

OS20: The 17th International Students / Young Birds Seminar on Multi-scale Flow Dynamics

- OS20-1 **Numerical Study on Mach Number Effects of Propeller on Propeller-Wing Interaction**
Yoshikatsu Furusawa, Keiichi Kitamura (Yokohama National University, Japan), Hiroki Nagai (Tohoku University, Japan)
- OS20-2 **Aerodynamic Study of the Circular Arc Airfoil at Low Reynolds Numbers Using Cartesian Mesh CFD**
Takumi Takase (Hokkaido University, Japan), Daisuke Sasaki, Masato Okamoto (Kanazawa Institute of Technology, Japan)
- OS20-3 **An Efficient Fuselage Concept Using Waverider Configurations for Supersonic Transport**
Yuhei Ishikawa, Wataru Yamazaki (Nagaoka University of Technology, Japan)
- OS20-4 **A Comparative Study of Drag Coefficient for DrivAer Model with Realistic Shape using OpenFOAM**
Hiroya Matsuura, Shotaro Nara, Shun Takahashi (Tokai University, Japan)
- OS20-5 **Numerical Analysis of Droplet Impact onto a Wall Considering non-Newtonian or Dynamic Contact Angle Using Volume of Fluid Method**
Kazuho Sakata, Yusuke Sato, Yoshiya Matsukawa (Tohoku University, Japan), Yohsuke Matsushita (Hirosaki University, Japan), Hideyuki Aoki (Tohoku University, Japan), Yuka Akiyama, Minoru Shiota, Takahiro Okabe (Hirosaki University, Japan), Masatoshi Daikoku (Hachinohe Institute of Technology, Japan), Yasuhiro Saito (Kyushu Institute of Technology, Japan), Junichi Fukuno (Honda Motor Co., Ltd., Japan)
- OS20-6 **Unsteady Flow Field around Flexible-membrane Wing at Low Reynolds Number**
Kentaro Yamamoto, Tsubasa Ikami, Koichi Takahashi, Koji Fujita, Hiroki Nagai (Tohoku University, Japan)
- OS20-7 **Numerical Analysis of the Rotational Effect of the Non-Axisymmetric Cavitator in Supercavitating Flow**
Jongwoong Lim, Seongmin Kim, Jungsoo Lee, Hyunguk Kim, Jinsoo Cho (Hanyang University, Korea)
- OS20-8 **Effects of Pulse Modulated Plasma Actuator on Pressure Distribution over an Airfoil at High Reynolds Numbers**
Koki Asawa (University of Tsukuba, Japan), Noritsugu Kubo, Motofumi Tanaka (National Institute of Advanced Industrial Science and Technology, Japan), Takayasu Fujino (University of Tsukuba, Japan)
- OS20-9 **CFD Analysis of Indoor Ventilation in a Dome Considering Advection/Diffusion of Droplet Nuclei**
Gaku Hirokawa, Wan Khairil Arif, Wataru Yamazaki (Nagaoka University of Technology, Japan), Hideto Takahashi (Takasago Thermal Engineering Co., Ltd., Japan)

