

**OS28: The 25th International Symposium on Advanced Fluid Information
(AFI-2025)
IFS Collaborative Research Forum**

**November 11, 2025
EX-Hall-3B**

Chair: Ippei Oshima (Tohoku University, Japan)
13:30-15:00 Short Oral Presentation (3 min for Short Oral Presentation)
15:15-16:15 Poster Presentation

- CRF-1 **Numerical Studies for Plasma Dynamics on a Space Propulsion System**
Masayuki Takahashi, Sakira Uno, Ken Sakamoto, Koki Ito, Hiroyuki Suzuki,
Hiroki Nagai (Tohoku University, Japan)
- CRF-2 **Space Debris Shield Performance of Partially Cured Inflatable Structures**
Yoshihiro Sugiyama, Yuta Yamakoshi, Kaiki Wakai, Kiyonobu Ohtani, Yushin
Hara, Kanjuro Makihara (Tohoku University, Japan)
- CRF-3 **Four-Dimensional Density Measurement in Unsteady Flow Field Around a Re-
Entry Capsule Model by Multi High-Speed Camera BOS Systems**
Ryota Miyazaki, Masato Ikawa, Masanori Ota (Chiba University, Japan), Tatsuro
Inage (Shonan Institute of Technology, Japan), Masato Yamagishi (National
Institute of Advanced Industrial Science and Technology, Japan), Kiyonobu Ohtani,
Hiroki Nagai (Tohoku University, Japan)
- CRF-4 **RF Energy Harvesting via Orthogonal Dipole Antennas and Charge-Pump
Circuitry on a Flapping-Wing Aerial Vehicle**
Hajime Izumi, Tadateru Ishide (National Institute of Technology, Kisarazu College,
Japan), Hiroki Nagai (Tohoku University, Japan)
- CRF-5 **Numerical Analysis of the Flow around a Wing-body Combination Model with
Three-degree-of-freedom Flapping**
Motohiro Mitsunaga, Tadateru Ishide, Hajime Izumi, Yoshimi Katsu (National
Institute of Technology, Kisarazu College, Japan), Hiroki Nagai (Tohoku University,
Japan)
- CRF-6 **Study of Vortex Generators on Small Rotor Blades for Minimizing Noise Emissions**
Hikaru Otsuka, Haruto Sasaki, Hiroshi Tokutake (Kanazawa University, Japan),
Tsubasa Ikami, Hiroki Nagai (Tohoku University, Japan), Honoka Osaki, Daisuke
Sasaki (Osaka Metropolitan University, Japan), Yuki Kawamoto (Tokai University,
Japan)
- CRF-7 **Trial-experiment Study for Improvement of the Aerodynamic Performance on a
Roadable Aircraft using Wind Tunnel Testing**
Seiichiro Morizawa, Yusuke Shinzato (National Institute of Technology, Okinawa
College, Japan), Masaki Okawa, Tsubasa Ikami (Tohoku University, Japan)
- CRF-8 **Ribbed Membrane Wing Characteristics in Low Reynolds Number Flow by
Numerical and Experimental Approach**
Hikari Kono, Soshi Kudo (Tokyo Metropolitan University, Japan), Haruka
Kurahashi, Tsubasa Ikami, Hiroki Nagai (Tohoku University, Japan), Masahito
Kanazaki (Tokyo Metropolitan University, Japan)

