qin, Wen-qiang Li, Duo Zhang, Zhi-yuan Hou</i>	
Study on Effects of Fluidic Obstacles on Flame Acceleration and Deflagration-to-Detonation Transition (AIAA 2017-2261)	1858
<i>Chen Liu, Yue Huang, Weizhe Yang, Han Peng, Fei Xing, Yancheng You</i>	

48: TEST AND EVALUATION VI

Development of Hypersonic Wind Tunnel Free-flight Test in CAAA (AIAA 2017-2262)	1867
<i>Zenghui Jiang, Wei Song, Wei Lu</i>	
Research of Thrust Vector Experimental Simulation Technology and Balance and Air-line Bridge System Calibration (AIAA 2017-2263)	1873
<i>Yi Zhang, Jianqiang Li, Bin Xie, Lei Miao, Danping Guo, Yaohua Li</i>	
Aero-propulsion Integrated Test Technique in Combustion Heated Impulse Facility (AIAA 2017-2264)	1880
<i>Yuanyuan He, Ying-chuan Wu, Wei He, Xiao-qing Zhang, Wei-xiong Liu, Jia-ling Le</i>	

49: THERMAL MANAGEMENT SYSTEMS FOR VEHICLES AND ALL SUBSYSTEMS V

Phase-changed Transpiration Cooling: Material Selection, Permeability Analysis, and Experimental Tests in High Heat Flux (AIAA 2017-2265)	1888
<i>Yadong Wu, Guangsheng Zhu, Bo Gao</i>	
Hypersonic Heat Transfer Alleviation Studies on Re Entry Vehicles (AIAA 2017-2266)	1900
<i>Mahmood Khalid, Khalid A. Juhany</i>	
Experimental Studies of Film Cooling in Supersonic Combustors (AIAA 2017-2267)	1917
<i>Chuan Fan, Jing Wang, Xuejun Fan</i>	
Pressure Effect on Heat Transfer Deterioration of Accelerating Hypersonic Vehicles (AIAA 2017-2268)	1925
<i>Zhiqi Liu, Jianhan Liang, Yu Pan, Li Cheng</i>	

50: PROPULSION COMPONENTS VII

The Design and Analysis of Bump in High Speed Supersonic Flow (AIAA 2017-2269)	1931
<i>Shangcheng Xu, Yi Wang, Zhenguo Wang, Xiaoqiang Fan</i>	
Influence of Secondary Injection Parameters on Performance of Shock Vector Control Nozzle (AIAA 2017-2270)	1938
<i>Chengjun He, Jianqiang Li, Yaohua Li, Jinmin Liang</i>	
Numerical Investigation of Pulsed Fuel Injections for the HyShot II (AIAA 2017-2271)	1948
<i>Song Chen, Dan Zhao</i>	
Aerodynamic Design and Numerical Simulation of An Inward Turning Inlet for Turbine-Based Combined-Cycle Engine (AIAA 2017-2272)	1959
<i>Hao Min, Bo Sun, Fenglin Wu, Changfei Zhuo, Kun Yuan Zhang</i>	

51: PROPULSION COMPONENTS VIII

Numerical Analysis of Scramjet Isolator Configurations of Three Different Cross-sectional Transition Functions (AIAA 2017-2273)	1967
<i>Feng Cheng, Shuo Tang, Yi Li, Su Cao</i>	
Detonation Attenuation and Re-initiation in Expanding Channel (AIAA 2017-2274)	1979
<i>Xiaodong Cai, Jianhan Liang</i>	
Aerodynamic Design and Performance Analysis of a Two-dimensional Variable Geometry Inlet (AIAA 2017-2275)	1988
<i>Huacheng Yuan, Yunfei Wang, Jun Liu, Zhengxu Hua</i>	

52: COMPUTATIONAL METHODS VII

Study on Supersonic Base Flow with and without Plume Interaction (AIAA 2017-2276)	1999
<i>Guoliang Li, Yunjun Yang, Anlong Gong, Qiang Liu</i>	
Development of Zone Flamelet Model for Scramjet Combustor Modeling (AIAA 2017-2277)	2007
<i>Wei Yao, Xuejun Fan</i>	

Positivity-preserving Space-time CE/SE Scheme for High Speed Flows (AIAA 2017-2278)	2025
<i>Hua Shen, Matteo Parsani</i>	
Perfectly Matched Layer Boundary Condition for Nonlinear Euler Equations in General Curvilinear Coordinates (AIAA 2017-2279)	2038
<i>Chen Wei, Songping Wu, Shengyi Wang</i>	

53: HYPERSONIC FUNDAMENTALS AND HISTORY VII

Numerical Study of Hypersonic Shock-Wave/Laminar Boundary-Layer Interactions of a Typical Lifting Vehicle (AIAA 2017-2280)	2053
<i>Jie Tan, Jianqiu Tu, Xiaofeng Sun, Fuqun Liu, Lingtao Meng, Pan Yang</i>	
Measurement Technology of Model's Positions and Attitudes with High Accuracy on the 200 M Free Flight Ballistic Range (AIAA 2017-2281)	2064
<i>Fawei Ke, Zonghao Wang, Jie Huang, Ai-Min Xie, Xin Li, Qiang Song, Xue-Zhong Wen, Sen Liu</i>	
Free Jet Test of Continuous Rotating Detonation Ramjet Engine (AIAA 2017-2282)	2072
<i>Shijie Liu, Weidong Liu, Yi Wang, Zhiyong Lin</i>	