- OS20-10 **Consideration of Suppression of Self-excited Oscillation by Different Re-entry Capsule Shapes**
Masayuki Nomura, Koji Fujita, Hiroki Nagai (Tohoku University, Japan)
- OS20-11 **Large Eddy Simulation of Liquid Metal Flow in Co-axial MHD Energy Conversion Device**
Ryo Sasaki, Takayasu Fujino (University of Tsukuba, Japan), Hidemasa Takana (Tohoku University, Japan), Hiromichi Kobayashi (Keio University, Japan)
- OS20-12 **Study of Aerodynamic Interference between Main Wing and Tail Wing Using 2D Building-Cube Method**
Ryuhō Kita, Daisuke Sasaki (Kanazawa Institute of Technology, Japan)
- OS20-13 **Experimental Investigation of Effect of Non-Newtonian Characteristics on Fluid Behavior of Jet in a Crossflow**
Maki Miyamoto (Kyushu Institute of Technology, Japan), Minoru Shirota, Yohsuke Matsushita (Hirosaki University, Japan), Hideyuki Aoki (Tohoku University, Japan), Yoshihide Mawatari, Masato Yamamura, Yasuhiro Saito (Kyushu Institute of Technology, Japan)
- OS20-14 **Understanding of Flow-Field of Pitching Airfoil at Low Reynolds Number**
Yuko Yoshizane, Tsubasa Ikami, Koji Fujita, Hiroki Nagai (Tohoku University, Japan)
- OS20-15 **Numerical Simulation of Fluid Flow in a Counterflow-packed Bed**
Masaya Shirakawa (Kyushu Institute of Technology, Japan), Aya Hisatsune, Koki Terui (JFE Steel Corp., Japan), Yasuhiro Saito (Kyushu Institute of Technology, Japan)
- OS20-16 **Axis Bundle Relationships between Vorticity Lines and Eigen-vortical-axis Lines in Vortical Core Region**
Kyouka Hyoudou, Katsuyuki Nakayama (Aichi Institute of Technology, Japan)
- OS20-17 **An Investigation of Three-Dimensional Vortical Flow Structure in Isotropic Homogeneous Turbulence**
Kenshin Kato (Aichi Institute of Technology, Japan), Daiki Aoyama (TB Engineering Corporation, Japan), Katsuyuki Nakayama (Aichi Institute of Technology, Japan)
- OS20-18 **Aerodynamic Drag Optimization of Ahmed Model use Adjoint Method and EGO Algorithm**
Chenguang Lai, Yijun Li, Shuai Feng, Zhihua Huang, Sizheng Wang (Chongqing University of Technology, China)
- OS20-19 **Coalescence of Vortical Regions and Bifurcation of Vortical Axes in a Homogeneous Isotropic Turbulence**
Yuki Adachi, Katsuyuki Nakayama (Aichi Institute of Technology, Japan)
- OS20-20 **A Hierarchical Flow Scale Analysis in Development of a Vortex in a Homogeneous Isotropic Turbulence**
Yoko Sendo, Katsuyuki Nakayama (Aichi Institute of Technology, Japan)

- OS20-21 **A Study on the Microscale Gas Flow in the Noncoalescence Phenomenon between Droplet and Liquid Pool**
Clint John Cortes Otic, Xiangwei Li (Tohoku University, Japan), Shigeru Yonemura (National Institute of Technology (KOSEN), Ube College, Japan)
- OS20-22 **Development of an Aeroballistic Range with Reconfigurable Structures for Use in Studies on Projectile Aerodynamics**
Kazuya Okamoto, Daiju Numata (Tokai University, Japan)
- OS20-23 **Development of Low-speed Wind-tunnel for Basic Aerodynamic Research**
Hiroki Harada, Sinobu Ide, Daiju Numata (Tokai University, Japan)
- OS20-24 **On the Use of a Multilayer Perceptron as an Aerodynamic Performance Approximator in Multi-Objective Transonic Airfoil Shape Optimization**
Muhammad Alfiyandy Hariansyah, Koji Shimoyama (Tohoku University, Japan)
- OS20-25 **Characteristic of Droplet Size Distribution and the Variance of Atomization and Condensation Nozzles**
Mitsuki Kato, Shuichi Moriya, Junnosuke Okajima, Yuka Iga (Tohoku University, Japan)
- OS20-26 **Optimization of Electromechanical Dynamic Vibration Absorber for Flexible Space Structure**
Taishi Watanabe, An Li, Keiju Goto, Yushin Hara, Keisuke Otsuka, Kanjuro Makihara (Tohoku University, Japan)
- OS20-27 **Study on Sizing Method on a Roadable Aircraft using OpenVSP**
Hayato Kaneku, Daichi Yamabata, Seiichiro Morizawa (National Institute of Technology, Okinawa College, Japan)
- OS20-28 **Investigation of the Signals of Various Magnetization Non-destructive Testing Methods Affected by Plastic Strain When Testing Electrical Steel Sheet**
Shurui Zhang, Sho Takeda (Tohoku University, Japan), Benjamin Ducharne, Gael Sebald (ELyTMaX UMI 3757, CNRS – Université de Lyon – Tohoku University, International Joint Unit, Tohoku University, Japan / INSA Lyon, France), Tetsuya Uchimoto (Tohoku University / ELyTMaX UMI 3757, CNRS – Université de Lyon – Tohoku University, International Joint Unit, Tohoku University, Japan)
- OS20-29 **Evaluation of Bond Degradation between Rebar and Concrete using Electromagnetic Pulse-Induced Acoustic Testing Method**
Xinwu Zhou, Sho Takeda (Tohoku University, Japan), Tetsuya Uchimoto (Tohoku University / ELyTMaX UMI 3757, CNRS – Université de Lyon – Tohoku University, International Joint Unit, Tohoku University, Japan), Mitsuo Hashimoto (Polytechnic University, Japan), Toshiyuki Takagi (ELyTMaX UMI 3757, CNRS – Université de Lyon – Tohoku University, International Joint Unit, Tohoku University / Tohoku University, Japan), Hamood Alwashali, Masaki Maeda (Tohoku University, Japan)

