

**OS22: The 23rd International Symposium on Advanced Fluid Information  
(AFI-2023)  
IFS Collaborative Research Forum**

**November 6, 2023  
CON-HAGI**

14:10-15:50 CRF-1 to 26 **Short Oral Presentation**  
15:50-17:20 CRF-1 to 26 **Poster Presentation**

**November 7, 2023  
CON-HAGI**

10:40-12:20 CRF-27 to 52 (except CRF-31 to 34, CRF-46) **Short Oral Presentation**  
12:55-14:40 CRF-27 to 52 (except CRF-31 to 34, CRF-46) **Poster Presentation**

**November 7, 2023  
CON-HAGI**

9:30-10:30 CRF-53 to 68, CRF-31 to 34, CRF-46 **Short Oral Presentation**  
10:40-12:10 CRF-53 to 68, CRF-31 to 34, CRF-46 **Poster Presentation**

- CRF-1 **Comparative Analysis of the Chemical Kinetics of Premixed NH<sub>3</sub>-H<sub>2</sub>-H<sub>2</sub>O-Air and NH<sub>3</sub>-CH<sub>4</sub>-H<sub>2</sub>O-Air Stoichiometric Flames**  
Ekenechukwu C. Okafor (Kyushu University, Japan), Masao Hayashi, Taku Kudo, Akihiro Hayakawa (Tohoku University, Japan), Toshiaki Kitagawa (Kyushu University, Japan)
- CRF-2 **Effects of Pressure on Flame Structure of Ammonia/methane/air Premixed Flames Stabilized in a Stagnation Flow**  
Akihiro Hayakawa (Tohoku University, Japan), Marina Kovaleva, Andrew Crayford, Agustin Valera-Medina (Cardiff University, UK)
- CRF-3 **Atomization and Combustion Characteristics of Fine Bubble Fuel**  
Jumpei Obata, Yasuhito Nakatake, Hiroshi Tanaka (National Institute of Technology, Kurume College, Japan), Hirofumi Yamashita, Akihiro Hayakawa (Tohoku University, Japan)
- CRF-4 **Study on the Injection Process of Next-Generation Liquefied Fuels**  
Noritsune Kawaharada (National Traffic Safety and Environment Laboratory, Japan), Ippei Oshima (Tohoku University, Japan)
- CRF-5 **Experimental and Kinetics Modeling Study of Tri-Methyl-Phosphate Pyrolysis: Toward P-Containing Fire Suppressants for Lithium-Ion Battery Electrolytes**  
Claire Grégoire (Texas A&M University, USA), Ryotaro Matsumoto, Keisuke Kanayama, Takuya Tezuka, Masahiko Izumi, Hisashi Nakamura, Kaoru Maruta (Tohoku University, Japan), Eric L. Petersen, Olivier Mathieu (Texas A&M University, USA)