55: POWER AND CONTROL SYSTEMS VII

Blunt Body Shock Wave Control by Radio Frequency Plasma Actuation at Mach 2 (AIAA 2017-2283)	2081
<i>Weilong Wang, Huimin Song, Zhen Yang, Di Jun, Min Jia, Yun Wu</i>	
In-flight Lateral Control Departure Parameter Estimation for Reusable Launch Vehicle Using Retrospective Cost Adaptive Control (AIAA 2017-2284)	2094
<i>Quanjun Liu, Shicong Dai, Ying Wang, Yudong Wang, Changwan Min</i>	
Disturbance Observer Based Back-Stepping Attitude Control for Flexible Hypersonic Vehicle (AIAA 2017-2285)	2100
<i>Yueyong Lv, Runchi Wang, Guangfu Ma, Chen Chen</i>	

56: PROPULSION SYSTEMS VII

Dynamic Response of a Dual-manifold Injector Rocket Engine for RBCC to Deep Throttling (AIAA 2017-2286)	2110
<i>Peng Cheng, Jiping Wu, Qinglian Li, Zhongtao Kang</i>	
Experimental Study of Hysteresis Phenomenon for Kerosene Fueled Supersonic Combustor (AIAA 2017-2287)	2119
<i>Yanhua Wang, Wenyan Song, Qiang Fu, Deyong Shi, Yu-hang Wang</i>	
Simulation of Kerosene Fueled RBCC Engine Based on Skeletal Mechanism (AIAA 2017-2288)	2130
<i>Bing Liu, Guo-qiang He, Fei Qin, Donggang Cao, Lei Shi</i>	
Performance Analysis of Solid Propellant ATR in Augmented Mode (AIAA 2017-2289)	2137
<i>Kai Liu, Jiang Li</i>	

57: THERMAL MANAGEMENT SYSTEMS FOR VEHICLES AND ALL SUBSYSTEMS VI

High Temperature Monitoring by Means of Electrical Properties of CMC Materials under Tensile Stress (AIAA 2017-2291)	2149
<i>Tina Staebler, Hannah Boehrk, Heinz Voggenreiter</i>	
Design of Flight Path with Minimum Range Based on Circumambulating Maneuver (AIAA 2017-2292)	2156
<i>Lingxiao Yang, Changwan Min, Liu Ming, Yajie Ge, Ying Wang, Jiaye Chen</i>	
Flight Trajectory Optimization for TBCC Engine Thermal Management System Design (AIAA 2017-2293)	2168
<i>Decang Lou, Huifang Yan, Jun Zeng, Donge Guo</i>	

58: PROPULSION SYSTEMS VIII

Steady State Characteristics of Scramjet Engines Using Hydrogen for High Mach Numbers (AIAA 2017-2294)	2175
<i>Zifei Ji, Bing Wang, Huiqiang Zhang</i>	
Experimental Study of Ignition and Flame Characteristics of Surrogate of Cracked Hydrocarbon Fuels in Supersonic Crossflow (AIAA 2017-2295)	2185
<i>Liuwei Cheng, Fengquan Zhong, Zhipu Wang, Hongbin Gu, Sugang Ma, Xinyu Zhang</i>	
Research on Matching Discipline between Primary Rocket and RBCC Engine (AIAA 2017-2296)	2195
<i>Sihang Zheng, Xiang Lv, Yong Zhang, Shengsheng Zhang</i>	

59: PROPULSION COMPONENTS IX

Compartmental Tank Propellant Management System Design and Operation for Hypersonic Vehicle (AIAA 2017-2297)	2203
<i>Lichao Su, Xiao-feng Wang, Cheng-liang Zhang, Zhi-peng Chang, Jing-cheng Shi, Fan Gong</i>	
Investigation and Control of Unstart Phenomenon in Scramjets (AIAA 2017-2298)	2209
<i>Mohammad Afzal Shadab, M.F. Baig</i>	

Comparison Studies for Inverted and No-Inverted Supersonic Inlets (AIAA 2017-2300).....	2225
<i>Dianfei Cui, Shoumei Zhu, Riheng Zheng</i>	

60: PROPULSION COMPONENTS X

Flow Oscillation in a Scramjet Combustor with Air-Throttling (AIAA 2017-2301)	2231
<i>Shunhua Yang, Ye Tian, Jialing Le</i>	
Effects of Air-accompanied Jets on Liquid Transverse Injected Penetration in Supersonic Crossflow (AIAA 2017-2302).....	2241
<i>Runsheng Hu, Qinglian Li, Chun Li, Chenyang Li</i>	
Investigation on Flow Field Characteristics of an Ethylene Fueled Scramjet in Different Combustion Modes (AIAA 2017-2303).....	2251
<i>Can He, Jianwen Xing, Baoguo Xiao, Weixin Deng, Weixiong Liu</i>	

61: TEST AND EVALUATION VII

Numerical and Experimental Studies of the Support Interference in the Force Prediction of an Airbreathing Hypersonic Flight Vehicle (AIAA 2017-2304)	2262
<i>Geling Yin, Yumpeng Qin, Yang Yang</i>	
Design and Performance of a Hypersonic Quiet Wind Tunnel at NUDT (AIAA 2017-2305).....	2271
<i>Dundian Gang, Shihe Yi, Xiaoge Lu</i>	
Performance of a Detonation Driven Shock Tunnel (AIAA 2017-2306)	2277
<i>Ji Wei Li, Qiu Wang, Wei Zhao, Pan Lu, Yingxin Tan</i>	