- OS20-30 **Numerical Simulation of Unsteady Behavior of Arc Plasma Flow in a Cylindrical Nozzle**
Kenta Ino, Takayasu Fujino (University of Tsukuba, Japan), Yasunori Tanaka (Kanazawa University, Japan), Masaya Shigeta (Tohoku University, Japan), Yuki Inada (Saitama University, Japan), Akiko Kumada (The University of Tokyo, Japan)
- OS20-31 **Enhancing Piezoelectric Harvested Energy of an Advanced Switching Interface by Tunable Switching Intervals**
Meng Zhou, Yushin Hara (Tohoku University, Japan), Yu Jia (Aston University, UK), Yu Shi (University of Chester, UK), Constantinos Soutis (The University of Manchester, UK), Hiroki Kurita, Fumio Narita, Keisuke Otsuka, Kanjuro Makihara (Tohoku University, Japan)
- OS20-32 **Experimental Investigation of Flutter Power Generation with Piezoelectric Film**
Kei Imagawa, Keisuke Otsuka (Tohoku University, Japan), Yu Jia (Aston University, UK), Yu Shi (University of Chester, UK), Constantinos Soutis (The University of Manchester, UK), Hiroki Kurita, Fumio Narita, Kanjuro Makihara (Tohoku University, Japan)
- OS20-33 **Multiphase Flow Simulation of Non-Newtonian Fluids including Many Solid Particles through Corrugated Tube**
Shuusuke Kawamata, Yuki Kawamoto, Shotaro Nara, Tetsuo Nohara, Shun Takahashi (Tokai University, Japan), Shigeru Obayashi (Tohoku University, Japan)
- OS20-34 **New MMC-Based Topology Optimization Method with Curvilinear Representation**
Shunsuke Hirotani, Shuonan Dong, Ryo Kuzuno, Taiki Okada, Keisuke Otsuka, Kanjuro Makihara (Tohoku University, Japan)
- OS20-35 **Frequency Spectrum Analysis of Microwave Signals Reflected from Partial Pipe Wall Thinning**
Yijun Guo, Guanren Chen, Noritaka Yusa, Hidetoshi Hashizume (Tohoku University, Japan)
- OS20-36 **Iterative Modeling and Dynamic Analysis of Spherical Tensegrity**
Erina Mori, Takuma Goto (Tohoku University, Japan), Nariyuki Kawabata (National Institute of Technology, Anan College, Japan), Keisuke Otsuka, Kanjuro Makihara (Tohoku University, Japan)
- OS20-37 **Optimization of Structural Layout for Composite Aircraft Wings**
Yuta Inaba, Shugo Date, Hariansyah Muhammad Alfyandy, Yoshiaki Abe, Koji Shimoyama, Tomonaga Okabe, Shigeru Obayashi (Tohoku University, Japan)
- OS20-38 **Performance Investigation of Various Topologies of Small Darrieus Vertical Axis Wind Turbines**
Haruki Shiine, Shinya Imai, Wataru Yamazaki (Nagaoka University of Technology, Japan)