- CRF-6 **Effects of Residence Time on NO<sub>x</sub> Emission of an Ammonia Fueled Supersonic Transportation**  
Hajime Kosada, Akihiro Hayakawa, Hisashi Nakamura (Tohoku University, Japan), Daisuke Shimokuri (Hiroshima University, Japan), Yohei Fujimoto (Mitsubishi Heavy Industries Aero Engines, Japan), Shigeru Obayashi (Tohoku University, Japan)
- CRF-7 **Effects of Pressure on Derived Temperature using LITGS for Oxygen Enriched CH<sub>4</sub>/O<sub>2</sub>/N<sub>2</sub> Flames**  
Hiromi Kondo, Yuta Mizuno, Taku Kudo (Tohoku University, Japan), Shinji Nakaya (The University of Tokyo, Japan), Akihiro Hayakawa (Tohoku University, Japan)
- CRF-8 **Introduction of New AE Monitoring System for Big-data AI-aided Acoustic Emission Analysis**  
Yusuke Mukuhira (Tohoku University, Japan), Makoto Naoi (Kyoto University, Japan), Takatoshi Ito (Tohoku University, Japan)
- CRF-9 **Acoustic Measurement on Basic Physical Properties of Functional Fluids for Innovative Underground Development**  
Kazuki Sawayama (Kyoto University, Japan), Yusuke Mukuhira, Zhang Rongchang, Takatoshi Ito (Tohoku University, Japan)
- CRF-10 **Direct Comparison between Resolved Shear Stress and Stress Drop**  
Nana Yoshimitsu (Kyoto University, Japan), Yusuke Mukuhira (Tohoku University, Japan), Hiroshi Asanuma (AIST, FREA, Japan)
- CRF-11 **Structural and Thermophysical Properties of Multi-component Crosslinked Epoxy Polymers: A Molecular Dynamics Study with Curing Reaction Model**  
Yinbo Zhao (Tongji University, China), Gota Kikugawa (Tohoku University, Japan)
- CRF-12 **Effect of Surfactant on Surface Energy of Nanobubble Composed of Nitrogen Gas**  
Takuma Hori (Tokyo University of Agriculture and Technology, Japan), Gota Kikugawa (Tohoku University, Japan)
- CRF-13 **Data Analysis of Thermophysical Properties of Organic Materials Using Machine Learning Models**  
Hari Krishna Chilukoti (National Institute of Technology Warangal, India), Sota Suzuki, Gota Kikugawa (Tohoku University, Japan)
- CRF-14 **Evaluation of the Interfacial Affinity between Organic Solvents and Surface-modified Nanoparticles**  
Masaki Kubo, Toru Komori, Takamasa Saito, Eita Shoji, Gota Kikugawa, Donatas Surblys, Atsuki Komiya (Tohoku University, Japan)
- CRF-15 **Permeability of CO<sub>2</sub> Gases through DPPC Lipid Membranes using Molecular Dynamics Simulation**  
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-16 **Experimental and Computational Analysis of Solid Oxide Fuel Cell Multilayer Ceramic Composites**  
Takumi Ijichi (Tohoku University, Japan), Alexander Ryan Hartwell (Western New England University, USA), Hiroki Nagashima (University of the Ryukyus, Japan), Jeongmin Ahn (Syracuse University, USA), Takashi Tokumasu (Tohoku University, Japan)
- CRF-17 **Improvement of Ammonia Production Efficiency by Interfacial Reaction between Nitrogen Plasma and Fine Water Droplet**  
Soma Hiramatsu, Ryoya Shiraishi (Yamaguchi University, Japan), Yasutaka Hayamizu, Nanako Sehara, Takatoshi Fujii (National Institute of Technology, Yonago College, Japan), Takashi Tokumasu (Tohoku University, Japan)
- CRF-18 **Analysis of Heat and Momentum Transport Characteristics Through Droplets Inside Nanoorder Channels**  
Akinori Fukushima (University of Fukui, Japan), Takashi Tokumasu (Tohoku University, Japan)
- CRF-19 **Molecular Dynamics Study of Interfacial Nano-Bubble and Surface Property**  
Yusuke Jonosono (University of the Ryukyus, Japan), Shin-ichi Tsuda (Kyushu University, Japan), Takashi Tokumasu (Tohoku University, Japan), Hiroki Nagashima (University of the Ryukyus, Japan)
- CRF-20 **Evaluation on Stability of Magnesium Oxide Deposited on Silicon Substrate**  
Satoru Kaneko, Masahito Kurouchi, Manabu Yasui, Daishi Shiojiri, Masahiko Mitsuhashi (KISTEC, Japan), Ruei-Sung Yu (Asia University, Taiwan), Shigeo Yasuhara (Japan Advanced Chemicals, Japan), Musa Can (Istanbul University, Turkey), Kripasindhu Sardar (National Cheng Kung University, Taiwan), Sumanta Kumar Sahoo (Radhakrishna Institute of Technology and Engineering, India), Masahiro Yoshimura (National Cheng Kung University, Taiwan), Takashi Tokumasu (Tohoku University, Japan)
- CRF-21 **Analysis of Carrier Mobility in Si-Nanopillar/SiGe Composite Films by a Laser Heterodyne Photothermal Displacement Method**  
Yoshito Uno (University of Miyazaki, Japan), Tomoki Harada (University of Miyazaki / Japan Society for the Promotion of Science, Japan), Shogo Harada, Hiroki Ohyama (University of Miyazaki, Japan), Daisuke Ohori, Kazuhiko Endo (Tohoku University, Japan), Seiji Samukawa (Tohoku University, Japan / National Yang Ming Chiao Tung University, Taiwan), Tetsuo Ikari, Atsuhiko Fukuyama (University of Miyazaki, Japan)
- CRF-22 **Pulsed ECT Signal Processing Algorithm for Better Quantification of Ferromagnetic Material**  
Shejuan Xie, Shuyan Yang, Guohang Lu, Wei Guo, Zhenmao Chen (Xi'an Jiaotong University, China), Tetsuya Uchimoto, Toshiyuki Takagi (Tohoku University, Japan)
- CRF-23 **Influence of Volume Fraction of Carbon Nanofibers on Electrical Characteristics of Foam Rubber Matrix Composite**  
Noboru Nakayama, Hiroki Inoue, Masaomi Horita (Shinshu University, Japan), Sho Takeda, Tetsuya Uchimoto (Tohoku University, Japan)