62: COMPUTATIONAL METHODS VIII

Inverse Method of Characteristics with Given Exit Parameters for the Computation of Supersonic Flows (AIAA 2017-2307).....	2285
<i>Chengxiang Zhu, Ruofan Qiu, Rongqian Chen, Yancheng You</i>	
Numerical Study of Influence of High Temperature Effects on Pitch Rotation Derivative for Hypersonic Reentry Vehicles (AIAA 2017-2308).....	2291
<i>Hongpeng Liu, Zhenxun Gao, Fangcheng Shi, Han Tang, Chongwen Jiang, Chunhian Lee</i>	
Numerical Investigation of Drag Increase Due to Roughness Elements in Hypersonic Boundary Layers (AIAA 2017-2309).....	2305
<i>Yifei Xue, Liang Wang, Song Fu</i>	
Numeric Simulation of Aircraft Gust Response Considering Aeroelastic Deformation (AIAA 2017-2310).....	2319
<i>Jiangtao Huang, Zhu Zhou, Hongyang Liu, Zhenghong Gao, Gang Liu</i>	

VOLUME 4

63: HYPERSONIC FUNDAMENTALS AND HISTORY VIII

Numerical Investigation of Ultrasonically Absorptive Coating for Hypersonic Laminar Flow Control (AIAA 2017-2311).....	2327
<i>Peng Lv, Caihui Yu, Yudong Zhang, Jian Gong</i>	
Periodic Oscillations of Flow Structures in a Supersonic Diffuser Pipe (AIAA 2017-2313).....	2336
<i>Xiangru Li, Feng He</i>	
Numerical Study on Distorted Mach Reflection of Strong Moving Shock involving Laminar Transport (AIAA 2017-2314).....	2349
<i>Xiaofeng Shi, Yujian Zhu, Xisheng Luo, Jiming Yang</i>	

64: MISSIONS AND VEHICLES VII

Preliminary Study of Aerodynamic Performance for Waverider-based Hypersonic Vehicles with Dorsal Mounted Engines (AIAA 2017-2315)	2360
<i>Yao Xiao, Kai Cui, Guang-li Li, Yingzhou Xu</i>	
Numerical and Experimental Aerodynamic Characterization of the HEXAFLY-INT Hypersonic Glider (AIAA 2017-2316).....	2370
<i>Marco Marini, Giuseppe Pezzella, Antonio Schettino, Sara Di Benedetto, Victor Fernandez Villace, Johan Steelant, Anatoly Gubanov, Nina Voevodenko, Bodo Reimann, Craig Walton</i>	
Optimization on Interceptor Trajectory for Near Space Hypersonic Target (AIAA 2017-2317)	2394
<i>Hao Guo, Fang Xie, Shijie Sun, Chengpeng Huang, Zhuoyang Yu</i>	
The Airframe/Propulsion Integrated Design, Analysis and Ground Test for RBCC Launch Vehicle (AIAA 2017-2318).....	2402
<i>Chunlin Gong, Bing Chen, Liangxian Gu, Shuo Tang</i>	

65: POWER AND CONTROL SYSTEMS VIII

Study on Lateral-Directional Control Strategy for the Polarity Change of LCDP in Flight (AIAA 2017-2319)	2420
<i>Ying Wang, Changwan Min, Yudong Wang, Erlong Su, Shicong Dai</i>	
Quaternion-Based Reusable Launch Vehicle Composite Attitude Control Via Active Disturbance Rejection Control and Sliding Mode Approach (AIAA 2017-2320)	2427
<i>Liang Zhang, Rong Wu, Changzhu Wei, Liang Jing, Naigang Cui</i>	
Research on the GFSINS/GPS/CNS Integrated Navigation Technology for Hypersonic Vehicle (AIAA 2017-2321)	2441
<i>Ming Yang, Ming Liu, Ding Yang, Wei Zheng, E. Long Su</i>	

66: PROPULSION SYSTEMS IX

LES Study of Flame Stabilization in DLR Hydrogen Supersonic Combustor with Strut Injection (AIAA 2017-2322)	2448
<i>Kun Wu, Peng Zhang, Wei Yao, Xuejun Fan</i>	
A Direct Simulation of Continuous Detonation Engine with the Navier-Stokes Equations (AIAA 2017-2323)	2459
<i>Lijeng Zhang, Shujie Zhang, Jian-Ping Wang</i>	
Numerical Investigation of Skin-Friction Reduction in a Supersonic Channel (AIAA 2017-2324)	2469
<i>Shuai Wang, Guo-qiang He, Fei Qin, Xiang-geng Wei, Zhiwei Huang</i>	
MBDA R&T Effort Regarding Continuous Detonation Wave Engine for Propulsion - Status in 2016 (AIAA 2017-2325)	2478
<i>Bruno Le Naour, Francois H. Falempin, Kevin Coulon</i>	

68: PROPULSION COMPONENTS XI

Experimental and 2.5D Numerical Investigation of the High-speed Combustion Chamber Within the International HEXAFly-INT Project (AIAA 2017-2326)	2486
<i>Vadim Talyzin, Vladimir Vlasenko, Oleg Voloschenko, Mikhail Ivankin</i>	
Effect of Outflow Vortex of 3D Inlet on Fuel Injection and Mixing in a Scramjet Combustor (AIAA 2017-2327)	2502
<i>Xunhuang Zhou, Jian Teng, Yi-qing Li, Yancheng You</i>	
Simulation of the Inlet Pulse-Starting in a Shock Tunnel by Decoupling Method (AIAA 2017-2328)	2516
<i>Zhufei Li, Jiming Yang</i>	
Transition of Oblique Detonation Wave in a Two-phase Hydrocarbon-air Mixture (AIAA 2017-2329)	2529
<i>Zhaoxin Ren, Bing Wang</i>	

69: MATERIALS AND STRUCTURES FOR VEHICLES AND ALL SUBSYSTEMS I

Challenge in Robust Design of Composite Architected Structures (AIAA 2017-2330)	2537
<i>Marc Bouchez, Nicolas Swiergiel, Francois Pradat, Amar Larbi</i>	
Modeling and Analysis of Functionally Graded Curved Panels in High-speed Flow with Mutual Fluid-thermal-structural Coupling (AIAA 2017-2332)	2546
<i>Wei Kang, Kailun Li, Xiangyan Dai</i>	

