

**OS23: The 20th International Students / Young Birds Seminar on
Multi-scale Flow Dynamics**

November 18, 2024

EX-Hall-1A

14:50 -16:20 Short Oral Presentation & Poster Presentation

- OS23-1 **Numerical Simulation of Triple Thermal Plasma Process for Synthesizing Silicon/Carbon Composite**
Su-Bin Yang, Yong Hee Lee, Jeong-Hwan Oh, Sooseok Choi (Jeju National University, Korea)
- OS23-2 **Thermal Plasma Synthesis of Boron Nitride Nanotubes Using a Reactant Gas of Ammonia**
Seunghyeon Kim, Yong Hee Lee, Jeong-Hwan Oh, Sooseok Choi (Jeju National University, Korea)
- OS23-3 **Synthesis of Graphene Nanoflakes by Methane Pyrolysis in Thermal Plasma**
Gwangbeom Yang, Seunghyeon Kim, Subin Yang, Hyeyoung Ko, Yong Hee Lee, Jeong-Hwan Oh, Sooseok Choi (Jeju National University, Korea)
- OS23-4 **A Study on Droplet Breakup Behavior and its Electrical Characteristics**
Yuta Kurihara, Rito Jin, Masatoshi Daikoku (Hachinohe Institute of Technology, Japan), Taimei Miyagawa, Takahiro Okabe, Minori Shiota (Hirosaki University, Japan), Yoshiya Matsukawa, Hideyuki Aoki (Tohoku University, Japan), Yasuhiro Saito (Kyushu Institute of Technology, Japan), Junichi Fukuno (Honda Motor Co., Ltd., Japan)
- OS23-5 **Thermal Emission Measurement in a Micro-Area of Two-Dimensional Materials**
Hiroki Tanaka, Takeshi Kishi, Koya Misaki (Niigata University, Japan), Ilario Bisignano, Satoshi Ishii (National Institute for Materials Science, Japan), Atsushi Sakurai (Niigata University, Japan)
- OS23-6 **Unsteadiness in a 2D Transonic Cavity Flow with a Deep Sub-cavity and Deployment of a Passive Control Technique**
Cherishma Mallavarapu (Indian Institute of Technology, India), Hideaki Ogawa (Kyushu University, Japan), S. K. Karthick (Indian Institute of Technology, India)
- OS23-7 **Semi-Active Vibration Control Combining Various Disturbance Periods and Predictive Scheme**
Koyo Mishima, Xingzhi Li, Tianyi Tang, Meng Zhou, Yushin Hara, Kanjuro Makihara (Tohoku University, Japan)
- OS23-8 **Dynamic Analysis Method for High-Aspect-Ratio Wings Using Curvature Modes**
Yoshitaka Shizuno, Shuonan Dong, Ryo Kuzuno, Taiki Okada, Naruya Nagai, Motonobu Kawai, Shugo Kawashima, Kanjuro Makihara, Keisuke Otsuka (Tohoku University, Japan)