- CRF-24 **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 (Tohoku University, Japan), Hiroyuki Miki (Ishinomaki Sensyu University, Japan), Kosuke Ito (Nihon University, Japan), Tetsuya Uchimoto (Tohoku University, Japan)
- CRF-25 **Numerical Simulation of Droplet Generation on the Sub-Microfluidic Channel**  
Narendra Kurnia Putra, Febricetta Zahraketzia Sarwono, Isa Anshori (Institut Teknologi Bandung, Indonesia), Makoto Ohta, Hitomi Anzai (Tohoku University, Japan)
- CRF-26 **Development of a Flow Field Estimation Method based on Cerebrovascular Images: Stabilization and Speedup of CFD Data Acquisition for Training Datasets**  
Hitomi Anzai, Kazuki Shibata, Gaoyang Li, Haoran Wang, Keito Yanagisawa (Tohoku University, Japan), Shin-ichiro Sugiyama (Kohnan Hospital, Japan)
- CRF-27 **Feasibility of Multi node Thermoregulation Model for Repeated Bathing of Sauna**  
Takuma Kogawa, Kurumu Nishidate (National Institute Technology, Hachinohe College, Japan), Yasuhiro Shimazaki (Toyohashi University of Technology, Japan), Junnosuke Okajima (Tohoku University, Japan)
- CRF-28 **Spectral Shielding Evaluation of Mist for Heat Stroke Prevention against Thermal Radiation from the Ground Surface**  
Hiroki Gonome, Masato Jono (Yamagata University, Japan), Kaito Suzuki, Shuichi Moriya, Junnosuke Okajima (Tohoku University, Japan), Takuma Kogawa (National Institute Technology, Hachinohe College, Japan)
- CRF-29 **Effect of Nanofluid on the Thermal and Electrical Performances of a Non-Imaging Concentrating Photovoltaic Thermal (CPVT) System**  
Abid Ustaoglu, Volkan Akgül (Bartın University, Turkey), Junnosuke Okajima (Tohoku University, Japan), Bilal Kursuncu (Bartın University, Turkey)
- CRF-30 **Study on Micro-scale Evaporation for Heat Transfer Enhancement**  
Junnosuke Okajima (Tohoku University, Japan), Henrik Sontheimer, Peter Stephan (Technical University of Darmstadt, Germany)
- CRF-31 **Heat Transfer Enhancement of Phase Change Material under the Application of an Oscillating Electric Field**  
Ethan Chariandy, James S. Cotton (McMaster University, Canada), Takehiko Sato, Siwei Liu (Tohoku University, Japan)
- CRF-32 **Permeation Characteristics of Long-lifetime Reactive Oxygen Species through Biological Membranes under Superimposed Electric Field Generated by the Irradiation of Cold Atmospheric Pressure Plasma**  
Satoshi Uchida, Kosuke Takami, Ryo Ninomiya, Ippei Yagi (Tokyo Metropolitan University, Japan), Kosuke Tachibana (Oita University, Japan), Akinori Oda (Chiba Institute of Technology, Japan), Takehiko Sato (Tohoku University, Japan)