70: TEST AND EVALUATION VIII

Experimental Study on Compact Heat Exchanger for Hypersonic Aero-engine (AIAA 2017-2333)	2559
<i>Huan Lee, Song Ma, Yiming Chen, Zhengping Zou, Huoxing Liu</i>	
Research on Dynamic Derivatives Test Technique for Integrative Hypersonic Vehicle with Internal and External Flow in Wind Tunnel (AIAA 2017-2334)	2568
<i>Jianzhong Chen, Zhong-liang Zhao, Xiao-bing Wang, Xiao-juan Yang, Yu-ping Li</i>	

71: COMPUTATIONAL METHODS IX

Numerical Investigation on Unsteady Flows with an Air-breathing Hypersonic Vehicle During its Shroud Separation (AIAA 2017-2335)	2575
<i>Shengyi Wang, Chao Li, Wei Chen</i>	
Numerical Studies of 2D Supersonic Reactive Mixing Layer using Hybrid RANS/LES Method (AIAA 2017-2336)	2593
<i>ZhouQin Fan, ZhongHua Zheng, Lan Wang, HaiXin Ding, LiuJun Chen</i>	
Hypersonic Natural and Forced Transition Simulation by Correlation-Based Intermittency (AIAA 2017-2337)	2601
<i>Miaorong Yi, Huiyong Zhao, Jialing Le</i>	

72: HYPERSONIC FUNDAMENTALS AND HISTORY IX

Numerical Investigation of Laminar Separation Induced by Body Flap of Hypersonic Vehicle (AIAA 2017-2338)	2613
<i>Zheng Chen, Zhao-yong Ni, Junqi Wang</i>	

Numerical Investigation of Unsteady Interaction Characteristic Induced by Impulsive Jet (AIAA 2017-2339)	2618
<i>Jing-long Bo, Yao-feng Liu, Yu-wei Liu</i>	
Energy Deposition to Efficiently Reduce Sonic Boom and Drag, and Increase Control Authority in High-Speed Applications (AIAA 2017-2340)	2622
<i>Kevin P. Kremeyer, Pascal Mickelson, Enrique Montano</i>	
Experimental Investigation of Lateral Pulse Jet Interaction Flowfield in Hypersonic Flow (AIAA 2017-2341)	2631
<i>Zhao-yong Ni, Ning Cao, Liang Xu</i>	

73: MISSIONS AND VEHICLES VIII

Exploring Dynamic Characteristics of Steady Turning for Airframe-propulsion Integrated Hypersonic Vehicle (AIAA 2017-2342)	2639
<i>Yongtao Li, Wenqian Tan, Xiangju Qu</i>	
A Preliminary Research on a Two-Stage-To-Orbit Vehicle with Airbreathing Pre-cooled Hypersonic Engines (AIAA 2017-2343)	2648
<i>Jianxing Zhou, Hong Lu, Haocheng Zhang, Lingbo Zhao, Jingmin Chen, Riheng Zheng, Yazhuo Fan</i>	
Analysis of Longitudinal Dynamic Characteristics for Air-breathing Hypersonic Flight Vehicle (AIAA 2017-2344)	2666
<i>Yongtao Li, Yu Wu, Wenqian Tan, Liguo Sun, Xiangju Qu, Chen Chen</i>	
Technology Roadmaps Derivation Methodology for European Hypersonic And Re-Entry Space Transportation Systems (AIAA 2017-2345)	2677
<i>Sara Cresto Aleina, Roberta Fusaro, Nicole Viola, José Longo, Giorgio Saccoccia</i>	

74: COMPUTATIONAL METHODS X

Numerical Simulation of Three-dimensional High-speed Flows Using a Second-order Nonlinear Model (AIAA 2017-2346)	2693
<i>Zhongzheng Jiang, Weifang Chen, Wenwen Zhao</i>	
The Computing of Dynamic Derivatives of Hypersonic Lift Body Based on Time Spectral Method (AIAA 2017-2347)	2704
<i>Lijun Xie, Yunjun Yang, Zhou Liu, Weijiang Zhou</i>	
An Iterative Approach to Improve Non-intrusive Reduced-order Models Efficiency for Parameterized Problems (AIAA 2017-2348)	2711
<i>Chen Wang, Junqiang Bai, Jan S. Hesthaven</i>	

75: PROPULSION SYSTEMS X

Liquid Rocket Engine Concept for SMILE Launcher (AIAA 2017-2349)	2722
<i>Ilja Müller, Markus Kuhn, Ivaylo Petkov</i>	
Experimental Investigation on Initiation of Oblique Detonation Waves (AIAA 2017-2350)	2732
<i>Ji Shuang Gong, Yining Zhang, Hu Pan, Bingyue Jia, Hao Meng, Xi Lin</i>	
Propulsion Performance Research and Status of TRRE Engine Experiment (AIAA 2017-2351)	2745
<i>Baoxi Wei, Wenhui Ling, Feiteng Luo, Qiang Gang</i>	
Integrated Design and Optimization of High Speed Vehicle and Turbine Based Propulsion System (AIAA 2017-2352)	2757
<i>Linyuan Jia, Yuchun Chen, Yuan Gao, Tian Tan</i>	

76: PROPULSION SYSTEMS XI

Characterization of Successive Laser Induced Plasma Ignition in an Ethylene Fuelled Model Scramjet Engine (AIAA 2017-2353)	2768
<i>Leichao Yang, Bin An, Xi P. Li, Yang Yu, Xiaohui Li, Jianhan Liang, Qian Wang</i>	
CFD Simulation of TBCC Inlet Based on Internal WaveRider Concept (AIAA 2017-2354)	2777
<i>Huang Huihui, Guoping Huang, Zuo Fengyuan, Chen Xia</i>	
Research on Aerodynamically/Mechanically Adjustable Scramjet (AIAA 2017-2355)	2787
<i>Zhang Huanrong, Yuchun Chen, Yuanhu Cai</i>	

