

OS21: The 18th International Students / Young Birds Seminar on Multi-scale Flow Dynamics

November 9, 2022
CON-SAKURA

14:10-15:40 Poster Presentation **OS21-1 – OS21-22**

November 10, 2022
CON-SAKURA

10:00-11:30 Poster Presentation **OS21-23 – OS21-44**

13:10-14:40 Poster Presentation **OS21-45 – OS21-66**

OS21-1 Semi-Active Energy Harvesting with Magnetostrictive Transducer from Structural Vibration

Keiju Goto, An Li, Yushin Hara, Keisuke Otsuka, Hiroki Kurita, Fumio Narita (Tohoku University, Japan), Paul Lohmuller, Pascal Laheurte (Université de Lorraine, France), Kanjuro Makihara (Tohoku University, Japan)

OS21-2 Study on Coil Shape in a Method of Producing Ultra-Thin Metal Plates with Electromagnetic Pressure

Takanori Machida, Souma Kobayashi, Kouta Masuda, Naoki Ono (Shibaura Institute of Technology, Japan)

OS21-3 Prototype System for Three-Dimensional Visualization of a Rotating Liquid Flow during Wafer Drying

Kenichiro Sonoda, Kenta Nishimura, Hibiki Nakagami, Atsushi Sakai (Shibaura Institute of Technology, Japan), Tomoatsu Ishibashi (EBARA Corporation, Japan), Naoki Ono (Shibaura Institute of Technology, Japan)

OS21-4 Three-Dimensional Observation of a Liquid Flow on the Effect of Gas Spraying Positions during Wafer Drying

Kenta Nishimura, Kenichiro Sonoda, Hibiki Nakagami, Atsushi Sakai (Shibaura Institute of Technology, Japan), Tomoatsu Ishibashi (EBARA Corporation, Japan), Naoki Ono (Shibaura Institute of Technology, Japan)

OS21-5 Evaluation of the Heat Transfer Performance of Working Fluid in Elastocaloric Cooling Devices

Sze Xuen Way, Giulia Lombardi, Gael Sebald, Yuki Kanda, Atsuki Komiya (Tohoku University, Japan)

OS21-6 Cartesian-mesh CFD for Heat Flux Prediction of a Symmetric Wedge in Supersonic Flow

Kumpei Abe, Daisuke Sasaki (Kanazawa Institute of Technology, Japan), Shun Takahashi, Gohji Yamada (Tokai University, Japan)

- OS21-7 **Analysis of Cross-linking Reaction Process of Network Polymers by Molecular Dynamics Simulation and Quantum Chemical Calculation**
Yingxiao Xi, Hironobu Fukuzawa, Gota Kikugawa, Naoki Kishimoto (Tohoku University, Japan)
- OS21-8 **Effects of Air Plasma Configuration on Thruster Performance**
Masanori Harada, Hideki Moriai (Kanazawa Institute of Technology, Japan)
- OS21-9 Cancelled
- OS21-10 **Heat Transfer Mechanisms for Spatially Uniform Cooling of Continuous Heating Elements**
Mamoru Yamamoto, Yuki Kanda, Atsuki Komiya (Tohoku University, Japan)
- OS21-11 **Time-Dependent Heat Flux around Contact Line of Evaporating Drops on Hydrophobic Surfaces**
Kazuma Taguchi, Taimei Miyagawa, Minoru Shirota, Takahiro Okabe (Hirosaki University, Japan)
- OS21-12 **Data-Driven Thermal Analysis for Spacecraft Systems – Evaluation of Temperature Estimation by Physics-Informed Neural Networks –**
Hiroto Tanaka, Hiroki Nagai (Tohoku University, Japan)
- OS21-13 **Numerical Analysis of Oscillating Heat Pipe with Dynamic Liquid Film Model**
Ayumu Kawaguchi, Kohei Sone, Kosei Matsubara, Hiroki Nagai (Tohoku University, Japan)
- OS21-14 **Experimental Study on Operating Characteristics of Gravity-Assisted Cryogenic Loop Heat Pipe**
Takeshi Yokouchi, Xinyu Chang (Tohoku University, Japan), Kimihide Odagiri, Hiroyuki Ogawa (Japan Aerospace Exploration Agency, Japan), Hosei Nagano (Nagoya University, Japan), Hiroki Nagai (Tohoku University, Japan)
- OS21-15 **Experimental Study on Thermal Performance of CFRP-embedded Oscillating Heat Pipe**
Kosei Matsubara, Kohei Sone, Hiroki Nagai (Tohoku University, Japan)
- OS21-16 **Numerical Simulation of Coke in a Uniaxial Compression Test at High Temperature**
Takumu Higo (Kyushu Institute of Technology, Japan), Shinji Kudo, Jun-ichiro Hayashi (Kyushu University, Japan), Yasuhiro Saito (Kyushu Institute of Technology, Japan)
- OS21-17 **Measurement and Prediction of Defect Free Region Formed on Impact Surface of Molten Metal Drops**
Yusuke Nakagawa, Takumi Okawa, Kazuaki Maeda, Takahiro Okabe, Minoru Shirota (Hirosaki University, Japan)