- OS23-9 **Buffeting-Induced Vibration Energy Harvesting using Flexible Plates with Piezoelectric Film**
Kento Shimura, Mizuki Ishigami (Tohoku University, Japan), Yu Jia (Aston University Birmingham, UK), Yu Shi (University of Leeds, UK), Constantinos Soutis (The University of Manchester, UK), Hiroki Kurita, Fumio Narita, Yushin Hara, Kanjuro Makihara, Keisuke Otsuka (Tohoku University, Japan)
- OS23-10 **Conceptual Study on an Flying Wing Type Micro-sized Mars Airplane with Canard**
Rika Kimura, Masaki Okawa, Tsubasa Ikami, Hiroki Nagai (Tohoku University, Japan)
- OS23-11 **Uncertainty Quantification of Spacecraft Thermal Analysis Using Transient Surrogate Model**
Daichi Yamashita, Tsubasa Ikami, Hiroki Nagai (Tohoku University, Japan)
- OS23-12 **Effect of Liquid Properties on Attitude of Flake Particles in a Drop Impacting using DEM-VOF Simulations**
Naoki Hashiguchi (Kyushu Institute of Technology, Japan), Taimei Miyagawa, Takahiro Okabe, Minoru Shirota (Hirosaki University, Japan), Yoshiya Matsukawa, Hideyuki Aoki (Tohoku University, Japan), Masatoshi Daikoku (Hachinohe Institute of Technology, Japan), Junichi Fukuno (Honda Motor Co., Ltd., Japan), Yasuhiro Saito (Kyushu Institute of Technology, Japan)
- OS23-13 **Thermal Load Estimation Using Machine Learning**
Atsuto Okuyama, Ryo Kato, Soraki Eguchi, Yushin Hara, Kanjuro Makihara, Keisuke Otsuka (Tohoku University, Japan)
- OS23-14 **Experimental Study on Heat Transport Characteristics of Single-Turn Pulsating Heat Pipe with Straight Channel**
Kyohei Saito, Takuya Nozawa, Masayoshi Miura (Chiba Institute of Technology, Japan)
- OS23-15 **Liquid Film Formed with Liquid Column Oscillation in Capillary Tube**
Iori Ito, Yuri Ahara, Hayato Kikuchi, Yuto Hitomi, Masayoshi Miura (Chiba Institute of Technology, Japan), Hiroyuki Ito (Kanagawa University, Japan)
- OS23-16 **Heat Transport Characteristics of Pulsating Heat Pipes with Various Flow Path Shapes**
Takumi Sasagawa, Rei Akiyama, Masayoshi Miura (Chiba Institute of Technology, Japan)
- OS23-17 **Performance Improvement of Gas Separator with Micro-Network Structure and Prototyping of the Device with a 3D printer**
Ryo Masuo, Mimori Osada, Soichiro Nakanishi, Mizuki Yamazaki, Naoki Ono (Shibaura Institute of Technology, Japan)
- 16:30 -18:00 **Short Oral Presentation & Poster Presentation**
- OS23-18 **Visualization of Surface and Internal Flows in Liquid Layer during Coating Material Processing**
Ken Akase, Riku Yabe, Naoki Ono (Shibaura Institute of Technology, Japan)

- OS23-19 **Prototype Study of Particle Separator with 3D Printed Microstructures Utilizing Thermophoresis**
Mimori Osada, Ryo Masuo, Souichiro Nakanishi, Mizuki Yamazaki, Naoki Ono (Shibaura Institute of Technology, Japan)
- OS23-20 **Temperature Evaluation of Autonomous Spectral Switching Coatings under Solar Irradiation**
Takumi Takahashi, Hiroki Tomori, Hiroki Gonome (Yamagata University, Japan)
- OS23-21 **Insight into Latent Heat and Melting of Sugar Alcohol Phase Change Materials: A Molecular Dynamics Study**
Shukai Cheng, Donatas Surbllys, Taku Ohara (Tohoku University, Japan)
- OS23-22 **Correlation between Deformation Behavior of Filament Wound CFRP and Eddy Current Testing Signals**
Kosei Nakajima, Tetsuya Uchimoto, Hiroyuki Kosukegawa (Tohoku University, Japan), Toshiyuki Takagi (Japan Society for the Promotion of Science, Strasbourg Office, France), Sho Takeda (Ishinomaki Senshu University, Japan), Takeshi Watanabe, Yusuke Tsuchiyama (Honda R&D Co. Ltd., Japan)
- OS23-23 **Clustering Method of Species Characteristics for Simplified Reaction Model of Methane**
Koyo Igusa, Hisashi Nakamura (Tohoku University, Japan)
- OS23-24 **Improvement of Solar Absorption Performance by Plasmonic Pickering Emulsions**
Yusuke Koizumi, Shun Hirashima, Taisei Kimura (Yamagata University, Japan), Mizuho Ono (Tohoku University, Japan), Yoshimune Nonomura, Akito Masuhara, Hiroki Gonome (Yamagata University, Japan)
- OS23-25 **Thermal Photonics Power Generation System Based on Perovskite Materials**
Kota Ono, Shunsuke Ito, Ryo Sugimoto, Atsushi Sakurai (Niigata University, Japan)
- OS23-26 **Effect of Pre-strain on Unsteady Characteristics of Flexible-membrane Wing at Low Reynolds Number**
Haruka Kurahashi, Tsubasa Ikami, Hiroki Nagai (Tohoku University, Japan)
- OS23-27 **Uncertainty Quantification in Compressible Flow Fields with Different Initial Conditions**
Namiki Gima, Seiichiro Morizawa (National Institute of Technology, Okinawa College, Japan)
- OS23-28 **Design and Development of 7 kW Solar Simulator for Solar Thermal Applications**
Akmal Zunurain bin Rizal, Mikito Kambayashi, Koji Matsubara, Tatsuya Kodama, Selvan Bellan (Niigata University, Japan)