77: PROPULSION COMPONENTS XII

Numerical Investigation on the Supersonic Hydrogen Jet Flame Affected by Shocks (AIAA 2017-2356)	2798
<i>Donggang Cao, Guo-qiang He, Fei Qin, Hongliang Pan, Bing Liu, Zhiwei Huang</i>	
Droplets Evaporation Effects on Scalar Dissipation Rates in Supersonic Turbulent Shear Flows (AIAA 2017-2357)	2812
<i>Zhaoxin Ren, Bing Wang</i>	
Visualization of Hypersonic Inward-Turning Inlet Flows by Planar Laser Scattering Method (AIAA 2017-2358)	2821
<i>Yiming Li, Zhufei Li, Jiming Yang, Yingchuan Wu, Anyuan Yu</i>	

78: MATERIALS AND STRUCTURES FOR VEHICLES AND ALL SUBSYSTEMS II

Model Updating and Uncertainty Propagation in Aerothermoelastic Analysis for C/SiC Panel of Ceramic Matrix Composite (AIAA 2017-2359)	2832
<i>Qing Chen, Baoqiang Zhang, Jing Yang, Guoqiang Su, Qiang Qin</i>	
Experimental Research of Composite Stiffened Structures in the Structural Design Phase Used in Aerospace (AIAA 2017-2360)	2848
<i>Lina Mao, Guoliang Xu, Jiangfan Zhou, Haibei Gu</i>	
Modeling the Heat Transfer and Mass Loss of Si₃N₄/SiO₂ Composite Under Arc-jet Tunnel Environments (AIAA 2017-2361)	2862
<i>Jijun Yu, Xiaoguang Luo, Daiying Deng, Dongbin Ou, Zhongping Li, Dahai Zhang</i>	
Thermal Response of an Ablator: Model and Time Resolved Imaging (AIAA 2017-2362)	2875
<i>Hannah Boehrk</i>	

79: TEST AND EVALUATION IX

Numerical Analysis of an Actively-Cooled Low-Reynolds Number Hypersonic Diffuser (AIAA 2017-2363)	2886
<i>Andrew J. Brune, Serhat Hosder, David Campbell, Stefano Gulli, Luca Maddalena</i>	
Study on the Similarity Criteria of Thermal-Structure Assessment in Wind Tunnel (AIAA 2017-2365)	2909
<i>Lei Liu, Yewei Gui, Yanxia Du, Xiangren Geng, Lixin He, Anling Wang</i>	
Conceptual Study of Compensation of Vitiated Air Heater by Argon Enrichment (AIAA 2017-2366)	2916
<i>Di Cheng, Jian Gong</i>	

80: HYPERSONIC FUNDAMENTALS AND HISTORY X

Static Aerothermoelasticity of Hypersonic Vehicles (AIAA 2017-2367)	2927
<i>Yongzhi Wang, Xu Zhang, F. Li, K. Liu</i>	
Research on Interactions Between Cavity and Upstream Transverse Jet in Supersonic Combustor (AIAA 2017-2368)	2938
<i>Yanhui Zhao, Jianhan Liang, Yuxin Zhao, Junde Duan</i>	
Investigation on Shock Induced Stripping Breakup Process of A Liquid Droplet (AIAA 2017-2369)	2956
<i>Yao Liu, Chihyung Wen, Hua Shen, Ben Guan</i>	
Applications of High-Order Weighted Compact Nonlinear Scheme for Hypersonic Nonequilibrium Flow over Compression Corner (AIAA 2017-2370)	2964
<i>Mingming Ge, Ming Zeng, Peng Jin</i>	

81: MISSIONS AND VEHICLES IX

Numerical Simulation of Dynamic Deployment of the Folding Wing (AIAA 2017-2371)	2977
<i>Yuan Ya, Dong Li, Youlin Ma, Hao Chen</i>	
Research on TSTO Reusable Launch Vehicle (RLV) Powered by Turbo-aided RBCC Engine (AIAA 2017-2372)	2987
<i>Hongwen Zhang, Jian Guo, Yingshan Xu, Bin Du, Yongshen Wang, Wenxue She</i>	
A Review of Uncertainty Analysis for Hypersonic Inflatable Aerodynamic Decelerator Design (AIAA 2017-2373)	2999
<i>Andrew J. Brune, Thomas West, Serhat Hosder, Karl T. Edquist</i>	
Aerodynamic Force and Heating Optimization of HTV-2 Typed Vehicle (AIAA 2017-2374)	3026
<i>Jiatong Shi, Liang Zhang, Baosen Jiang, Bangcheng Ai</i>	

82: COMPUTATIONAL METHODS XI

Multidisciplinary Design Optimization of Air Propulsion Components Using Principal Component Analysis Method (AIAA 2017-2375)	3035
<i>Lizhang Zhang, Zeyong Yin, Dong Mi, Yanyun Zhao, Zhengming Qian</i>	
Fluid-thermal-structural Coupling Simulation Method Under Hypersonic Heating Environment (AIAA 2017-2376)	3047
<i>Gang Wang, Mengzhu Qin, Liangyou Hong</i>	
Developing a Viscoelastic Relaxation Model for AP-HTPB Composite Solid Propellant Based on Experimental Data (AIAA 2017-2377)	3062
<i>Walid M. Adel, Guozhu Liang</i>	
Intermittency-based Transition Model with Local Empirical Correlations (AIAA 2017-2378)	3070
<i>Jeroen Van den Eynde, Johan Steelant, Andrea Passaro</i>	

