**List of selected projects for General Collaborative Research Project 2025, IFS, Tohoku University (as 1st April, 2025)**

| Project Code | Project Title | Applicant | Institution | IFS responsible member or non-IFS responsible member | Institution |
|---|---|---|---|---|---|
| J25I001 | Large-scale Numerical Analysis of the Intermembrane Electrical System in Plasma-stimulated Cells | Satoshi Uchida | Tokyo Metropolitan University | Takehiko Sato | Tohoku University |
| J25I002 | Experimental Study of Shielding Performance of Thermally-cured Inflatable Structures | Kanjuro Makihara | Tohoku University | Kiyonobu Ohtani | Tohoku University |
| J25I003 | Supercritical Real-Fluid Oxidations of Ammonia by Using the SP-Virial Thoery | Hao Zhao | Peking University | Hisashi Nakamura | Tohoku University |
| J25I004 | Machine-learning-based Analysis for Microseismic Monitoring of Water Injection in Muara Laboh Geothermal Field, Indonesia | Dian Darisma | University of Syiah Kuala | Yusuke Mukuhira | Tohoku University |
| J25I005 | Mechanism of YSZ Phase Transition and Ionic Conductivity | Yuting Guo | Kyoto University | Taku Ohara | Tohoku University |
| J25I006 | Molecular Simulation of $CO_2$ Permeation though Microalgae Lipid Memebrane | Takuya Mabuchi | Tohoku University | Fayza Yulia | Pertamina University |
| J25I007 | A Study of Heat Stroke Dynamics by Combined Analysis of Radiation and Convection | Hiroki Gonome | Yamagata University | Junnosuke Okajima | Tohoku University |
| J25I008 | Molecular Dynamics Analysis of Carrier Selective Passivating Contact Interface Structures | Noritaka Usami | Nagoya University | Takashi Tokumasu | Tohoku University |
| J25I009 | High-Efficiency Ammonia Production by Interfacial Reaction between Fine Water Droplet and Nitrogen Plasma | Ryoya Shiraishi | Yamaguchi University | Takashi Tokumasu | Tohoku University |
| J25I010 | Attenuation Effect of Shock Environment in Supersonic Flow using the Soft Body | Kazutaka Kitagawa | Aichi Institute of Technology | Kiyonobu Ohtani | Tohoku University |
| J25I011 | Silicon Carbide Crystal Growth and Its Simulation on Three-dimensional Structure of Different Materials using ReaxFF | Wakana Takeuchi | Aichi Institute of Technology | Takashi Tokumasu | Tohoku University |
| J25I012 | Numerical Analysis of the Flow Around a Wing-body Combination Model with Flapping | Tadateru Ishide | National Institute of Technology, Kisarazu College | Hiroki Nagai | Tohoku University |
| J25I013 | Study on Flow Interaction Effect to Rotor Perfromace of Multirotors | Hikaru Otsuka | Kanazawa University | Hiroki Nagai | Tohoku University |
| J25I014 | Study on Flow Strucutre Around Rotor Blade with Turbulators in Low Reynolds Numbers | Hikaru Otsuka | Kanazawa University | Tsubasa Ikami | Tohoku University |
| J25I015 | Low-Speed Aeroelastic Buffeting of Tail Wings: Theory and Analysis | Keisuke Otsuka | Tohoku University | Yoshiaki Abe | Tohoku University |
| J25I016 | Performance Investigation and Optimization Analysis of a Spectral Splitting Concentrating Photovoltaic Thermal (CPVT) System with a Unique Design: Numerical and Experimental Approaches | Abid USTAOGLU | Bartin University | Junnosuke Okajima | Tohoku University |
| J25I017 | Hemodynamics at Internal Carotid Artery with Aneurysm in Elastic Full-scale Patient Specific Model | Nadia Shaira Binti Shafii | Universiti Teknologi Malaysia | Makoto Ohta | Tohoku University |
| J25I018 | Intrinsic Instabilities of Partially Cracked Ammonia/Air Flames | Chen Zheng | Peking University | Youhi Morii | Tohoku University |
| J25I019 | Elucidation of Taylor-Couette Flow Field under Electromagnetic Fields and Its Application to Energy Conversion Devices | Hiromichi Kobayashi | Keio University | Hidemasa Takana | Tohoku University |
| J25I020 | Fabrication of Flow Chamber for Nanofibrous Layer Covered Stents | Angela Jedlovszky-Hajdu | Semmelweis University | Makoto Ohta | Tohoku University |
| J25I021 | Comparative Study of Steel Hydrogen Embrittlement using Ultrasonic and Eddy Current Characterization Techniques | Guy Feuillard | INSA Centre Val de Loire GREMAN | Tetsuya Uchimoto | Tohoku University |