- OS23-29 **Fluid-Structure Interaction Analysis of Flexible-membrane Wing at Low Reynolds Number**
Kosei Funada, Honoka Osaki, Yuma Chikamoto, Daisuke Sasaki (Osaka Metropolitan University, Japan), Yuki Kawamoto (Tokai University, Japan), Shun Takahashi (Japan Aerospace Exploration Agency, Japan), Koji Fujita (Kanazawa Institute of Technology, Japan), Haruka Kurahashi, Masaki Okawa, Tsubasa Ikami, Hiroki Nagai (Tohoku University, Japan)
- OS23-30 **Basic Research on Dye-Painted AA-PSP Using Bathophenanthroline Ruthenium Chloride as the Pressure-Sensitive Dye**
Hiroto Takata, Yuma Kawamata, Takeru Kawashima, Daiju Numata (Tokai University, Japan)
- OS23-31 **Effect of Anodized Aluminum Layer Thickness on the Characteristics of Sulfuric Acid Type Dye-Painted AA-PSP**
Kiharu Yoneyama, Yuma Kawamata, Takeru Kawashima, Daiju Numata (Tokai University, Japan)
- OS23-32 **Experimental Investigation of Optimized Arrangements of HEPA Air Purifiers in Indoor Ventilation**
Hayato Takaku, Wataru Yamazaki (Nagaoka University of Technology, Japan), Hideto Takahashi (Takasago Thermal Engineering Co., Ltd., Japan)
- OS23-33 **Advanced Optical Design for PIV Measurements on Curved Surfaces**
Ritsuki Mise, Tsubasa Ikami, Hiroki Nagai (Tohoku University, Japan)
- OS23-34 **Influence of Unsteadiness of Cavitating Flow on the Thermodynamic Self-Suppression Effect**
Gen Nakamura, Yuka Iga (Tohoku University, Japan)

November 19, 2024
EX-Hall-1A

9:00 -10:30 Short Oral Presentation & Poster Presentation

- OS23-35 **Numerical Simulation for Non-Newtonian Liquid Jet Breakup in a Gas Cross-flow with an Electric Field**
Shota Nakashima, Kohei Hayashi (Kyushu Institute of Technology, Japan), Minori Shirota (Hiroshima University, Japan), Shuichi Iwata (Nagoya Institute of Technology, Japan), Yoshihide Mawatari, Masato Yamamura, Yasuhiro Saito (Kyushu Institute of Technology, Japan)
- OS23-36 **Effect of Atomization Characteristics of Two-fluid Nozzle on Radiative Heat Transfer in Fire Accident**
Masato Jono (Yamagata University, Japan), Takuma Kogawa (National Institute of Technology, Hachinohe College, Japan), Kiyoto Kawai, Wenjing Xing (Yamagata University, Japan), Shuichi Moriya (Tohoku University, Japan), Junnosuke Okajima (Tohoku University, Japan), Hiroki Gonome (Yamagata University, Japan)
- OS23-37 **Towards to Extrapolation Prediction of Fluid Phenomena Using Physics-Informed Neural Networks (PINNs)**
Shanon Nakama, Seiichiro Morizawa (National Institute of Technology, Okinawa College, Japan)