- CRF-9 **Investigation of the Effects of Trailing Edge Shape and Thickness on Tonal Noise and Its Mechanism**
Kousei Harada, Hiroaki Sumikawa, Takanori Shibata (Iwate University, Japan), Ritsuki Mise, Masaki Okawa, Tsubasa Ikami, Hiroki Nagai (Tohoku University, Japan)
- CRF-10 **The Precise Measurement of Drag Coefficient of Decelerating Free-flight Sphere (2nd-Report)**
Takamasa Kikuchi (Nihon University, Japan), Kiyonobu Ohtani (Tohoku University, Japan)
- CRF-11 **On the Friction Drag Reduction Mechanism by Distributed Micro Roughness in Transitional Boundary Layer Flow**
Rikuto Osaki (Shibaura Institute of Technology, Japan), Kosuke Nakagawa, Aiko Yakeno (Tohoku University, Japan), Takuya Kawata (Shibaura Institute of Technology, Japan)
- CRF-12 **Dynamic Mode Decomposition Analysis of Three-Dimensional Smooth and Riblet Surface at Mach 0.2**
Le Anh Tuan, Kemas Zakaria, Pramudita Satria Palar (Bandung Institute of Technology, Indonesia), Viet Dung Duong (Vietnam National University, Vietnam), Lavi Rizki Zuhail (Bandung Institute of Technology, Indonesia), Akira Oyama (Japan Aerospace Exploration Agency, Japan), Aiko Yakeno (Tohoku University, Japan)
- CRF-13 **Surrogate Modeling of Sonic Boom Loudness Under Atmospheric Variability**
Hiroshi Yamashita, Bastian Kern (German Aerospace Center, Germany), Takahiro Ukai (Osaka Institute of Technology, Japan), Takashi Misaka (National Institute of Advanced Industrial Science and Technology, Japan), Aiko Yakeno, Shigeru Obayashi (Tohoku University, Japan)
- CRF-14 **Effects of Engine Rotational Speed on Full Aircraft Cruise Aerodynamic Performance**
Kazuhisa Chiba, Jan Mueller (The University of Electro-Communications, Japan), Yoshinori Oba (IHI Corporation, Japan), Yoshiaki Abe (Tohoku University, Japan)
- CRF-15 **Machine Learning Based Post-Processing for PIV data**
Ryuji Kokubo, Misato Kurosawa (Waseda University, Japan), Masaki Okawa, Tsubasa Ikami, Hiroki Nagai (Tohoku University, Japan), Yu Matsuda (Waseda University, Japan)
- CRF-16 **Shock Wave Experiments Around a Hypersonic Vehicle for CFD Validation Data Acquisition**
Michiko Furudate, Young Jo Kim (Chungnam National University, Korea), Jinhwi Kim, Bok Jik Lee, (Seoul National University, Korea), Kiyonobu Ohtani, Hiroki Nagai (Tohoku University, Japan)
- ~~CRF-17 **Fundamental Study on Two-Color DP-AA-PSP for Pressure Field Measurements on Supersonic Projectiles**~~ ***This presentation has been canceled.**
Daiju Numata, Yuma Kawamata, Takeru Kawashima, Kiharu Yoneyama, Hiroto Takata (Tokai University, Japan), Kiyonobu Ohtani (Tohoku University, Japan)

- CRF-18 **Attenuation Effect of Shock Environment in Supersonic Flows using the Soft Body**
Kazutaka Kitagawa (Aichi Institute of Technology, Japan), Hayate Ueda (Gifu University, Japan), Kiyonobu Ohtani (Tohoku University, Japan), Nobuya Sato (Aichi Institute of Technology, Japan), Toshihiro Ogawa, Yasufumi Konishi (Tohoku University, Japan)
- CRF-19 **Fundamental Study of Weak Radiation behind Air Shock Waves (Second Report)**
Masato Funatsu, Tomoya Ogino, Keisuke Shimoyama (Gunma University, Japan), Kenji Shibusawa (National Institute of Technology, Ibaraki College, Japan), Kiyonobu Ohtani (Tohoku University, Japan)
- CRF-20 **Experimental Investigation on Shock Wave Development in Opaque Medium**
Toshiharu Mizukaki, Yuki Iwamoto, Shinta Nakamura, Keisuke Kiura, Hikaru Tanno (Tokai University, Japan), Kiyonobu Otani (Tohoku University, Japan)
- CRF-21 **Charting *Kakkoi* Aircraft through the Intersection of the Humanities and Engineering: A Preliminary Survey Report**
Ryo Saito, Yoshiaki Abe (Tohoku University, Japan), Ryota Takano (Nagoya University, Japan), Jun Shintake (The University of Electro-Communications, Japan)
- CRF-22 **Experimental Study on Block Transport in Explosive Volcanic Eruptions using Schlieren and Shadowgraph Imaging**
Kae Tsunematsu (Yamagata University, Japan), Kiyonobu Ohtani (Tohoku University, Japan), Nils Steinau (Yamagata University, Japan), Akuto Kaneko, Kazuya Seo (Kogakuin University, Japan), Takato Tomizawa (Yamagata University, Japan)
- CRF-23 **Microseismic Data Analysis for Understanding Hydrothermal System of the Kuju Volcano**
Takehiro Uryu (Kyushu University, Japan), Yusuke Mukuhira (Tohoku University, Japan), Tatsunori Ikeda (Kyushu University, Japan), Dian Darisma (Syiah Kuala University, Indonesia), Takaaki Kawahito (Tohoku University, Japan), Kyosuke Okamoto (National Institute of Advanced Industrial Science and Technology, Japan), Keigo Kitamura (Kyushu University, Japan)
- CRF-24 **Machine Learning-based Analysis for Microseismic Monitoring of Water Injection at Muara Laboh Geothermal Field, Indonesia**
Dian Darisma (Syiah Kuala University, Indonesia), Yusuke Mukuhira (Tohoku University, Japan), Olivier Lengline (University of Strasbourg, France), Rifa Salma Salsabila (Syiah Kuala University, Indonesia), Kyosuke Okamoto (National Institute of Advanced Industrial Science and Technology, Japan), Herwin Azis, Indra A. Nugroho, Novi Ganefianto (PT. Supreme Energy, Indonesia)
- CRF-25 **Combined In situ & Ex situ, Multi-scale Stress Measurements in Crystalline Geothermal Reservoirs**
Yusuke Mukuhira (Tohoku University, Japan), Xiaodong Ma, Shihuai Zhang (University of Science and Technology of China, China), Takatoshi Ito (Tohoku University, Japan)
- CRF-26 **Investigation on Influence of Side Chain on Crosslinking Process and Thermomechanical Properties of Epoxy Resin**
Yinbo Zhao (Tongji University, China), Gota Kikugawa (Tohoku University, Japan)

