OS7: Advances in Simulation Techniques for the Computational Aerosciences

November 19, 2024
EX-1

OS7-1
9:00-9:20
Optimal Runge-Kutta Projection Methods for Non-Linear Systems
Mohammad R. Najafian, Brian C. Vermeire (Concordia University, Canada)

OS7-2
9:20-10:00
Illustrating the Role of High-Fidelity Simulation and Machine Learning in Accelerating Development of Turbomachinery Technology *(Invited)*
Richard D Sandberg (University of Melbourne, Australia)

OS7-3
10:40-11:00
Coherent Structures over Distributed Micro Roughness Related to Drag Reduction
Takuto Ogawa, Aiko Yakeno (Tohoku University, Japan)

OS7-4
11:00-11:20
The Effect of Compressibility and Pressure Gradient on the Drag Reduction Performance of the Riblet
Kento Kaneko (The University of Tokyo, Japan), Akira Oyama (Japan Aerospace Exploration Agency, Japan), Aiko Yakeno (Tohoku University, Japan)

OS7-5
11:20-11:40
Discontinuity-capturing Numerical Scheme on Unstructured Grid for Single-phase and Liquid-gas Two-phase Compressible Flows with Phase Change
Hiro Wakimura, Takayuki Aoki, Feng Xiao (Tokyo Institute of Technology, Japan)

OS7-6
11:40-12:00
Numerical Simulation of Asymmetric Vortices on Ogive-Cylinder at High Angle of Attack Using ILES
Hyeonuk Yang, Byeongkyu Park, Hyunbin Kang, Jaehyoung Park, Seungsoo Lee, Jin Seok Park (Inha University, Korea)

OS7-7
13:10-13:30
Multi-scale Modeling Method for Structural Design of CFRP Aircraft
Yosuke Nakai, Yoshiaki Abe, Kazuki Ryuzono, Yoshiaki Kawagoe, Tomonaga Okabe (Tohoku University, Japan)

OS7-8
13:30-13:50
Numerical Investigation of a Vertical Axis Wind Turbine for Performance Improvement Using Plasma Actuator
Takuya Ito, Keunseob Lee, Satoshi Kikuchi (Gifu University, Japan)

OS7-9
13:50-14:10
Image-based Data Compression of High-fidelity Turbulence Data
Haruki Nagata, Hiroyuki Asada, Shigetaka Kawai, Soshi Kawai (Tohoku University, Japan)

OS7-10
14:10-14:30
Geometrically Nonlinear Analysis and Structural Sizing of Composite Aircraft Wings
Yajun Liu, Katsumi Nakamura, Shugo Date (Tohoku University, Japan), Toshio Nagashima (Sophia University, Japan), Yoshiaki Abe (Tohoku University, Japan)

OS7-11
14:50-15:10
Data-Driven Fluid-Structure Interaction Analysis for Vortex-Induced Vibration
Chungil Lee, Tomoki Yamazaki (Tohoku University, Japan), Freddie D. Witherden (Texas A&M University, USA), Yu Kawano (Hiroshima University, Japan), Yoshiaki Abe (Tohoku University, Japan)

OS7-12
15:10-15:30
Study of Thermal Management System for eVTOL
Haruka Nakayama, Daisuke Sasaki, Yukinori Inoue (Osaka Metropolitan University, Japan)

OS7-13
15:30-15:50
Comparison of Genetic Algorithm and Reinforcement Learning in Airfoil Optimization
Atsuya Yoshikawa, Nobuyoshi Fujimatsu (Toyo University, Japan)

OS7-14
15:50-16:10
Multi-Objective Optimization for Aircraft Wing Shapes Using Advanced Composite Materials
Ryosuke Kano, Yoshiaki Abe, Kazuki Ryuzono, Tomonaga Okabe (Tohoku University, Japan)

OS7-15
16:30-16:50
Uncertainty Quantification of Aerostructural Properties on Composite Wing Design
Katsumi Nakamura, Yoshiaki Abe (Tohoku University, Japan), Koji Shimoyama (Kyushu University, Japan), Shigeru Obayashi (Tohoku University, Japan)

OS7-16
16:50-17:10
Drag Polar Prediction of an Aircraft Using Inviscid and Various Viscous Models
Rashmikant, Yoshiaki Abe (Tohoku University, Japan)

November 20, 2024
EX-2

OS7-17
&
OS25-1
9:10-9:50
Numerical Methods for Solving Multimode Giesekus Viscoelastic Fluid Flows
(Invited)
Shihe Xin, Seyedhadi Abdollahzadeh, Ronnie Knikker (INSA Lyon, France), Denis Siginer (Universided de Santiago de Chile, Chile), Mhamed Botaous (INSA Lyon, France)