- OS21-18 **Numerical Study of Plasma Behavior in a Disk MHD Generator with Various Noble Gases**
Tin Ming Samuel Leung, Kimsor Ork, Yoshihiro Okuno (Tokyo Institute of Technology, Japan)
- OS21-19 **Temperature Measurement of a Graphene Device by Raman Spectroscopy**
Yo Kumakura, Tomoyuki Suganoa, Koya Misaki, Shotaro Kinameri (Niigata University, Japan), Atsushi Sakurai (Niigata University / JST PRESTO, Japan)
- OS21-20 **Effects of Dual-cavity Flameholder on Flow Field and Flame Structure in Supersonic Flows**
Kei Norimatsu, Satoshi Nishiura, Taku Kudo, Akihiro Hayakawa, Hideaki Kobayashi (Tohoku University, Japan)
- OS21-21 **Laminar Burning Velocities and Markstein Lengths of Oxygen Enriched $\text{NH}_3/\text{O}_2/\text{N}_2$ and NH_3/O_2 Premixed Flames**
Yuxuan Shen, Kodai Sakai, Sophie Colson, Taku Kudo, Akihiro Hayakawa, Hideaki Kobayashi (Tohoku University, Japan)
- OS21-22 **Atomization and Combustion Characteristics of Airblast Atomizers Manufactured with a Metal 3D-printer**
Eisuke Tanaka, Yosuke Imai, Ayato Shibazaki, Taku Kudo (Tohoku University, Japan), Yusuke Komatsu, Masahiro Uchida (IHI Corporation, Japan), Akihiro Hayakawa, Hideaki Kobayashi (Tohoku University, Japan)
- OS21-23 **The Topological Characteristics of Bundles of Vortical Axes in The Vortical Region in an Isotropic Homogeneous Turbulence**
Kyouka Hyoudou, Katsuyuki Nakayama (Aichi Institute of Technology, Japan)
- OS21-24 **Improvements of Vortex Generator for Transonic Buffet Suppression over Supercritical Airfoil**
Yuta Tsukamoto, Keiichi Kitamura (Yokohama National University, Japan)
- OS21-25 **A Transition of Bundles of Vorticity Lines with Coalescence of Vortical Regions in a Homogeneous Isotropic Turbulence**
Yuki Adachi, Katsuyuki Nakayama (Aichi Institute of Technology, Japan)
- OS21-26 **Visualization of Rotor Surface Flow in Hovering by cntTSP**
Tsubasa Ikami, Ren Nishimura, Hiroki Nagai (Tohoku University, Japan)
- OS21-27 **Investigation on Aircraft Turbulence Using Large Eddy and Flight Simulations**
Patrick Schittenhelm (University of Stuttgart, Germany), Ryoichi Yoshimura, Junshi Ito, Shigeru Obayashi (Tohoku University, Japan)
- OS21-28 **Stall Delay in Propeller Slipstream at Low Reynolds Number**
Masaki Okawa, Ren Nishimura, Tsubasa Ikami, Hiroki Nagai (Tohoku University, Japan)
- OS21-29 **Visualization of Coaxial Rotor at Low Reynolds Number Condition**
Ren Nishimura, Masaki Okawa, Tsubasa Ikami, Hiroki Nagai (Tohoku University, Japan)