November 12, 2025
EX-Hall-3B

Chair: Siwei Liu (Tohoku University, Japan)
10:45-12:15 Short Oral Presentation (3 min for Short Oral Presentation)
12:30-13:30 Poster Presentation

- CRF-27 **Magnetic Incremental Permeability Detection Method and Experimental Technology for Stress under High-Temperature for Ferromagnetic Materials**
Zhongqi Xu, Shurui Zhang, Yujue Wang, Bin Wu, Xiucheng Liu (Beijing University of Technology, China), Tetsuya Uchimoto (Tohoku University, Japan)
- CRF-28 **PECT Signal Processing Algorithm for Better Thickness Quantification of Ferromagnetic Material**
Shejuan Xie, Shuyan Yang, Guohang Lu, Zhenmao Chen (Xi'an Jiaotong University, China), Tetsuya Uchimoto, Toshiyuki Takagi (Tohoku University, Japan)
- CRF-29 **Influence of Ni Dissolution on Ionic Transport and Structure in YSZ: A Molecular Dynamics Study**
Yuting Guo, Jin Shiomi, Taiyo Taniuchi, Haiyi Sun (Kyoto University, Japan), Taku Ohara (Tohoku University, Japan), Masashi Kishimoto, Hiroshi Iwai (Kyoto University, Japan)
- CRF-30 **Insights into Passivation Mechanisms at Ti/TiO_x/Si Interfaces by Molecular Dynamics Simulation: Role of Metal and Oxide Layer Thickness**
Shohei Fukaya (Nagoya University, Japan), Naoya Uene (Tohoku University, Japan), Kazuhiro Gotoh (Nagoya University / Niigata University, Japan), Takashi Tokumasu (Tohoku University, Japan), Noritaka Usami (Nagoya University, Japan)
- CRF-31 **Effect of Solvent Mixture on Interfacial Phenomena between Surface-Modified Metal Oxide and Binary Mixtures of Organic Solvents**
Yuto Sato, Takamasa Saito, Eita Shoji, Gota Kikugawa, Donatas Surblys, Atsuki Komiya, Masaki Kubo (Tohoku University, Japan)
- CRF-32 **Formation of SiC Coating on MWCNTs via Thermal CVD with Vinylsilane**
Naoto Ohshima (Aichi Institute of Technology, Japan), Kenichi Uehara (Japan Advanced Chemicals Ltd., Japan), Yasuo Nakai, Shinya Fukuchi (Koatsu Gas Kogyo Co. Ltd., Japan), Shigeo Yasuhara (Japan Advanced Chemicals Ltd., Japan), Takashi Tokumasu (Tohoku University, Japan), Keishiro Goshima, Noriyuki Taoka, Wakana Takeuchi (Aichi Institute of Technology, Japan)
- CRF-33 **Proposal of Simple Method for Evaluation of Stability of Magnesium Oxide on Silicon Surface for Epitaxial Growth**
Satoru Kaneko (KISTEC / Institute of Science Tokyo, Japan), Masahito Kurouchi, Manabu Yasui, Daishi Shiojiri, Masahiko Mitsuhashi (KISTEC, Japan), Masahiro Yoshimura (KISTEC / Institute of Science Tokyo, Japan), Ruei-Sung Yu (National Chin-Yi University of Technology, Taiwan), Shigeo Yasuhara (Japan Advanced Chemicals Ltd., Japan), Musa Mutlu Can (Istanbul University, Türkiye), Sumanta Kumar Sahoo (Radhakrishna Institute of Technology and Engineering, India), Ionita Mariana (University Politehnica of Bucharest, Romania), Kripasindhu Sardar, Takashi Tokumasu (Tohoku University, Japan)