83: COMPUTATIONAL METHODS XII

A Panel Method Aerodynamic Preprocessor for Planetary Entry Trajectory Simulations (AIAA 2017-2379)	3086
<i>Nathan L. Donaldson, Peter Ireland</i>	

VOLUME 5

Numerical Investigation on HIFiRE-5 at Mach 6: Shockwave, Viscosity, and Cross Flow (AIAA 2017-2380)	3104
<i>Qiang Liu, Haichuan Yu, Lijun Xie, Anlong Gong</i>	
Numerical Investigation of Geometric Parameters Effects on Vortexes and Aerodynamic Heating Environment in Transverse Gaps on Hypersonic Vehicle (AIAA 2017-2381)	3112
<i>Bo Qiu, Haoyuan Zhang, Yijun Guo, Youan Shi, Guangyue Dai, Xiao Liu</i>	

84: PROPULSION SYSTEMS XII

Numerical Simulations of Flame Propagation and DDT in Obstructed Detonation Tubes Filled with Fluidic Obstacles (AIAA 2017-2382)	3123
<i>Yongjia Wang, Wei Fan, Hongbin Li, Qibin Zhang, Shuxin Li</i>	
Experimental Analysis of 14-X B Hypersonic Aerospace Vehicle Compression System (AIAA 2017-2383)	3132
<i>João F. Martos, Paulo G. de P. Toro, Israel S. Rego</i>	
Investigation on Combustion Properties in Simplified Wave Rotor Constant Volume Combustor (AIAA 2017-2384)	3141
<i>Jianzhong Li, Erlei Gong, Wei Li, Li Yuan</i>	

85: PROPULSION COMPONENTS XIII

Surface Tuft Flow Visualization in a Hypersonic Inward Turning Inlet/Isolator Model (AIAA 2017-2385)	3150
<i>Kaiyu Mu, Dongwen Zhan, Zhufei Li, Rong Huang, Jiming Yang, Yingchuan Wu, Anyuan Yu</i>	
Influence of Wall Temperature on the Flow Characteristics of a Hypersonic Inward Turning Inlet (AIAA 2017-2386)	3164
<i>Enlai Zhang, Zhufei Li, Jiming Yang, Anyuan Yu, Yingchuan Wu</i>	
Experimental Research on Restarting Characteristics of Supersonic Inlet Based of Injection Regulation (AIAA 2017-2387)	3178
<i>Jin You, Anyuan Yu, Jialing Le, Shunhua Yang, Xiangsen Rong, Fangji Li</i>	
Investigations on the Shock Train Structures and Unsteadiness (AIAA 2017-2388)	3186
<i>Xiaoping Kong, Zhi Chen, Kou li Zhang, Huai Qiu, Shi he Yi</i>	

86: PROPULSION SYSTEMS XIII

Flow Field Manipulation via Fuel Injectors in Scramjets (AIAA 2017-2389)	3196
<i>Will O. Landsberg, Nicholas N. Gibbons, Vincent Wheatley, Michael K. Smart, Ananthanarayanan Veeraragavan</i>	
Research on Solid Rocket/Scramjet Combined Engine (AIAA 2017-2390)	3216
<i>Yongpan He, Yuchun Chen, Dingxin Liu, Jie Liu, Mourong Lai, Xiao Liang</i>	
Experimental Study on Flame Propagation Characteristics in Multi-Cycle Pulse Detonation Engine with Hot Jet Ignition (AIAA 2017-2391)	3227
<i>Wei Zhao, Qixiang Han, Qin Li</i>	

87: MATERIALS AND STRUCTURES FOR VEHICLES AND ALL SUBSYSTEMS III

Achievements Obtained within ATLLAS-II on Aero-Thermal Loaded Material Investigations for High-Speed Vehicles (AIAA 2017-2393)	3234
<i>Johan Steelant, Mats Dalenbring, Markus Kuhn, Marc Bouchez, Jens von Wolfersdorf</i>	
High Velocity Impact on Multi-layer Materials (AIAA 2017-2394)	3292
<i>Nadimpalli L. Raju, Bhavya S. Ramesh B. Gupta, D. Harursampath</i>	
Quantification of Margins and Uncertainties Approach for Aerothermoelastic Analysis Based on Non-intrusive Polynomial Chaos Method (AIAA 2017-2395)	3303
<i>Jing Yang, Baoqiang Zhang, Qing Chen, Guoqiang Su, Qiang Qin</i>	
Study on the Application of the Hot-wall Modified Method in Fluid-thermal-structure Multi Fields Coupling Strategy (AIAA 2017-2396)	3313
<i>Lei Zeng, Guangyue Dai, Yewei Gui, Lin-xin He, An-lin Wang</i>	

88: POWER AND CONTROL SYSTEMS IX

Investigation of the Shock Wave Generated by Discharge (AIAA 2017-2397)	3322
<i>Min Jia, Huimin Song, Di Jin, Yun Wu, Hua Liang, Shengfang Huang</i>	
Research on Multi-model of Hypersonic Vehicle Based on Bifurcation Theory (AIAA 2017-2398)	3331
<i>Erlong Su, Changwan Min, Zhen Xiao, Ming Yang, Ying Wang, Jianjun Luo</i>	
Sounding Rocket Roll Control Through DBD Plasma Actuated Boundary Layer Control (AIAA 2017-2399)	3344
<i>Spencer R. Sumanik, Jason Etele</i>	
A Reconfigurable Drive Topology for Fault Tolerance (AIAA 2017-2400)	3353
<i>Binqiang Si, Jihong Zhu, Tao Wang</i>	