- OS21-30 **Numerical Flow Analysis and PIV Measurement around Tandem Flapping Wings**
Ryuta Tobisaka, Wataru Yamazaki (Nagaoka University of Technology, Japan),
 Shun Takahashi (Tokai University, Japan)
- OS21-31 **Numerical Study on Propeller Scale Effect on Flow Field around Blade**
Yoshikatsu Furusawa, Keiichi Kitamura (Yokohama National University, Japan),
 Tsubasa Ikami, Masaki Okawa, Hiroki Nagai (Tohoku University, Japan)
- OS21-32 **Numerical Investigation of Liquid Film Thickness of Adiabatic Two-phase Flow in Microchannel**
Daisuke Tsuneoka, Junnosuke Okajima (Tohoku University, Japan)
- OS21-33 **Downwash Profiles behind Delta Wing at Low Reynolds Number**
Naoki Takeda, Soshi Tanaka, Masato Okamoto (Kanazawa Institute of Technology, Japan)
- OS21-34 **Time Response of Anodized Aluminum Pressure-Sensitive Paint for Supersonic Phenomena**
 Shintaro Tamakuma, Junnosuke Abe, Hiroki Nagai (Tohoku University, Japan)
- OS21-35 **Investigation of Flutter Velocity and Power Generation with Piezoelectric Film**
Shuonan Dong, Taisei Mukogawa, Yushin Hara, Keisuke Otsuka, (Tohoku University, Japan), Boyue Chen, Yu Shi (University of Chester, UK), Yu Jia (Aston University, UK), Constantinos Soutis (The University of Manchester, UK), Hiroki Kurita, Fumio Narita, Kanjuro Makihara (Tohoku University, Japan),
- OS21-36 **Effects of Oscillation of Flexible-membrane Wing on Flow Field at Low Reynolds Number**
Haruka Kurahashi, Kentaro Yamamoto, Masaki Okawa, Tsubasa Ikami, Koichi Takahashi, Hiroki Nagai (Tohoku University, Japan)
- OS21-37 **Development of a BCM Solver for Internal Flow in Supersonic using the IB Method**
Kentaro Miyata, Shinichiro Ogawa, Koichi Mori (Osaka Metropolitan University, Japan), Daisuke Sasaki (Kanazawa Institute of Technology, Japan)
- OS21-38 **Unsteady Characteristics of Membrane Wing Applied Dielectric Elastomer Actuator**
Tatsuya Kobayashi (Tohoku University, Japan), Koji Fujita (Kanazawa Institute of Technology, Japan) Keisuke Otsuka, Hiroki Nagai (Tohoku University, Japan),
- OS21-39 **Spreading Behavior for a Non-Newtonian Droplet Impacting on a Solid Surface**
Cheng Zhixin (Kyushu Institute of Technology, Japan), Takahiro Okabe, Minori Shirota, Yosuke Matsushita, (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)