- CRF-33 **Electrical Characteristics of High-speed Mists**  
Yun-Chien Cheng (National Yang Ming Chiao Tung University, Taiwan),  
Takehiko Sato (Tohoku University, Japan)
- CRF-34 **Characteristics of High-speed Ultrafine Droplets**  
Takehiko Sato (Tohoku University, Japan), Seiji Kanazawa, Kosuke Tachibana  
(Oita University, Japan), Siwei Liu, Tomoki Nakajima (Tohoku University,  
Japan)
- CRF-35 **Experiment on Mechanical Integrity Evaluation of Degradable Zinc Wire under  
Tensile Load in Flowing Medium**  
Shiliang Chen, Bao Guo, Tianming Du, Aike Qiao (Beijing University of  
Technology, China), Hongfang Song (Capital Medical University, China), Wenyu  
Fu (Beijing Union University, China), Hitomi Anzai, Makoto Ohta (Tohoku  
University, Japan)
- CRF-36 **Hemodynamic Management of Patients with Coronary Artery Stenosis Before  
and After Stent Implantation**  
Xiaorui Song, Xuezheng Wang, Na Li, Shigang Wang (Shandong First Medical  
University & Shandong Academy of Medical Sciences, China), Chunyu Zhu (The  
Second Affiliated Hospital of Shandong First Medical University, China),  
Hitomi Anzai, Makoto Ohta (Tohoku University, Japan)
- CRF-37 **Hemodynamics Effect of Wall Elasticity on Flow Dynamics within MCA  
Aneurysm**  
Gaku Tanaka (Chiba University, Japan), Ryuhei Yamaguchi (Tohoku University,  
Japan), Shuhei Sato (Chiba University, Japan), Albadawi Muhamed  
(Alexandria University, Egypt), Khalid M. Sqr (Arab Academy for Science,  
Technology and Maritime Transport, Egypt), Makoto Ohta (Tohoku University,  
Japan)
- CRF-38 **High-speed Plasma Flow Simulation on Spacecraft and Propulsion Systems**  
Masayuki Takahashi, Soichiro Suzuki, Hiroyuki Suzuki, Koki Ito, Hiroki Nagai  
(Tohoku University, Japan)
- CRF-39 **Simulation of Fountain Flow Development in Quadrotor Wake with Symmetry  
Boundary Condition**  
Hikaru Otsuka, Taisei Hara, Hiroshi Tokutake (Kanazawa University, Japan),  
Hiroki Nagai (Tohoku University, Japan)
- CRF-40 **Three-dimensional Density Measurement of Wake Region behind Re-entry  
Capsule Model to Clarify the Mechanism of its Dynamic Instability**  
Shoki Sato, Sumitaka Nogi, Nao Kosaka, Masato Yamagishi, Masanori Ota  
(Chiba University, Japan), Yota Hosono, Kiyonobu Ohtani, Hiroki Nagai  
(Tohoku University, Japan)
- CRF-41 **Computational and Experimental Study of Unsteady Flowfield around  
Flexible-membrane Wing at Low Reynolds Number toward Mars Airplane**  
Daisuke Sasaki, Kosei Funada (Osaka Metropolitan University, Japan), Koji  
Fujita (Kanazawa Institute of Technology, Japan), Yuki Kawamoto, Shun  
Takahashi (Tokai University, Japan), Tsubasa Ikami, Haruka Kurahashi,  
Hiroki Nagai (Tohoku University, Japan)