- CRF-34 **Molecular Dynamics Simulation for Determining Static and Kinetic Parameters of CO₂ Adsorption in Direct Air Capture (DAC) Applications**
Erdiyanto Munandar, Nasruddin Yusuf Rodjali (University of Indonesia, Indonesia), Takashi Tokumasu (Tohoku University, Japan)
- CRF-35 **Effect of Soret Diffusion on Intrinsic Instability of Hydrogen/air Flames**
Qizhe Wen, Yan Wang, Linlin Yang (Peking University, China), Youhi Morii (Tohoku University, Japan), Thorsten Zirwes (University of Stuttgart, Germany), Shengkai Wang, Zheng Chen (Peking University, China)
- CRF-36 **Effect of NTC Regime on Ignition Front Dynamics under Engine-Like Conditions**
Minh Bau Luong (Hanoi University of Science and Technology, Vietnam), Youhi Morii (Tohoku University, Japan), Hong G. Im (King Abdullah University of Science and Technology, Saudi Arabia)
- CRF-37 **Study on the Injection Control of Carbon-Free Fuels**
Noritsune Kawaharada (National Traffic Safety and Environment Laboratory, Japan), Ippei Oshima (Tohoku University, Japan)
- CRF-38 **Fundamental Simulation of Plasma Processes to Optimize Ammonia Production Efficiency**
Shuntaro Sakamoto, Ryoya Shiraishi, Taiji Hatayama (Yamaguchi university, Japan), Takatoshi Fujii, Yasutaka Hayamizu (National institute of Technology, Yonago College, Japan), Takashi Tokumasu (Tohoku University, Japan)
- CRF-39 **Direct-Ammonia SOFCs: Evaluation of Nitric Oxide Generation and Mitigation Strategies**
Aliza Willsey, Cole Wilhelm (Syracuse University, USA), Kenta Tamaoki, Hisashi Nakamura (Tohoku University, Japan), Jeongmin Ahn (Syracuse University, USA)
- CRF-40 **Accurate Modeling of Real-Fluid Thermodynamic and Transport Properties via an Attention-Based Many-Body Deep Potential**
Xin Zhang, Rui Bo (Peking University, China), Hisashi Nakamura (Tohoku University, Japan), Hao Zhao (Peking University, China)
- CRF-41 **Numerical Modeling of Solid-Liquid Interface Transport Fields in Desalination by Gas Hydrate Formation**
Yuki Kanda (Tohoku University, Japan), Hiroyuki Komatsu (Niigata University, Japan)
- CRF-42 **Visualization of Concentration Boundary Layer Near Gas-liquid Interface in Gas Absorption**
Yuki Kanda (Tohoku University, Japan), Junhao Ke (The University of Sydney, Australia)
- CRF-43 **Control of Quasi-Atmospheric Turbulence via Multi-Shear Flow Systems**
Kotaro Takamure (Akita University, Japan), Ippei Oshima (Tohoku University, Japan)
- CRF-44 **DNS of Spatially Developing Natural Convection Boundary Layer and Global Behaviour for $Pr = 2$ and $Pr = 6$**
Jinshuyang Lu, Junhao Ke, Steven W. Armfield (The University of Sydney, Australia), Atsuki Komiya (Tohoku University, Japan)

- CRF-45 **Schlieren Imagery of Low Frequency AC Voltage EHD of Phase Change Materials**
Ethan Chariandy, James S. Cotton (McMaster University, Canada), Takehiko Sato, Siwei Liu (Tohoku University, Japan)
- CRF-46 **Enhancing Thermal and Electrical Performance of CPC-Based CPVT Systems Using Spectrally Selective Optical Filters**
Abid Ustaoglu, Bilal Kursuncu (Bartın University, Türkiye), Tayfun Altiok (Mescier Iron and Steel Industry and Trade Inc., Türkiye), Hakan Buyukpatpat (Bartın University, Türkiye), Mehmet Onur Karaagac (Sinop University, Türkiye), Junnosuke Okajima (Tohoku University, Japan)
- CRF-47 **Research on Power Generation Technology using Flow-induced Vibration**
Kazuya Kondo, Kenichi Nakagawa, Hiroaki Hasegawa (Utsunomiya University, Japan), Hiroki Nagai (Tohoku University, Japan)
- CRF-48 **Toward the Construction of a Prediction Method on Fluid Phenomena in Fuel Cells during a Long Start-up Time**
Seiichiro Morizawa, Shanon Nakama (National Institute of Technology, Okinawa College, Japan), Takashi Tokumasu (Tohoku University, Japan)
- CRF-49 **Characterization of Particulate Morphology Generated from Lithium-Ion Battery Combustion Processes**
Samuel L. Manzello (Reax Engineering, USA / Tohoku University, Japan), Sayaka Suzuki (Institute of Science Tokyo, Japan), Kaoru Maruta (Tohoku University, Japan)
- CRF-50 **Molecular Dynamics (MD) Simulations of the Effect of Bulky Substituents at the N3 Position of Imidazolium-Functionalized Poly (p-phenylene oxide)**
Thabakgolo T. Letsau (University of the Witwatersrand, South Africa), Lesego Malepe (University of Johannesburg, South Africa), Takuya Mabuchi (Tohoku University, Japan), Phumlani F. Msomi (University of South Africa, South Africa)
- CRF-51 **Feature Extraction for Machine Learning-Based Prediction of Thermo-Physical Properties of Organic Materials**
Hari Krishna Chilukoti (National Institute of Technology Warangal, India), Yusuke Takaoka, Gota Kikugawa (Tohoku University, Japan)
- CRF-52 **Numerical Study on Turbulent Transport of Energy and Scalar behind a Square Prism with Navier Slip Boundary**
Muyang Wang (Harbin Engineering University, China), Yasumasa Ito (Nagoya University, Japan), Koji Nagata, Tomoaki Watanabe (Kyoto University, Japan), Yi Zhou (Nanjing University of Science and Technology, China), Yuji Hattori (Tohoku University, Japan)