- OS21-40 **Influence of Electrode Position of DBD Plasma Actuator on Vortex Structures of High Reynolds Number Flows around an Airfoil**
Yoshinobu Nakamura, 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)
- OS21-41 **Investigation of Flow Characteristics for Cylinder at Low Subcritical Reynolds Number by Using OpenFOAM**
Naoaki Okabayashi, Shotaro Nara, Shun Takahashi, Gouji Yamada (Tokai University, Japan), Toshinori Miura (Kitanihon Electric Cable Co., Ltd., Japan)
- OS21-42 **Pressure-sensitive Paint Technique on Free-flight Object Surface Using a Set of Pseudo-reference Images**
Yota Hosono, Kazuma Yomo (Tohoku University, Japan), Daiki Kurihara, Joseph Gonzales, Hirotaka Sakaue (University of Notre Dame, USA), Hiroki Nagai (Tohoku University, Japan)
- OS21-43 **Basic Research of Two-color AA-PSP for the Application to the High-speed Fluid Phenomena**
Kazuuya Okamoto, Daiju Numata (Tokai University, Japan)
- OS21-44 **The Effects of the Outer Subsonic Flow on the Supersonic Jet Noise**
Kurumi Ozeki, Masanori Harada, Hideki Moriai (Kanazawa Institute of Technology, Japan)
- OS21-45 **On-Track and Off-Track Low-Boom Supersonic Transport Designs Using Bayesian Optimization**
Akari Akashi, Timothy Jim, Koji Shimoyama (Tohoku University, Japan)
- OS21-46 **Investigation of Peculiar Sub-synchronous Oscillation of Cavitation in Inducer**
Koki Tamura (Tohoku University, Japan), Satoshi Kawasaki (Japan Aerospace Exploration Agency, Japan), Yuka Iga (Tohoku University / Japan Aerospace Exploration Agency, Japan)
- OS21-47 **Evaluation of Hindered Diffusion Process Affected by the Different Size of Macro-pore Membrane**
Ruiyao Zhu (Tohoku University, Japan), Juan F. Torres (Australian National University, Australia), Sébastien Livi (INSA Lyon, France), Yuki Kanda, Atsuki Komiya (Tohoku University, Japan)
- OS21-48 **In-situ Measurements of Thin Nanofluid Films and Deposition Patterns of Drying Droplets in Inkjet Processes**
Taiga Saito, Akira Hoshino, Eita Shoji, Tetsushi Biwa, Masaki Kubo, Takao Tsukada, Takaaki Tomai, Tadafumi Adschiri (Tohoku University, Japan)
- OS21-49 **Conceptual Design of a Box Wing UAV with Distributed Electrical Propulsion**
Daisuke Yariwake, Edyta Dzieminska (Sophia University, Japan), Aiko Yakeno (Tohoku University, Japan), Tomasz Goetzendorf-Grabowski (Warsaw University of Technology, Poland)

- OS21-50 **Effect of Liquid Viscosity on Rapid Decrease in Contact Line Velocity of Impacting Drops**
Ayaka Kodama, Keitaro Shirai, Taimei Miyagawa, Takahiro Okabe, Yohsuke Matsushita (Hirosaki University, Japan), Yasuhiro Saito (Kyushu Institute of Technology, Japan), Yoshiya Matsukawa, Hideyuki Aoki (Tohoku University, Japan), Masatoshi Daikoku (Hachinohe Institute of Technology, Japan), Junichi Fukuno (Honda Motor Co., Ltd., Japan), Minori Shirota (Hirosaki University, Japan)
- OS21-51 **Superspreading in Wetting of Sessile Nanofluid Droplets: Measurements of Nano-thickness Films near Contact Lines**
Akira Hoshino, Taiga Saito, Eita Shoji, Tetsushi Biwa, Masaki Kubo, Takao Tsukada, Takaaki Tomai, Tadafumi Adschiri (Tohoku University, Japan)
- OS21-52 **Free-fall Experiment of a New Re-entry Capsule Using Drone in Low-speed Region**
Mao Nagata, Rito Kawano, Koichi Takahashi (Tohoku University, Japan), Koji Fujita (Kanazawa Institute of Technology, Japan), Hiroki Nagai (Tohoku University, Japan), Kazuhiko Yamada (Japan Aerospace Exploration Agency, Japan)
- OS21-53 **Structural Parameter Estimation for Health Monitoring and Damage Detection based on Subspace Identification**
Tianyi Tang, Mizuki Abe, Meng Zhou, Yushin Hara, Keisuke Otsuka, Kanjuro Makihara (Tohoku University, Japan)
- OS21-54 **Dynamic Stability Characteristics of Next Generation Re-entry Capsule at Transonic Speeds**
Rito Kawano, Yudai Hamashima, Mao Nagata, Koichi Takahashi, Hiroki Nagai (Tohoku University, Japan), Kazuhiko Yamada (Japan Aerospace Exploration Agency, Japan)
- OS21-55 **Performance Investigation of Indoor Ventilation by Changing Arrangement of HEPA Air Purifiers**
Gaku Hirokawa, Wataru Yamazaki (Nagaoka University of Technology, Japan), Hideto Takahashi (Takasago Thermal Engineering Co., Ltd., Japan)
- OS21-56 **Evaluation of Electron Temperature in Argon Plasma Flows behind Shock Waves by Continuum Radiation**
Hidemasa Hirooka, Gouji Yamada (Tokai University, Japan)
- OS21-57 **Unsteady Force Measurement on Cylinder Surface Using Anodized Aluminum Pressure-Sensitive Paint**
Shintaro Tamakuma, Kazuma Yomo, Toshihiro Ogawa, Hiroki Nagai (Tohoku University, Japan)
- OS21-58 **Experiment on Scale Effect of Cavitation Inception**
Aye Sandar Kyaw (Tohoku University, Japan) Yuka Iga (Tohoku University / Japan Aerospace Exploration Agency, Japan)

