

34th International Symposium on Rarefied Gas Dynamics

Brisbane, Australia

13-17 July 2026

Poster Presentations



Aerospace

#1 Analysis of Aerodynamic Characteristic Variations with Altitude for a Rocket in Continuum and Rarefied Flow Regimes (63)

Younghwa Kim, Kyoung-Tai Kang

#2 State-to-state collision integrals and transport coefficients in oxygen mixtures (103)

(S) *Yingying Yun, Qizhen Hong, Elena Kustova*

#3 Development of ab initio-based chemistry model for atmospheric entry into Jupiter (121)

Devendra Koushal, Tapan K. Mankodi, Upendra V. Bhandarkar

#4 LIF Measurements and Hybrid Modeling of Transitional Flow in a High-Flux Campargue-Type Rb Atomic Beam Source (131)

(S) *Kaeshav Chandrasekar, Christopher Limbach*

#5 Influence of Polar Environment on the Orbital Dynamics of Near-Polar VLEO Satellites (212)

Shuaihui Li, Hao Ding, Shuqiu Zhang, Dandan Zeng, Hao Chen

AI and Machine Learning in rarefied gas dynamics

#6 Surrogate-assisted airfoil optimization in rarefied gas flows (48)

(S) *Xiaoda Li, Ruifeng Yuan, Yanbing Zhang, Lei Wu*

#7 A finite-volume solver with machine-learned constitutive relations for non-equilibrium flows under strong compression and expansion (56)

Gagan Garg, Tapan Mankodi, Rho Shin Myong

Boltzmann and related equations

#8 Kinetic theory of sheared granular gases with velocity-dependent inelastic collisions (73)

(S) *Makoto R. Kikuchi, Yuria Kobayashi, Satoshi Takada*

#9 Comparing Multi-Species BGK Models with DSMC for Rarefied Subsonic, Transonic and Supersonic Flows (106)

Stefano Boccelli, Anna Macaluso, Giorgio Martalo

Experimental methods

#10 Raman mapping of gas flow field inside a submillimeter channel (191)

Guzman Tejada, Jose M. Fernandez

#11 Molecular Beam Experiment of Water Molecules Evaporating From a Liquid Surface at Various Temperatures (198)

(S) *Atsuki Fujita, Kohei Sato, Ikuya Kinefuchi*

Gas-surface interactions

#12 Chemiluminescence-Based Investigation of Methane Flame Gas-Surface Interactions and TPS Ablation via Propane-Fueled HVOF Experiments (129)

Deog Gyun Cho, Jong Geun Bae, Se Youn Moon

#13 Realistic Gas-surface Interaction (GSI) model for Atmosphere-Breathing Electric Propulsion (ABEP) Intake Design (187)

Ahilan Appar, Savio Poovathingal

#14 Molecular Dynamics Analysis of Evaporation of a Nanodroplet on a Solid Surface Exposed to Vacuum (201)

Kaito Nakatani, Toshiki Nara, Kazumichi Kobayashi, Yoshihito Morita, Hideyoshi Takahima, Hiroyuki Fujii, Masao Watanabe

#15 Fluid Mechanics of Evaporating and Condensing Microdroplets in the Continuum-Slip Transition Regime (208)

(S) *Erik Zabalegui Lopez, Evgeniia Vorozhbit, Jesus Meza Galvan, Alina Alexeenko*

Internal flows and vacuum systems

#16 Research on the pumping characteristics of turbomolecular pumps by high-speed incoming gas molecules in the gas capture system of ultra-low orbit aircraft (43)

Kun Sun, Mingyang Mao, Qiang Liu, Jin Qin, Chao Yang, Shizhong Zhang

Monte Carlo methods and numerical

#17 Collision-Model Effects in DSMC and Implicit PIC Simulations of Rarefied Hypersonic Ionizing Flow (101)

(S) *Richmond Mcdonald, Jesse Foster, Paolo Valentini, Alex Vazsonyi*

#18 DSMC study of shock waves based on the state-resolved rotational relaxation model (104)

(S) *Lei Tan, Yingying Yun, Elena Kustova*

#19 Kinetic Modeling of Argon DC Glow Discharge Using PIC/MCC and Comparison with Laser Absorption Measurements (140)

(S) *Hsu Chang He, Sean O'Byrne*

#20 Knudsen Force Acting on an Asymmetric Object (218)

(S) *Tsuyoshi Makita, Shigeru Yonemura*

#21 Knudsen Force Acting on an Object with Curved Surface Placed near a Wall with Different Temperature (235)

(S) *Kiyori Fujihara, Shigeru Yonemura*

Rarefied plasmas

#22 Investigation on the Physics of a Rarefied EUV Induced Hydrogen Plasma Jet (44)

(S) *Wouter Roog, Gerrit Kroesen*

#23 Comparative Analysis of International Space Station Frame Charging Observations from Solar Minimum to Solar Maximum (139)

Gabriel Wilson, Carlos Maldonado, Rachel Ulrich, Kelly Moran, Ky Potter, Lauren Castro

#24 Two-Dimensional Hybrid PIC Simulation of Hall Thrusters with Artificial Magnetic Field Disturbances (184)

(S) *Hayate Osawa, Takuto Ogawa, Akira Furuya, Shunsuke Amikura, Rei Kawashima*

Reactive gas dynamics

#25 A neural network based non-equilibrium reaction model for DSMC (175)

Shrey Trivedi, Kisung Jung, Ahren Jasper, John K Harvey, Jacqueline H Chen