12:30-13:15 Lunch (Light meal will be served for All AFI participants.)

Chair: Yutaka Kaneko (Tohoku University, Japan)

13:30-15:00 Short Oral Presentation (3 min for Short Oral Presentation)

15:15-16:15 Poster Presentation

- CRF-53 **Molecular Dynamics Study of Nano-Bubble on Solid Surface and Surface Property**
Yusuke Jonosono (Tohoku University, Japan), Shinichi Tsuda (Kyushu University, Japan), Hiroki Nagashima (University of the Ryukyus, Japan), Takashi Tokumasu (Tohoku University, Japan)
- CRF-54 **Analysis of Heat and Momentum Transport Characteristics Through Droplets Inside Nano-Order Channels**
Akinori Fukushima (University of Fukui, Japan), Takashi Tokumasu (Tohoku University, Japan)
- CRF-55 **Effect of Dissolved Gas on Cavitation Bubble Dynamics**
Davide Bernardo Preso (University of Oxford, UK / University of Turin, Italy), Siwei Liu (Tohoku University, Japan)
- CRF-56 **Characteristics of the Plasma-Affected Cavitation Bubble Dynamics**
Siwei Liu (Tohoku University, Japan), Outi Supponen (ETH Zurich, Switzerland), Takehiko Sato (Tohoku University, Japan), Mohamed Farhat (Ecole Polytechnique Federale de Lausanne, Switzerland), Tomoki Nakajima, Kaito Nitto, Kota Kurihara (Tohoku University, Japan)
- CRF-57 **Observation and Modeling for Plasma-Dependent Interface**
Siwei Liu (Tohoku University, Japan), Kosuke Tachibana (Oita University, Japan), Satoshi Uchida (Tokyo Metropolitan University, Japan), Tomoki Nakajima, Takehiko Sato (Tohoku University, Japan)
- CRF-58 **Characteristics of Gas-Liquid Interfacial Pulsed Discharge Plasmas**
Katsuyuki Takahashi (Iwate University, Japan), Nozomi Takeuchi (Institute of Science Tokyo, Japan), Takuya Mabuchi (Tohoku University, Japan)
- CRF-59 **Development of a Plasma-Liquid Interfacial Reactor using a Microfluidic Chip**
Hiroyuki Yoshiki (National Institute of Technology, Sendai College, Japan), Akihiko Enta (National Institute of Technology, Tsuruoka College, Japan), Tomoki Nakajima, Takehiko Sato (Tohoku University, Japan)
- CRF-60 **Microfluidic Platform to Visualize Brain Metastasis Beyond the Blood-brain Barrier**
Aki Ogita, Momoka Kondo, Sakura Mama, Mai Inagaki (Tokushima University, Japan), Hideaki Nishihara (Yamaguchi University, Japan), Kenichi Funamoto (Tohoku University, Japan), Masanori Tachikawa (Tokushima University, Japan)
- CRF-61 **Modular Stereolithographic Microfluidic Connectors for Rapid Prototyping of Bioanalytical Systems**
Hong-Wei Zhang (National Cheng Kung University, Taiwan), Clara Tamura, Albert Folch (University of Washington, USA), Kenichi Funamoto (Tohoku University, Japan), Ting-Yuan Tu (National Cheng Kung University, Taiwan)
- CRF-62 **Charging Phenomena of High-speed Nanodroplets on various Metal Plates**
Jun-Shian Lee (Tohoku University, Japan), Yun-Chien Cheng (National Yang Ming Chiao Tung University, Taiwan), Siwei Liu, Tomoki Nakajima, Takehiko Sato (Tohoku University, Japan)