- CRF-42 **Study on Heat Flux Prediction Method for Cartesian-Mesh CFD under Supersonic Flows**  
Daisuke Sasaki, Kentaro Miyata, Shinichiro Ogawa, Koichi Mori (Osaka Metropolitan University, Japan), Kumpei Abe, Shoya Yoshinaga, Hideki Moriai (Kanazawa Institute of Technology, Japan), Shun Takahashi (Tokai University, Japan), Aiko Yakeno, Shigeru Obayashi (Tohoku University, Japan)
- CRF-43 **Application of Post-Processing Method Using Digital Annealer to PSP Measurement Data**  
Koyo Kubota, Tomoki Inoue (Waseda University, Japan), Tsubasa Ikami (Tohoku University, Japan), Yasuhiro Egami (Aichi Institute of Technology, Japan), Hiroki Nagai (Tohoku University, Japan), Takahiro Kashikawa, Koichi Kimura (Fujitsu Ltd. , Japan), Yu Matsuda (Waseda University, Japan)
- CRF-44 **On the Reduction of the Flow-induced Noise using Bio-inspired Porous Material with Low Acoustic Transmission Loss**  
Naoyuki Takeda, Koki Shige, Osamu Terashima (Toyama Prefectural University, Japan), Yasufumi Konishi, Tsubasa Ikami, Hiroki Nagai (Tohoku University, Japan), Toshihiko Komatsuzaki (Kanazawa University, Japan)
- CRF-45 **An Analysis of Self-organization of Three Dimensional Vortical Structure Derived from Interaction between Vortical Flow and Bundle of Vorticity Lines**  
Katsuyuki Nakayama, Kaito Uchima (Aichi Institute of Technology, Japan), Yuji Hattori (Tohoku University, Japan)
- CRF-46 **Production of Laser-induced Bubbles in Water-oil System**  
Kouta Kurihara, Siwei Liu, Tomoki Nakajima, Kiyonobu Ohtani (Tohoku University, Japan), Mohamed Farhat (École Polytechnique Fédérale de Lausanne, Switzerland), Takehiko Sato (Tohoku University, Japan)
- CRF-47 **Study on Simultaneous Measurement of Various Fluid Information on Free-Flight Objects**  
Daiju Numata (Tokai University, Japan), Kiyonobu Ohtani (Tohoku University, Japan)
- CRF-48 **The Experimental and Numerical Investigations of Pressure Rise-time Effects in Shock-turbulence Interaction**  
Yohei Arakawa, Takahiro Ukai (Osaka Institute of Technology, Japan), Kiyonobu Ohtani (Tohoku University, Japan)
- CRF-49 **Evaluation of Shape-Keeping Performance for Tether Cross-Shaped Keepers by Hypervelocity Impact**  
Daisuke Morimoto, Hikaru Takahashi, Yoshihiro Sugiyama, Kiyonobu Ohtani, Kanjuro Makihara (Tohoku University, Japan)
- CRF-50 **Attenuation Effect of Shock Environment in Supersonic Flow using the Soft Body**  
Kazutaka Kitagawa, Hayate Ueda, Naoki Makita (Aichi Institute of Technology, Japan), Kiyonobu Ohtani (Tohoku University, Japan), Nobuya Sato (Aichi Institute of Technology, Japan), Yasufumi Konishi (Tohoku University, Japan)

- CRF-51 **Flow Visualization around High-speed Projectile with Point-Diffraction Interferometry**  
Faming Wang, Ibuki Nagayama, Toshiharu Mizukaki (Tokai University, Japan), Kiyonobu Ohtani (Tohoku University, Japan)
- CRF-52 **Numerical Investigation of Viscous Effects on Centreline Shock Reflection in Supersonic Ring Intakes**  
Hideaki Ogawa, Masanobu Matsunaga, Aoi Shibakita, Chihiro Fujio (Kyushu University, Japan), Justin Kin Jun Hew, Roderick W. Boswell (Australian National University, Australia), Sannu Mölder (Ryerson University, Canada), Ben Shoemith, Rabi Tahir, Evgeny Timofeev (McGill University, Canada), Yoshitaka Higa, Yasumasa Watanabe, Taro Handa (Toyota Technological Institute, Japan), Kiyonobu Ohtani (Tohoku University, Japan)
- CRF-53 **Development of an Innovative Air Vehicle based on a Flight of a Bird**  
Utaka Kagawa, Masaki Hirano, Tadateru Ishide, Hajime Izumi (National Institute of Technology, Kisarazu College, Japan), Shigeru Obayashi (Tohoku University, Japan)
- CRF-54 **Initial Study for the Construction of Phenomenology-based Control-law for a Roadable Aircraft during Landing-phase around Okinawa's Islands**  
Seiichiro Morizawa (National Institute of Technology, Okinawa College, Japan), Ryotaro Sakai (Japan Aerospace Exploration Agency, Japan), Ryota Kikuchi (Nagoya University, Japan), Shigeru Obayashi (Tohoku University, Japan)
- CRF-55 **Aerodynamic Design Exploration using Explainable Surrogate Model**  
Pramudita Satria Palar (Institut Teknologi Bandung, Indonesia), Koji Shimoyama (Kyushu University, Japan), Joseph Morlier (ISAE-SUPAERO, France), Shigeru Obayashi (Tohoku University, Japan)
- CRF-56 **Improved Reduced Order Model for Controlling 3-D Unsteady Thermocapillary Convection**  
Masaki Kudo, Kouki Tanaka, Keisuke Aoki (Tokyo Metropolitan College of Industrial Technology, Japan), Shigeru Obayashi (Tohoku University, Japan)
- CRF-57 **Aerodynamic Effect of Engine Exhaust on Aircraft Whole Body - Integrated Analysis of Airframe and Running Engine Using Sliding-Mesh Method**  
Jan Mueller, Kazuhisa Chiba (The University of Electro-Communications, Japan), Yoshinori Oba (IHI Corporation, Japan), Shigeru Obayashi (Tohoku University, Japan)
- CRF-58 **Aeroelastic Simulation Framework for Membrane Wings**  
Keisuke Otsuka, Shuonan Dong (Tohoku University, Japan), Koji Fujita (Kanazawa Institute of Technology, Japan), Hiroki Nagai, Kanjuro Makihara (Tohoku University, Japan)
- CRF-59 **Study on Two-phase Thermo-fluid Phenomena in a 2-m Nitrogen Cryogenic Loop Heat Pipe**  
Kimihide Odagiri (Japan Aerospace Exploration Agency, Japan), Xinyu Chang, Takeshi Yokouchi (Tohoku University, Japan), Atsuhiko Gomi (The University of Tokyo, Japan), Hiroki Nagai (Tohoku University, Japan), Hiroyuki Ogawa (Japan Aerospace Exploration Agency, Japan)