- OS23-38 **Research on Installing Protuberance on a Flat Plate at Low Reynolds Numbers**
Honoka Osaki, Daisuke Sasaki (Osaka Metropolitan University, Japan), Yuki Kawamoto (Tokai University, Japan), Masato Okamoto (Kanazawa Institute of Technology, Japan)
- OS23-39 **Towards Efficient Unsteady Aerodynamic Optimization of a Thin Angular Airfoil at Low Reynolds Number**
Yuma Chikamoto, Daisuke Sasaki (Osaka Metropolitan University, Japan), Yuki Kawamoto (Tokai University, Japan)
- OS23-40 **Development of Temperature Sensitive Paint for Cryogenic Fluid Visualization**
Shun Okuyama, Takeshi Yokouchi, Tsubasa Ikami, Hiroki Nagai (Tohoku University, Japan)
- OS23-41 **Research on Advanced Aerodynamic Topology Optimization for Supersonic Airfoil**
Yohei Inagaki, Wataru Yamazaki (Nagaoka University of Technology, Japan)
- OS23-42 **Airfoil Design Using Optimal Design Technology Integrating Experimental and Numerical Analysis Data**
Sota Fujisaki (Nagaoka University of Technology, Japan), Altan-Ulzii Batsukh (Mongolian University of Science and Technology, Mongolia), Wataru Yamazaki (Nagaoka University of Technology, Japan)
- OS23-43 **Dependence of the Probe Volume Direction in LITGS in Non-reacting Flow with Temperature Distribution**
Hiromi Kondo, Shoya Hasegawa, Kei Norimatsu, Taku Kudo, Akihiro Hayakawa (Tohoku University, Japan)
- OS23-44 **Influence of Notch in Inducer Blade on Cavitation Instabilities for Rocket Turbopump**
Takeru Yoshino, Naruki Ishikawa, Asuka Kowata (Tohoku University, Japan), Satoshi Kawasaki (Japan Aerospace Exploration Agency, Japan), Yuka Iga (Tohoku University / Japan Aerospace Exploration Agency, Japan)
- OS23-45 **Numerical Simulation of Gas-Liquid Two-Phase Flow and Liquid Film Formation on a Rotating Disk with a Narrow Gap**
Kojiro Kurosawa (Tohoku University, Japan), Mitsuru Shimagaki (Japan Aerospace Exploration Agency, Japan), Junnosuke Okajima (Tohoku University, Japan)
- OS23-46 **Passage Characteristics of Bundle of Vortical Axis Lines in Homogeneous Isotropic Turbulence**
Kaito Uchima, Katsuyuki Nakayama (Aichi Institute of Technology, Japan)
- OS23-47 **Evaluation of Martensitic Transformation and Surface Microcracks of Hydrogen-Charged Austenitic Stainless Steels Using Eddy Current Testing**
Yasunari Kure, Tetsuya Uchimoto, Saya Ajito, Motomichi Koyama, Eiji Akiyama (Tohoku University, Japan), Sho Takeda (Ishinomaki Senshu University, Japan)
- OS23-48 **Effect of Anodized Aluminum Layer Thickness on the Characteristics of Phosphoric Acid Type Dye-Painted AA-PSP**
Takeru Kawashima, Daiju Numata (Tokai University, Japan)