89: HYPERSONIC FUNDAMENTALS AND HISTORY XI

Numerical Simulation for the Effects of Angles of Attack on Two- and Three-Dimensional Rarefied Hypersonic Cavity Flows Using the Direct Simulation Monte Carlo Method (AIAA 2017-2401)	3358
<i>Xuhong Jin, Fei Huang, Xiaoli Cheng, Jijun Yu</i>	
Experimental Investigation on Flow Characteristic of Combination of Forward-facing Jet and Spike (AIAA 2017-2402)	3367
<i>Jiang Zhang, Handong Ma, Yongming Qin</i>	
Preliminary Study on the Influence of Aerothermoelastic Deformation on 2-D Hypersonic Inlet Performance (AIAA 2017-2403)	3377
<i>Guangyue Dai, Lei Zeng, Hongyin Jia, Lei Liu, Bo Qiu, Yewei Gui</i>	
Study on the Aerothermal Characteristics of Supersonic Base Flow (AIAA 2017-2404)	3385
<i>Xiaofeng Sun, Jianqiu Tu, Fuqun Liu, Jie Tan, Lingtao Meng, Jiamin Yan</i>	

90: MISSIONS AND VEHICLES X

Research on Non-stationary Control of Advanced Hypersonic Morphing Vehicles (AIAA 2017-2405)	3396
<i>Changzhu Wei, Xiaozhe Ju, Feiyi He, Baogang Lu, Pengxin Han</i>	
Methodology for the Safety and Reliability Assessment of Hypersonic Transportation Systems in Conceptual Design Activities (AIAA 2017-2406)	3414
<i>Roberta Fusaro, Nicole Viola, Davide Ferretto, Sara Cresto Aleina, Marco Fioriti, Luca Boggero</i>	
Integrated Guidance and Control for Reusable Launch Vehicles with Actuator Failures (AIAA 2017-2407)	3428
<i>Hao Lee, Changzhu Wei, Naigang Cui, Xiaohua Chang</i>	
The Fast-optimization for Configuration of Hypersonic Vehicle Based on Flight Performance (AIAA 2017-2408)	3442
<i>Ming Liu, Ming Yang, Lingxiao Yang, Ding Yang</i>	

91: COMPUTATIONAL METHODS XIII

Numerical Simulations of Hypersonic Boundary Layer Transition Based on the Flow Solver Chant 2.0 (AIAA 2017-2409)	3451
<i>Yifeng Zhang, Yirong Zhang, Jianqiang Chen, Meiliang Mao, Yi Jiang</i>	
Lattice Boltzmann Simulation for Supersonic/Hypersonic Compressible Flows (AIAA 2017-2410)	3465
<i>Ruofan Qiu, Yancheng You, Chengxiang Zhu, Rongqian Chen</i>	
Numerical Modeling and Simulation of Supersonic Flows in Propulsion Systems by Open-Source Solvers (AIAA 2017-2411)	3476
<i>Jimmy-John O. Hoste, Vincent Casseau, Marco Fossati, Ian J. Taylor, Rowan Gollan</i>	

92: COMPUTATIONAL METHODS XIV

Modeling of Hypersonic Flow Transition with Consideration of High Temperature Gas Effects (AIAA 2017-2412)	3493
<i>Jincheng Zhang, Liang Wang, Song Fu</i>	
Validation of Gas-Kinetic Scheme Solver for the Compressible and Incompressible Flows Simulation (AIAA 2017-2413)	3502
<i>Hualin Liu, Zhongzhou Guo, Kun Xu, Weifang Chen</i>	

93: PROPULSION COMPONENTS XIV

Numerical Investigation of Two-dimensional Supersonic Variable-geometry Inlet for Ramjet (AIAA 2017-2415)	3519
<i>Yongbin Pu, Guoping Huang, Zuo Fengyuan, Chen Xia</i>	
Ceramic Strut Injection Technologies for High-Speed Flight (AIAA 2017-2416)	3525
<i>Markus Kuhn, Marc Bouchez, Bruno Le Naour, Jean-François Justin, Jeroen Van den Eynde, Johan Steelant</i>	
Experimental Study on the Flow and Heat Transfer Mechanism of the Pre-cooler in the Hypersonic Aeroengine (AIAA 2017-2417)	3536
<i>Chao Fu, Zhengping Zou, Huoxing Liu, Yifan Wang, Xiaojuan He</i>	
Design and Research of a Wave-rider Inlet Based on a Curved Shock under a Hypersonic Lift-body (AIAA 2017-2418)	3552
<i>Anyuan Yu, Dawei Yang, Tiejun Wang, Huacheng Yuan, Yinchuan Wu, Jialing Le</i>	

94: PROPULSION SYSTEMS XIV

Model for Three-dimensional Distribution of Liquid Fuel in Supersonic Crossflows (AIAA 2017-2419)	3564
<i>Liyin Wu, Yu Chang, Kouli Zhang, Qinglian Li, Chenyang Li</i>	
A Preliminary Overview Analysis on the Internal Waverider Inlets for Ramjet (AIAA 2017-2420)	3573
<i>Fengyuan Zuo, Guoping Huang</i>	

Mixing Enhancement Using Secondary Gas Ejection Method in Supersonic-Subsonic Mixing Layer (AIAA 2017-2421)	3581
<i>Chenxi Zhang, Yang Liu, Xiao-jing Yu</i>	

95: PROPULSION COMPONENTS XV

Bladeless Turbines for Unsteady High Speed Flows (AIAA 2017-2422)	3591
<i>Francois H. Falempin, Guillermo Paniagua, James Braun, Bruno Le Naour</i>	
Investigation of Design Method for the Inward Turning Inlet with Controlled Intake Curve (AIAA 2017-2423)	3603
<i>Yongzhou Li, Kun Yuan Zhang, Di Sun</i>	