- CRF-60 **Unsteady Flow Fields Induced by Rotating Cylinder with Fins in a Magnus Wind Turbine**  
Ikki Okuyama, Hiroaki Hasegawa (Utsunomiya University, Japan), Shigeru Obayashi (Tohoku University, Japan)
- CRF-61 **Numerical Analysis on Aeroacoustics of Multi-directional Wings Aligned in Tandem of the Aero-train**  
Chenguang Lai, Yujie Zhu (Chongqing University of Technology, China), Shigeru Obayashi (Tohoku University, Japan)
- CRF-62 **Study of Shock Wave-Particles Interaction**  
Kazuya Tajiri, Sai Goutham Viyyapu (Michigan Technological University, USA), Aiko Yakeno (Tohoku University, Japan)
- CRF-63 **Riblet Surface Effect on Viscous Drag in the Laminar, Transitional, and Turbulent Flow**  
Kento Kaneko (The University of Tokyo, Japan), Akira Oyama (Japan Aerospace Exploration Agency, Japan), Aiko Yakeno (Tohoku University, Japan)
- CRF-64 **Sonic Boom Variation in Realistic Atmospheres**  
Hiroshi Yamashita, Bastian Kern (German Aerospace Center, Germany), Rei Iura, Takahiro Ukai (Osaka Institute of Technology, Japan), Takashi Misaka (National Institute of Advanced Industrial Science and Technology, Japan), Shigeru Obayashi (Tohoku University, Japan)
- CRF-65 **Solid Oxide Fuel Cell Performance on Ammonia Gas Mixture from a Micro-Flow Reactor**  
Cole Wilhelm (Syracuse University, USA), Kenta Tamaoki, Hisashi Nakamura (Tohoku University, Japan), Jeongmin Ahn (Syracuse University, USA)
- CRF-66 **Effect of Charge Distribution on the Plasma-induced Fine Bubble Dynamics**  
Siwei Liu (Tohoku University, Japan), Outi Supponen (ETH Zurich, Switzerland), Tomoki Nakajima, Takehiko Sato (Tohoku University, Japan)
- CRF-67 **On the Self-similarity Behaviour of Coherent Structures in a Fully-developed Axisymmetric Turbulent Wake**  
Yi Zhou (Nanjing University of Science and Technology, China), Yasumasa Ito, Koji Nagata, Tomoaki Watanabe (Nagoya University, Japan), Koji Iwano (Okayama University of Science, Japan), Yasuhiko Sakai (Nagoya University, Japan), Yuji Hattori (Tohoku University, Japan)
- CRF-68 **Study of Turbulent Transition and Statistical Properties of Turbulence of Destabilized Helical Vortex**  
Yuji Hattori (Tohoku University, Japan), Ivan Delbende, Maurice Rossi (Sorbonne University, France)



## Fluids Science Research Award Lectures

November 7, 2023

EX-3-A

FRA-1      **Numerical Study of Combustion Phenomena in Compressible Flow**  
16:30-17:15    Akiko Matsuo (Keio University, Japan)