- OS20-39 **Measurement and Modeling of Dynamic Contact Angle of Impacting Drops**
Takumi Okawa, Yuto Fuchisawa, Takahiro Okabe, Minoru Shirota (Hirosaki University, Japan)
- OS20-40 **Investigation of the Acoustic Propagation to Detect the Defect in Multi-materials by Electromagnetic Pulse-induced Acoustic Testing (EPAT)**
Naoki Takeshita, Tetsuya Uchimoto, Sho Takeda, Toshiyuki Takagi, Hiroyuki Kosukegawa (Tohoku University, Japan), Mitsuo Hashimoto (Polytechnic University, Japan), Diguil Gildas Alan Erwan (Tohoku University, Japan)
- OS20-41 **Consolidation of Bulk Material Made of Aluminum Powder by Severe Plastic Deformation Process**
Ryo Watanabe, Hiroyuki Miki, Sho Takeda (Tohoku University, Japan), Noboru Nakayama (Shinshu University, Japan)
- OS20-42 **Effects of Wettability and Electrostatic Charge on Contact Line Instability of Impacting Drops**
Keitaro Shirai, Ayaka Kodama, Takahiro Okabe, Minoru Shirota (Hirosaki University, Japan), Yoshiya Matsukawa (Tohoku University, Japan), Yasuhiro Saito (Kyushu Institute of Technology, Japan), Yohsuke Matsushita (Hirosaki University, Japan), Hideyuki Aoki (Tohoku University, Japan), Masatoshi Daikoku (Hachinohe Institute of Technology, Japan), Junichi Fukuno (Honda Motor Co., Ltd., Japan)
- OS20-43 **Quantitative Evaluation of Damage to Reusable Rocket Engine Combustion Chamber by Eddy Current Testing**
Yusuke Goto, Sho Takeda, Tetsuya Uchimoto (Tohoku University, Japan), Shinichi Moriya, Masao Takegoshi, Eiichi Sato (Japan Aerospace Exploration Agency, Japan)
- OS20-44 **Investigation of Hydrogen Embrittlement of Austenitic Stainless Steels by Electromagnetic Nondestructive Testing Method**
Hina Miyauchi, Tetsuya Uchimoto, Sho Takeda (Tohoku University, Japan), Nicolas Mary (ELyTMaX UMI 3757, CNRS – Université de Lyon – Tohoku University, International Joint Unit, Tohoku University, Japan), Hirotochi Enoki (National Institute of Advanced Industrial Science and Technology (AIST), Japan), Takashi Iijima (Tokyo University of Science, Japan)
- OS20-45 **Detection of Foreign Matter inside CFRP by Eddy Current Testing**
Akifumi Seto, Tetsuya Uchimoto, Sho Takeda, Hiroyuki Kosukegawa, Toshiyuki Takagi (Tohoku University, Japan), Mitsuo Hashimoto (Polytechnic University, Japan)
- OS20-46 **Predicting Tipping Points in Complex Systems using Machine Learning**
Simon Hedkvist, Larry Li (The Hong Kong University of Science and Technology, Hong Kong, China), Vikrant Gupta (Southern University of Science and Technology, China)
- OS20-47 **Active Control of Thermal-Flow Field by Thermal Radiation in Participating Medium**
Yuto Takagi (Yamagata University, Japan), Takuma Kogawa (National Institute of Technology, Hachinohe College, Japan), Hiroki Gonome (Yamagata University, Japan)

- OS20-48 **Effect of Number of Turns in Closed-End Oscillating Heat Pipe**
Kohei Sone, Kento Watanabe, Kosei Matsubara, Koji Fujita, Hiroki Nagai (Tohoku University, Japan)
- OS20-49 **Start-up Characteristics of Oscillating Heat Pipes with Hydrophobic Channel**
Kento Watanabe, Kohei Sone, Koji Fujita, Hiroki Nagai (Tohoku University, Japan)
- OS20-50 **The Effect of Surface Roughness and Solvent Polymer Chain-Length on Solid-Liquid Interfacial Thermal Resistance**
Qing-Yao Luo, Yining Li, Surblys Donatas, Hiroki Matsubara, Taku Ohara (Tohoku University, Japan)
- OS20-51 **Dependence of Thrust Efficiency on Propellant Mass Flow Rate of Radio-Frequency Inductively Coupled Plasma Thruster**
Kaho Akiyama, Yuichiro Hirai, Takayasu Fujino (University of Tsukuba, Japan)
- OS20-52 **Aerodynamic Characteristics and Flow Field of Free-flight Re-entry Capsules**
Kazuma Yomo, Naoki Tanaka, Koichi Takahashi, Toshihiro Ogawa, Kiyonobu Ohtani, Koji Fujita, Hiroki Nagai, (Tohoku University, Japan) Kazuhiko Yamada (Japan Aerospace Exploration Agency, Japan)
- OS20-53 **Penetration Evaluation of Inflatable Space Structure with Heat Curing at Hypervelocity Impact**
Ryohei Kobayashi, Mayumi Suzuki, Nanami Karasawa, Daisuke Morimoto, Keisuke Otsuka, Kanjuro Makihara (Tohoku University, Japan)
- OS20-54 **Low-speed Aerodynamic Testing of Next-generation Re-entry Capsule for Deep Space Exploration**
Yudai Hamashima, Tsubasa Ikami, Koichi Takahashi, Koji Fujita, Hiroki Nagai (Tohoku University, Japan), Kazuhiko Yamada (Japan Aerospace Exploration Agency, Japan)
- OS20-55 **Temperature Measurement inside Unsteady Cavitation in High Temperature Water**
Yuma Okubo, Yuka Iga, Junnosuke Okajima (Tohoku University, Japan)
- OS20-56 **Development of Automatic Thermal Switching Coating by Using Temperature Sensitive Gel**
Masayuki Yano, Jin Gong, Hiroki Gonome (Yamagata University, Japan)
- OS20-57 **Effect of Liquid Viscosity on Liquid Jet in a Gas Crossflow**
Kento Mukai (Kyushu Institute of Technology, Japan), Minori Shirota, Yohsuke Matsushita (Hirosaki University, Japan), Hideyuki Aoki (Tohoku University, Japan), Yoshihide Mawatari, Masato Yamamura, Yasuhiro Saito (Kyushu Institute of Technology, Japan)
- OS20-58 **Measurement of the Effect of Radiative Heat Transfer on Marangoni Convection**
Daisuke Tominaga, Yuki Kanda, Atsuki Komiya (Tohoku University, Japan)