97: MISSIONS AND VEHICLES XI

Variable Mach Number Design Methodology for the Wide-Speed Range Waverider Generated from Axisymmetric Supersonic Flows (AIAA 2017-2439)	3612
<i>Shibin Li, Wei Huang, Zhenguo Wang, Tiantian Zhang, Li Yan</i>	
Database on Hypersonic Transportation Systems: a versatile support for the Technology Roadmap generation and Conceptual Design Activities (AIAA 2017-2440)	3622
<i>Roberta Fusaro, Sara Cresto Aleina, Nicole Viola, José Longo, Giorgio Saccoccia</i>	
Innovative European Launcher Concept SMILE (AIAA 2017-2441)	3638
<i>Markus Kuhn, Ilja Müller, Ivaylo Petkov, Bertil Oving, Arnaud J. van Kleef, C. J. Verberne, Bastien Haemmerli, Adrien Boiron</i>	
Comparison of VTOL and HTHL Hypersonic Aircrafts (AIAA 2017-2442)	3652
<i>Xiaopeng Zhou, Haixin Chen</i>	

99: COMPUTATIONAL METHODS XV

Investigation Into the Influences of the Low Speeds' Accuracy on RANS Simulations (AIAA 2017-2424)	3658
<i>Feng Qu, Di Sun, Yong Shi, Guang Zuo</i>	
A Hybrid Overset Grid Approach Based On Adaptive Cartesian Grid (AIAA 2017-2425)	3672
<i>Song Liu</i>	
A Preliminary Research on the Virtual Testing Systems of Complex Vehicle (AIAA 2017-2426)	3680
<i>Zhen Xiao, Ren Li, Shicong Dai, Qunjun Liu, Wang Ying, Ni Li</i>	
Numerical Study of the Influence of Non-uniform Wall Temperature Distribution on the Hypersonic Flow Over a Flat Plate (AIAA 2017-2427)	3694
<i>Jouke de Baar, Jai Vennik, Andrew J. Neely</i>	

100: COMPUTATIONAL METHODS XVI

Mission based Flying Qualities Evaluation of Hypersonic Vehicles (AIAA 2017-2443)	3709
<i>Yang Luo, Yongzhi Wang, K. Liu, F. Li</i>	
A Low-dissipation Scheme Based on OpenFoam Designed for Large Eddy Simulation in Compressible Flow (AIAA 2017-2444)	3717
<i>Yachao Lee, Wei Yao, Xuejun Fan</i>	
Investigation Into the Influences of the Low Speed's Accuracy on the Hypersonic Heating Predictions for the Reusable Manned Space Vehicle (AIAA 2017-2445)	3736
<i>Feng Qu, Di Sun, Yong Shi, Guang Zuo, Chao Yan</i>	
Prediction of Heat Transfer in the Base Region of a High Speed Vehicle (AIAA 2017-2446)	3751
<i>Wei Yang, Xiaohui Zhao</i>	

101: PROPULSION SYSTEMS XV

Detonation Interaction with Cavity in Supersonic Combustible Mixture (AIAA 2017-2428)	3758
<i>Xiaodong Cai, Jianhan Liang, Zhiyong Lin, Ralf Deiterding</i>	
Primary/Secondary Flow Mixing Characteristics in the RBCC Flowpath (AIAA 2017-2429)	3769
<i>Jianxiong Qu, Feiteng Luo, Yufei Tian, Chunqin Luo, Qiang Gang</i>	
Design of a Triple Combined Cycle Engine (AIAA 2017-2430)	3782
<i>Yuan Gao, Yuchun Chen, Linyuan Jia, Ruiyuan Kang</i>	

102: PROPULSION COMPONENTS XVI

Numerical Investigations on RBCC Variable Inlet in Ma=2-6 (AIAA 2017-2431)	3795
<i>Zhengze Zhang, Pei-jin Liu, Fei Qin, Lei Shi, Ya-jun Wang, Guo-qiang He</i>	
Investigation on Structure of Shock Wave in the Near-field of a Liquid Jet in M2.1 Supersonic Crossflow (AIAA 2017-2432)	3808
<i>Chun Li, Qinglian Li, Chibing Shen, Chenyang Li</i>	

Research on Characteristics of Shock Train Within Mixing Layer Region in Mixer of RBCC (AIAA 2017-2433)	3820
<i>Guowei Yan, Yi Wang, Xiaoqiang Fan, Lei Lu</i>	
A Quasi-one-dimensional Analysis Method for Scramjet Combustors with Rearwall-expansion Cavity (AIAA 2017-2434)	3830
<i>Yanxiang Zhang, Zhenguo Wang, Ming Bo Sun, Hongbo Wang</i>	

103: PROPULSION COMPONENTS XVII

Effects of the Chemical Nonequilibrium Flow on the Performance of Three Dimensional Expansion Nozzle (AIAA 2017-2435)	3849
<i>Rongqian Chen, Lican Wang, Fei Xing, Chengxiang Zhu, Yancheng You</i>	
Downstream Pressure Variation Induced Hysteresis in the Scramjet Isolator (AIAA 2017-2436)	3859
<i>TingLong Huang, Lianjie Yue, Shenghu Ma, Yinan Jia, Xinyu Chang</i>	
Numerical Simulation of Variable-Geometry Inlet for TRRE Combined Cycle Engine (AIAA 2017-2437)	3865
<i>Hui Yang, Jun Ma, Yanjin Man, Shoumei Zhu, Wenhui Ling, Xuebin Cao</i>	
Experimental Investigation of an Over-Under TBCC Exhaust System (AIAA 2017-2438)	3877
<i>Baocheng Xu, Jinglei Xu, Yanfeng Niu, Kuangshi Chen, Xiao Wang, Wei Zhu</i>	
Author Index	