- CRF-63 **Measurement of the Characteristics of Impinging High-Speed Water Nanodroplets**
Takehiko Sato (Tohoku University, Japan), Seiji Kanazawa (Oita University, Japan), Siwei Liu, Tomoki Nakajima, Takuro Okuma (Tohoku University, Japan), Kosuke Tachibana (Oita University, Japan)
- CRF-64 **Generation of Charged Cavitation Bubbles and Their Characteristics**
Takehiko Sato (Tohoku University, Japan), Mohamed Farhat (Ecole Polytechnique Federale de Lausanne, Switzerland), Sayaka Kamata, Kiyonobu Ohtani, Tomoki Nakajima, Siwei Liu (Tohoku University, Japan)
- CRF-65 **Tracheal Stent for Precision Drug Release Driven by the Piezoelectric Effect**
Yanping Zhang, Shiliang Chen, Zhaojie Wang, Tianming Du, Aike Qiao (Beijing University of Technology, China), Hongfang Song (Capital Medical University, China), Hitomi Anzai, Makoto Ohta (Tohoku University, Japan)
- CRF-66 **Ultrasound Compatible Phantom: Simulating Transcranial Color-Coded Duplex Sonography for Aneurysm Recurrence Monitoring and Evaluation After Coiling Procedure**
Widya Anugrah Kinasih, Indira Mona Farhany, Ilsa Rostiana, Muhammad Shiddiq Sayyid Hashuro, Suprijanto (Bandung Institute of Technology, Indonesia), Makoto Ohta (Tohoku University, Japan)
- CRF-67 **Innovative Strategies for Glaucoma Management Through CFD Modeling of Aqueous Humor Flow**
Yasser Abuouf, Mohamed G. AbdelKader, Muhamed Albadawi, Nada Youssef, Nour Mahfouz (Alexandria University, Egypt), Ryuhei Yamaguchi, Makoto Ohta (Tohoku University, Japan)
- CRF-68 **Exploring the Effects of Shear Stress Magnitude and Variation on Endothelial Injury: From Current Evidence to in Vitro Experiment of Cellular Responses**
Mingzi Zhang (Macquarie University / Torrens University, Australia), Hanif Saifurrahman, Zi Wang, Hitomi Anzai, Makoto Ohta (Tohoku University, Japan)
- CRF-69 **Stochastic Non-Interacting Particle Modeling of Endothelial Cell Migration Under Confluent Condition Using Video Processing Algorithm**
Dicky Setianto, Fadjar Faturrahman (Bandung Institute of Technology, Indonesia), Hitomi Anzai, Makoto Ohta (Tohoku University, Japan), Pritta Etriana Putri, Narendra Kurnia Putra (Bandung Institute of Technology, Indonesia)
- CRF-70 **Molecular Dynamics Analysis of Membrane Transport of Reactive Species in a Cell Membrane Model Taking into Account the Inner and Outer Layers**
Yuki Iijima, Gakuya Miura, Ippei Yagi, Satoshi Uchida (Tokyo Metropolitan University, Japan), Kosuke Tachibana (Oita University, Japan), Akinori Oda (Chiba Institute of Technology, Japan), Takehiko Sato (Tohoku University, Japan)
- CRF-71 **Calculation of Surface Tension Field of Lipid Monolayer under High Strain Rate**
Quoc Nam Nguyen (University of Tsukuba, Japan), Takuya Mabuchi (Tohoku University, Japan), Tetsuya Kanagawa (University of Tsukuba, Japan)