| J25I022 | Laminar Flame Speed Measurement and Kinetics Modeling Study of Tri-Methyl-Phosphate (TMP) Combustion –Toward P-Containing Fire Suppressants for Lithium-Ion Battery Electrolytes | Olivier Mathieu | Texas A&M University | Hisashi Nakamura | Tohoku University |
| J25I023 | Molecular Simulation of Conductive Polymer Electrolyte Composite Membranes for Application in Electrochemical Devices | Phumlani Msomi | University of South Africa | Takuya Mabuchi | Tohoku University |
| J25I024 | Three-dimensional Numerical Simulation on Gas Pore Inside Liquid Metal Droplet | Joe Yoshikawa | Industrial Technology Institute, Miyagi Prefectural Government | Hidemasa Takana | Tohoku University |
| J25I025 | Investigation of Plasma-liquid Surface Interactions by a Molecular Dynamics Simulation | Katsuyuki Takahashi | Iwate University | Takuya Mabuchi | Tohoku University |
| J25I026 | Shock Wave Experiments Around a Hypersonic Vehicle for CFD Validation Data Acquisition | Michiko Furudate | Chungnam National University | Hiroki Nagai | Tohoku University |
| J25I027 | Characterization of Particulate Morphology Generated from Li-Ion Battery (LiB) Combustion Processes | Samuel L. Manzello | Reax Engineering | Kaoru Maruta | Tohoku University |
| J25I028 | Dynamics Simulation of Endothelial Cell Migration under Shear Flow | Narendra Kurnia Putra | Institut Teknologi Bandung | Hitomi Anzai | Tohoku University |
| J25I029 | Research on the Transition Mechanism on the Surface of High-speed Flying Vehicle and a Turbulence Model that Reproduces It | Aiko Yakeno | Tohoku University | Jens Fransson | KTH Royal Institute of Technology |
| J25I030 | Generation of Charged Cavitation Bubbles and the Characteristics | Takehiko Sato | Tohoku University | Farhat Mohamed | Ecole Polytechnique Federale de Lausanne (EPFL) |
| J25I031 | Calculation of Local Surface Tension Field of Lipid Monolayer under Rapid Deformation | Tetsuya Kanagawa | University of Tsukuba | Takuya Mabuchi | Tohoku University |
| J25I032 | Study on Improving the Performance of a Roadable Aircraft with Wind Tunnel Testing and Fluid Simulation | Seiichiro Morizawa | National Institute of Technology, Okinawa College | Tsubasa Ikami | Tohoku University |
| J25I033 | Development of Compressive Sensing Technique for Complex Fluid Phenomena | Yu Matsuda | Waseda University | Hiroki Nagai | Tohoku University |
| J25I034 | Expression of New Functions of Water by Impinging High-speed Nanodroplets | Takehiko Sato | Tohoku University | Seiji Kanazawa | Oita University |
| J25I035 | Magnetic Incremental Permeability Detection Method and Experimental Technology for Stress under High-Temperature for Ferromagnetic Materials | Shurui Zhang | Beijing University of Technology | Tetsuya Uchimoto | Tohoku University |
| J25I037 | An Analysis of Geometrical Characteristics of Bundles of Vortical Axis Lines and Formation of Turbulent Vortical Flow Structure | Katsuyuki Nakayama | Aichi Institute of Technology | Yuji Hattori | Tohoku University |
| J25I038 | Effect of Charge Distribution on the Plasma-induced Fine Bubble Dynamics | Liu Siwei | Tohoku University | Supponen Outi | ETH |
| J25I040 | Unsteady Aerodynamic Characteristics of Flexible-Membrane Wing for Mars Airplane | Daisuke Sasaki | Osaka Metropolitan University | Hiroki Nagai | Tohoku University |
| J25I041 | Numerical Study on High-Speed Space Transportation System Driven by Partially-Ionized Plasma Flow | Masayuki Takahashi | Tohoku University | Hiroki Nagai | Tohoku University |

| Project Code | Project Title | Applicant | Institution | IFS responsible member or non-IFS responsible member | Institution |
|---|---|---|---|---|---|
| J25I042 | Investigation of Device Fabrication Techniques for Sulfide-based Nanomemory | Takeo Ohno | Oita University | Kazuhiko Endo | Tohoku University |
| J25I043 | Development of a Method for Predicting Flow Phenomena in Fuel Cells during a Long Start-up Time | Seiichiro Morizawa | National Institute of Technology, Okinawa College | Takashi Tokumasu | Tohoku University |