- OS20-59 **High Spatial-Resolution Measurement of Unsteady Natural Convection in a Tilted Rectangular Enclosure**
Kohki Nishiyama, Takahiro Okabe, Taimei Miyagawa, Minori Shiota (Hirosaki University, Japan)
- OS20-60 **Effects of Atomizer Structure on Atomization and Combustion Characteristics of 3D-printed Metal Airblast Atomizers**
Yosuke Imai, Ayato Shibasaki, Taku Kudo (Tohoku University, Japan), Masahiro Uchida, Yusuke Komatsu (IHI Corporation, Japan), Akihiro Hayakawa, Hideaki Kobayashi (Tohoku University, Japan)
- OS20-61 **Effect of Anisotropic Thermal Conductivity of CFRP on Heat Transport Performance of Oscillating Heat Pipe**
Kosei Matsubara, Koji Fujita, Hiroki Nagai (Tohoku University, Japan)
- OS20-62 **Thermal State Estimation via Artificial Neural Network for Spacecraft Systems**
Hiroto Tanaka, Koji Fujita, Hiroki Nagai (Tohoku University, Japan)
- OS20-63 **Influence of Reynolds Number on Thermodynamic Self-suppression Effect of Cryogenic Cavitation**
Shunta Tsuchiyama, Masaki Nakano, Junnosuke Okajima, Yuka Iga (Tohoku University, Japan)
- OS20-64 **Effect of Softened Coal Characteristics on Fluid Flow**
Yoshiki Ikeda, Yasuhiro Saito (Kyushu Institute of Technology, Japan)
- OS20-65 **Experimental Investigation of Basic Characteristics of CNT Heater for Development of cnt-PSP**
Takaaki Uchida, Seiya Suzuki, Daiju Numata (Tokai University, Japan)
- OS20-66 **Design, Fabrication, and Performance Evaluation of a Solar-selective Absorber with Double-layer Dielectric Structure**
Akira Takahashi, Kazuki Matsumoto, Harmeet Kaur, Yiming Huang, Ryota Igarashi, Atsushi Sakurai (Niigata University, Japan)
- OS20-67 **Experimental Measurement of Time-Modulated Thermal Emission from Graphene Devices**
Kazuki Matsumoto, Yo Kumakura, Kouya Misaki, Tomoyuki Sugano (Niigata University, Japan), Atsushi Sakurai (Niigata University / JST PRESTO, Japan)
- OS20-68 **Enhancement of Non-equilibrium Light Emission Using a Distributed Bragg Reflector**
Kotaro Sato, Yuki Matsuno, Nobuhiro Nagumo, Kazuki Yamaga, Ryo Sugimoto, Masaya Araki (Niigata University, Japan), Atsushi Sakurai (Niigata University / JST PRESTO, Japan)
- OS20-69 **Active Thermal Radiation Control Using Graphene Ribbon Metasurfaces**
Yoshiki Nanasawa, Kyohei Yada, Takashi Shimojo, Hideyuki Okada, Atsushi Sakurai (Niigata University, Japan)

- OS20-70 **Active Thermal Emission Control using Phase-change Metasurface**
Shunji Nishino, Nobuhiro Nagumo, Hidetoshi Kishi, Atsushi Sakurai (Niigata University, Japan)
- OS20-71 **Study on Coating Method to Control the Thickness of TSP Layer**
Takki Saichi, Daiju Numata (Tokai University, Japan)