- CRF-72 **Mechanistic Insights into the Interface-Specific Self-Assembly of Fungal Functional Amyloid RolA**
Nao Takahashi, Takuya Mabuchi (Tohoku University, Japan), Yuki Terauchi (Yamaguchi University, Japan), Takumi Tanaka (Tohoku University, Japan), Akira Yoshimi (Kyoto University, Japan), Hiroshi Yabu, Keietsu Abe (Tohoku University, Japan)
- CRF-73 **Molecular Simulation of CO₂ Permeation through Microalgae Lipid Membrane**
Fakhri Putra Nasution (University of Indonesia, Indonesia), Fayza Yulia (Universitas Pertamina, Indonesia), Nasruddin Yusuf Rodjali (University of Indonesia, Indonesia), Takuya Mabuchi (Tohoku University, Japan)
- CRF-74 **Optimisation of Aerosol Sensor Placement in Indoor Spaces**
Yujie Li (Torrens University, Australia), Naoki Kobayashi (Tohoku University, Japan), Craig McLachlan (Torrens University, Australia), Makoto Ohta (Tohoku University, Japan)
- CRF-75 **Research on the Antibacterial Effect of Ag⁻ and Cu-Containing Carbon Films Using the Self-Exudation Effect of Contained Metal Components**
Minoru Goto (National Institute of Technology, Ube College, Japan), Sho Takeda (Ishinomaki Sensyu University, Japan), Katsuya Shimabukuro (National Institute of Technology, Ube College, Japan), Hiroyuki Miki (Ishinomaki Sensyu University, Japan), Kosuke Ito (Nihon University, Japan), Tetsuya Uchimoto (Tohoku University, Japan)
- CRF-76 **Gas Flow Visualization and Advection-Diffusion Analysis in an MRI-Compatible Environment for Olfactory Brain Studies**
Yusuke Inoue (Asahikawa Medical University, Japan), Akihiro Yamada (Komatsu University, Japan), Terumi Yurimoto, Fumiko Seki, (Central Institute for Experimental Medicine and Life Science, Japan), Yoshiaki Takewa (Asahikawa Medical University, Japan), Junnosuke Okajima (Tohoku University, Japan)
- CRF-77 **Quantitative Evaluation of Humidity's Role in Heat Stroke via Thermoregulation Modeling**
Hiroki Gonome, Koki Kitamura (Yamagata University, Japan), Junnosuke Okajima (Tohoku University, Japan), Takuma Kogawa (Shibaura Institute of Technology, Japan)
- CRF-78 **On a Rotaiting Hollow Cylinder in Flight by Using Experiment and Computation**
Katsuya Hirata (Doshisha University, Japan), Jun Ishimoto, Masami Nakano (Tohoku University, Jpana), Takahiro Adachi (Akita University, Japan), Kotaro Oguchi, Koki Hijiri (Doshisha University, Japan)
- CRF-79 **An Analysis of Geometrical Characteristics of Bundles of Vortical Axis Lines and Formation of Turbulent Vortical Flow Structure**
Katsuyuki Nakayama, Kazuki Sakurai, Tomoki Nishino (Aichi Institute of Technology, Japan), Yuji Hattori (Tohoku University, Japan)

OS29: IFS Lyon Center Collaborative Research Forum

November 12, 2025

EX-1

OS29-1
15:15-16:05 **Comparative Analysis of Ferroelectric and Ferromagnetic Barkhausen Noise for Mechanical Stress Evaluation** (*Invited*)

Benjamin Ducharne (ELyTMax IRL3757, CNRS, Univ Lyon, INSA Lyon, Centrale Lyon, Université Claude Bernard Lyon 1, Tohoku University, Japan / INSA Lyon, France), Gael Sebald (ELyTMax IRL3757, CNRS, Univ Lyon, INSA Lyon, Centrale Lyon, Université Claude Bernard Lyon 1, Tohoku University, Japan), Tetsuya Uchimoto (ELyTMax IRL3757, CNRS, Univ Lyon, INSA Lyon, Centrale Lyon, Université Claude Bernard Lyon 1, Tohoku University / Tohoku University, Japan)

OS29-2
16:05-16:25 **The Role of Cation on the Bending of Ionic Liquid Doped Elastomer Under Constant Electric Field**

Gildas Coativy, Laurence Seveyrat, Véronique Perrin, Djasma Djoumoi, David Albertini, Joël Courbon (INSA Lyon, France), Hidemasa Takana (Tohoku University, Japan / Lyon Center, IFS-Tohoku U., Université de Lyon, INSA Lyon, France), Jean-Yves Cavaillé, Gaël Sebald (Lyon Center, IFS-Tohoku U., Université de Lyon, INSA Lyon, France / ELyTMax IRL3757, CNRS, Univ Lyon, INSA Lyon, Centrale Lyon, Université Claude Bernard Lyon 1, Tohoku University, Japan), Kanykei Ryskulova, Sébastien Livi, Florent Dalmas (INSA Lyon, France)

OS29-3
16:25-16:45 **Bending Strength Increase of Silicon Carbide by Density Gradient Structure Design by Direct Ink Writing**

Hiroki Kurita, Teppei Kudo, Teruyoshi Kanno, Zhenjin Wang, Tetsuya Uchimoto (Tohoku University, Japan), Hiroyuki Noto (National Institute for Fusion Science, Japan), Laurent Gremillard, Sandrine Cottrino (INSA Lyon, France), Fumio Narita (Tohoku University, Japan)