| J25I044 | Evaluation of Wall Thinning with Thick Insulator Based on Pulsed Eddy Current Testing Method using Novel Signal Processing Way | Shejuan Xie | Xi'an Jiaotong University | Tetsuya Uchimoto | Tohoku University |
| J25I045 | Numerical Modeling of Transport Phenomena in the Vicinity of Solid-liquid Interface in Desalination with Gas Hydrate Formation | Yuki Kanda | Tohoku University | Hiroyuki Komatsu | Niigata University |
| J25I046 | Development of Ultra-bright Pressure-sensitive Paint using Nanomaterials and Application in Low-speed Wind Tunnel Experiments | Kanako Watanabe | Tohoku University | Tsubasa Ikami | Tohoku University |
| J25I047 | Numerical Simulation of Mass Transfer in Supercritical Carbon Dioxide | Yuki Kanda | Tohoku University | Yingxue Hu | Xi'an Jiaotong University |
| J25I048 | Digital Twin R&D of Flexible Membrane Wing with Wing Veins by Wind Tunnel Test and Numerical Simulation | Tsubasa Ikami | Tohoku University | Masahiro Kanazaki | Tokyo Metropolitan University |
| J25I049 | Development of Transparent Ultrasound Phantom Material: Sound Velocity Study | Muhammad Shiddiq Sayyid Hashuro | Bandung Institute of Technology | Makoto Ohta | Tohoku University |
| J25I050 | Synthesis of Sulufonated Carbon Catalysts using Combination Process of Plasma in Liquid and Ultrasonic Cavitation | Nozomi Takeuchi | Institute of Science Tokyo | Hidemasa Takana | Tohoku University |
| J25I051 | Experiment and Simulation of a Rotaiting Hollow Cylinder in Flight | Katsuya Hirata | Doshisha University | Jun Ishimoto | Tohoku University |
| J25I052 | Fundamental Study of Weak Radiation behind Air Shock Waves | Masato Funatsu | Gunma University | Kiyonobu Ohtani | Tohoku University |
| J25I053 | Advection-diffusion Solution of the Internal MRI Environment of a Non-magnetic Fluid Control Device for Analysis of Brain Function in Response to Olfactory Stimulation | Yusuke Inoue | Asahikawa Medical University | Junnosuke Okajima | Tohoku University |
| J25I054 | Multiphase Thermaly Coupled Computing Approach to the Development of Pulsating Heat Pipes under Microgravity Conditions | Jun Ishimoto | Tohoku University | Sławomir Pietrowicz | Wrocław University of Science and Technology |
| J25I055 | Dynamics of Single Cavitation Bubbles in Carbon Dioxide-Supersaturated Water | Liu Siwei | Tohoku University | Preso Davide Bernardo | University of Oxford |
| J25I057 | Advanced Microseismic Data Analysis for Understanding Hydrothermal System of the Kuju Volcano | Tatsunori Ikeda | Kyushu University | Yusuke Mukuhira | Tohoku University |
| J25I058 | Data-driven Science of Coarse-grained High Reynolds Number Turbulence based on Large-scale DNS | Takashi Ishihara | Okayama University | Yuji Hattori | Tohoku University |
| J25I059 | Clarifying the Effect of the Shape of the Trailing Edge of the Wing on Tone Noise and the Mechanism Behind It | Hiroaki Sumikawa | Iwate University | Tsubasa Ikami | Tohoku University |
| J25I060 | Study of the Liquid Film Thickness Near the Capillary Limit | Andrzej Ireneusz Nowak | Wrocław University of Science and Technology | Junnosuke Okajima | Tohoku University |
| J25I061 | Sonic-boom Surrogate Model Integration in a Chemistry-climate Model | Hiroshi Yamashita | Deutsches Zentrum für Luft- und Raumfahrt (DLR) | Aiko Yakeno | Tohoku University |
| J25I062 | Molecular Dynamics Simulation for Determining Static and Kinetic Parameters of $CO_2$ Adsorption in Direct Air Capture (DAC) Applications | Nasruddin Yusuf Rodjali | Universitas Indonesia | Takashi Tokumasu | Tohoku University |
| J25I063 | 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 | Makoto Ohta | Tohoku University |
| J25I064 | Study on Conceptual Dsing of an Aircraft Fueled with Ammonia | Hisashi Nakamura | Tohoku University | Shimokuri Daisuke | Hiroshima University |
| J25I065 | Development of a Plasma-liquid Interfacial Reactor on a Microfluidic Chip | Hiroyuki Yoshiki | National Institute of Technology, Sendai College | Takehiko Sato | Tohoku University |