- OS23-49 **Development of Background Oriented Schlieren Measurement Technique for Cylindrical Combustion Flow**
Yuuya Hirayama, Masayuki Kido, Yuki Yabiku, Shinichiro Ogawa (Osaka Metropolitan University, Japan)
- 10:40 -12:10 **Short Oral Presentation & Poster Presentation**
- OS23-50 **Temperature Measurement in a Micro-area of Two-Dimensional Materials by Raman Spectroscopy**
Takumi Hasegawa, Tomoyuki Sugano, Atsushi Sakurai (Niigata University, Japan)
- OS23-51 **Experimental Study on Temperature Depression inside Cavitation in a Nozzle Flow**
Rui Suzuki, Junnosuke Okajima (Tohoku University, Japan)
- OS23-52 **Effect of Painting Parameters on the Characteristics of Dye-Painted AA-PSP Aimed at Visualizing Unsteady Shock Wave Phenomena**
Yuma Kawamata, Daiju Numata (Tokai University, Japan)
- OS23-53 **Fabrication of PC-PSP Using Bathophenanthroline Ruthenium Chloride as the Pressure-Sensitive Dye**
Tomoyuki Takizawa, Daiju Numata (Tokai University, Japan)
- OS23-54 **Study on the Basic Characteristics of Supersonic Airfoil for Mars Airplane**
Taiki Ninomiya, Kazuki Shibata, Tomoyuki Takizawa, Daiju Numata (Tokai University, Japan)
- OS23-55 **Evaluation of the Impact of Ablation Power and Heating Time Combinations on the Depth of Heat Penetration in Biological Tissue**
Tomoki Tani (Tohoku University, Japan), Shihe Xin (University of Lyon, CNRS, INSA-Lyon, France), Mizuho Ono (Tohoku University, Japan), Atsuki Komiya (Tohoku University / ELyTMax IRL 3757, CNRS, Univ. Lyon, INSA Lyon, Centrale Lyon, Université Claude Bernard Lyon 1, Tohoku University, Japan)
- OS23-56 **Evaluation of the Effect of Local Periodic Thermal Perturbations on Convective Heat Transfer Enhancement in a Vertically Heated Plate**
Taisei Takagi, Takuma Koizumi (Tohoku University, Japan), Takuma Kogawa (National Institute of Technology, Hachinohe College, Japan), Atsuki Komiya (Tohoku University, Japan)
- OS23-57 **Assessment of New Chemical-Kinetic Parameters in Two-Temperature Kinetic Model Using an Open-Source CFD Software Eilmer4**
Jianshu Wu, Michiko Ahn Furudate (Chungnam National University, Korea)
- OS23-58 **Investigating the Thermomechanical Properties of Phosphorus-Enhanced Flame-Retardant Epoxy Resins Through Reactive DPD/MD Simulations**
Kaiwen Li (Tohoku University, Japan), Akihiko Ito (Toray Industries, Inc., Japan), Gota Kikugawa (Tohoku University, Japan)

- OS23-59 **Numerical Simulation on Bubble Growth and Wall Heat Transfer During Saturated Flow Boiling of Water in Microchannel**
Yalong Lyu, Junnosuke Okajima (Tohoku University, Japan)
- OS23-60 **Simulation of Adhesion and Fracture at the Interface between Thermosets and Metals using Quantum Chemical and Molecular Dynamics Calculations**
Hao Xue, Yingxiao Xi, Naoki Kishimoto, Gota Kikugawa, Kaiwen Li (Tohoku University, Japan), Takahisa Ishiyama (Yazaki Corporation, Japan)
- OS23-61 **Physical Property Measurement of Liquids Using an Event-Based Camera Falling with a Drop**
Tousei Kishi, Takahito Kosugi, Ryo Yamamoto, Taimei Miyagawa, Minori Shiota (Hiroshima University, Japan)
- OS23-62 **Numerical and Experimental Study of Ice Particle Melting During Drop Impact onto a Heated Surface**
Hiroto Echigo, Yuzuki Kimura (Hiroshima University, Japan), Junnosuke Okajima (Tohoku University, Japan), Takahiro Okabe (Hiroshima University, Japan)
- OS23-63 **Evaluation of Thermoelectric Effect on EMFs at a Water-Graphene Interface**
Naoya Iwamoto, Takeru Okada, Atsuki Komiya (Tohoku University, Japan)
- OS23-64 **Study on the Amount of Heat Loss in the Cooling System Using Elastocaloric Effects**
Shun Ishii (Tohoku University, Japan), Gaël Sebald (ELyTMAX, CNRS, INSA Lyon, Centrale Lyon, Université Claude Bernard Lyon 1, Tohoku University, Japan), Shuichi Moriya (Tohoku University, Japan), Atsuki Komiya (Tohoku University / ELyTMAX, CNRS, INSA Lyon, Centrale Lyon, Université Claude Bernard Lyon 1, Tohoku University, Japan)