November 13, 2025

EX-1

OS29-4
9:10-9:30 **Analysis of the Drift Velocity of Carbon in Iron Crystal under High Electric Fields**

Ryuta Onozuka (Tohoku University, Japan / INSA Lyon, France), Patrice Chantrenne (INSA Lyon, France), Takashi Tokumasu (Tohoku University, Japan)

OS29-5
9:30-9:50 **Neural Network-based Prediction of Flaw Parameters in Periodic Rough Surface Using Ultrasound Reflection Data**

Kotaro Fujii, Hiroyuki Nakamoto (Kobe University, Japan), Philippe Guy (INSA Lyon, France), Tetsuya Uchimoto (Tohoku University / ELyTMax IRL3757, CNRS, Univ. Lyon, INSA Lyon, Centrale Lyon, Université Claude Bernard Lyon 1, Tohoku University, Japan)

- OS29-6
9:50-10:10 **Study of Steel Hydrogen Embrittlement Using Ultrasonic Technique**
Guy Feuillard, Jules Toupin, Hossep Achdjian, Julien Bustillo, Louis Leffray (Université de Tours, France), Nicolas Mary (INSA Lyon, France), Tetsuya Uchimoto (Tohoku University, Japan)
- OS29-7
10:10-10:30 **Elucidation of Degradation Mechanism of VIP Performance by Aging Effect**
Atsuki Komiya (Tohoku University / ELyTMaX IRL 3757, CNRS, Univ. Lyon, INSA Lyon, Centrale Lyon, Université Claude Bernard Lyon 1, Tohoku University, Japan), Mateo Groux, Genevieve Foray (INSA Lyon, France)
- 10:30-10:45 BREAK
- OS29-8
10:45-11:05 **Monitoring Eukaryotic Cell Functions under Various Hypoxic Conditions with Microfluidic Based Oxygenators**
Nasser Ghazi (University Claude Bernard Lyon 1, France), Naoto Kawahara, Satomi Hirose, Shohei Yanagita, Kenichi Funamoto (Tohoku University, Japan), Christophe Anjard, Jean-Paul Rieu (University Claude Bernard Lyon 1, France)
- OS29-9
11:05-11:25 **Investigation of a Predictive Therapeutic Response Under Controlled Oxygen Condition in Cancer Patient-Derived Organoids**
Satoshi Aratake (Tohoku University, Japan), Morgane Roinard, Jean-Paul Rieu (University Claude Bernard Lyon 1, France), Kenichi Funamoto (Tohoku University, Japan), Nicolas Aznar (University Claude Bernard Lyon 1, France)
- OS29-10
11:25-11:45 **Turing Patterns on 3D Rigid Materials**
Fumitake Kato, Hiroshi Koibuchi (National Institute of Technology (KOSEN), Ibaraki College, Japan), Elie Bretin, Camille Carvalho, Roland Denis, Simon Masnou (Université Claude Bernard Lyon 1, France), Madoka Nakayama (Institute of Science Tokyo, Japan), Sohei Tasaki (Hokkaido University, Japan), Tetsuya Uchimoto (Tohoku University / ELyTMaX, CNRS-Université de Lyon-Tohoku University, Japan)
- OS29-11
11:45-12:05 **Identification of Transient Aspect in Taylor Vortex Structures between Double Cylinders using DMD**
Hiraku Yata, Kana Akinaga (Akita University, Japan), Atsuki Komiya (Tohoku University, Japan), Takahiro Adachi (Akita University, Japan)
- OS29-12
12:05-12:25 **Mass Transfer Enhancement and Control by using Ultrasound Induced Flow**
Ruiyao Zhu (Tohoku University, Japan), Valéry Botton, Sophie Miralles (INSA Lyon, École Centrale de Lyon, Université Claude Bernard Lyon 1, France), Atsuki Komiya (Tohoku University / ELyTMaX IRL 3757, CNRS-Tohoku University International Research Laboratory, Japan)

**OS28: The 25th International Symposium on Advanced Fluid Information
(AFI-2025)
Fluids Science Research Award Lectures**

**November 12, 2025
EX-Hall-1A**

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| FRA-1
15:15-15:45 | Turbulent Dispersion and Combustion Modeling: Enabling Clean Power and Novel Wildfires Understanding
<u>Epaminondas Mastorakos</u> (University of Cambridge, UK) |
| FRA-2
15:50-16:20 | Fully Conservative Finite Difference Schemes for Unsteady Turbulence Simulations
<u>Yohei Morinishi</u> (Nagoya Institute of Technology, Japan) |