- OS21-59 **Effect of Electric Field on Liquid Jet in a Gas Crossflow**
Kohei Hayashi (Kyushu Institute of Technology, Japan), Minoru Shirota, Yohsuke Matsushita (Hirosaki University, Japan), Yoshihide Mawatari, Masato Yamamura, Yasuhiro Saito (Kyushu Institute of Technology, Japan)
- OS21-60 **Influence of Dielectric Temperature and Ambient Pressure on Power Consumption of a DBD Plasma Actuator during Flow Control**
Koki Asawa (University of Tsukuba, Japan), Noritsugu Kubo, Kazuya Nishiyama, Motofumi Tanaka (AIST, Japan), Takayasu Fujino (University of Tsukuba, Japan)
- OS21-61 **Molecular Dynamics Simulations for F⁻ Export Mechanism in CLC^F**
Akihiro Nakamura, Takashi Tokumasu, Takuya Mabuchi (Tohoku University, Japan)
- OS21-62 **Development of a Low-cost Mechanical Exfoliation Equipment**
Keita Chida, Kaira Hoshi, Hiroki Tanaka, Koya Misaki, Atsushi Sakurai (Niigata University, Japan)
- OS21-63 **Non-destructive Evaluation of Fiber Distribution in Filament Winding Molded CFRP by Eddy Current Testing**
Kodai Tanaka, Akihumi Seto, Tetsuya Uchimoto, Sho Takeda, Hiroyuki Kosukegawa, Toshiyuki Takagi (Tohoku University, Japan), Takeshi Watanabe, Yuta Urushiyama, Yusuke Tuchiya (Honda R&D Co., Ltd., Japan)
- OS21-64 **Performance Evaluation of High Resolution Eddy Current Probe Using Magneto-Optical Effect**
Kazuki Kanai, Sho Takeda, Tetsuya Uchimoto (Tohoku University, Japan), Takayuki Ishibashi (Nagaoka University of Technology, Japan)
- OS21-65 **Improvement of Measurement Accuracy of Pipe Wall Thinning Inspection by Electromagnetic Acoustic Resonance Method**
Shuhei Kimura, Sho Takeda, Tetsuya Uchimoto, Noritaka Yusa (Tohoku University, Japan)
- OS21-66 **Evaluation of Cracks in Ceramics Matrix Composites by Eddy Current Testing**
Kaede Matayoshi, Tetsuya Uchimoto, Sho Takeda, Hiroyuki Kosukegawa, Toshiyuki Takagi (Tohoku University, Japan), Koichi Inagaki, Shuhei Hashimoto, Naohiro Kimura (IHI Corporation, Japan)