| J25I066 | Blood Flow Analysis of Aorta-left Ventricle System with Aortic Valve | Suguru Miyauchi | University of Miyazaki | Kenichi Funamoto | Tohoku University |
| J25I067 | Numerical Study on Energy and Scalar Transfer in Turubulence with Non-equillibrium Features | Yasumasa Ito | Nagoya University | Yuji Hattori | Tohoku University |
| J25I068 | Dynamics of Shockwave and Transport of Ballistic Blocks in a Volcanic Eruption | Kae Tsunematsu | Yamagata University | Kiyonobu Ohtani | Tohoku University |
| J25I069 | The Structure and Propagation of Ignition Fronts of Reacting Mixtures under Autoignitve Engine-relevant Conditions: from Deflagration to Detonation | Minh Bau LUONG | Hanoi University of Science and Technology | Youhi Morii | Tohoku University |
| J25I070 | Free-motion Wind Tunnel Testing of a Lifting Atmospheric Entry Capsule | Kazuyuki Ueno | Iwate University | Hiroki Nagai | Tohoku University |
| J25I071 | Study on Visualization of Concentration Boundary Layer near Gas-liquid Interface in Gas Absorption | Yuki Kanda | Tohoku University | Junhao (Kris) Ke | The University of Sydney |
| J25I072 | Elucidation of Viscous Drag Reduction Mechanism by Riblet Processing | Akira Oyama | Institute of Space and Astronautical Science (JAXA) | Aiko Yakeno | Tohoku University |
| J25I073 | Hybridization of Nanocellulose with Silver Nanoparticles for the Fabrication of Antibacterial Filament Composites by a Field-assisted Flow Focusing Method | Hidemasa Takana | Tohoku University | Anthony B. Dichiara | University of Washington |
| J25I074 | Molecular Dynamics Study of Nano-Bubble on Solid Surface and Surface Property | Hiroki Nagashima | University of the Ryukyus | Takashi Tokumasu | Tohoku University |
| J25I075 | 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 | Tetsuya Uchimoto | Tohoku University |
| J25I076 | Development of Sub-10 $\mu$m micro-LED | Seiji Samukawa | National Yang Ming Chiao Tung University | Daisuke Ohori | Tohoku University |
| J25I078 | A Study on Nano/Mezo-scale Interfacial Phenomena between Surface-modified Material and Dispersed Media | Masaki Kubo | Tohoku University | Atsuki Komiya | Tohoku University |
| J25I079 | Fabrication of Metal/Dielectric Plasmonic Nanostructures and Evaluation of Their Emission Enhancement Properties | Takayuki Kiba | Kitami Institute of Technology | Daisuke Ohori | Tohoku University |
| J25I080 | Control of Wake of Wind Turbines based on Instability of Helical Vortices | Yuji Hattori | Tohoku University | Ivan Delbende | Sorbonne University |
| J25I081 | Study on Micro-scale Evaporation for Heat Transfer Enhancement | Junnosuke Okajima | Tohoku University | Peter Stephan | Technical University of Darmstadt |
| J25I083 | Integrated Analysis of a Propfan-Engine-Powered Airliner for Improved Fuel Efficiency | Kazuhisa Chiba | The University of Electro-Communications | Yoshiaki Abe | Tohoku University |

| Project Code | Project Title | Applicant | Institution | IFS responsible member or non-IFS responsible member | Institution |
|---|---|---|---|---|---|
| J25I084 | Investigation on Extravasation of Circulatuing Tumor Microemboli by using Microfluidic Platform | Ting-Yuan Tu | National Cheng Kung University | Kenichi Funamoto | Tohoku University |
| J25I085 | Control of Transonic / High-speed Boundary Layer Flows | Yuji Hattori | Tohoku University | Adrian Sescu | Mississippi State University |
| J25I086 | A Novel Research for Performance Optimization of Microchannel Heat Exchangers Using Fins, Magnetic Field, and Hybrid Nanofluids | Hidemasa Takana | Tohoku University | Shabbir Ahmad | Muhammad Nawaz Sharif University of Engineering & Technology |
| J25I087 | The Blood-brain Barrier Microfluidics for Drug Development of Brain Metastasis | Masanori Tachikawa | Tokushima University | Kenichi Funamoto | Tohoku University |
| J25I088 | Combination of Atmospheric Pressure Plasma with Mist Generated by Condensation of Water Vapor in Pressurized Air | Yun-Chien Cheng | National Yang Ming Chiao Tung University | Takehiko Sato | Tohoku University |
| J25I089 | Innovative Strategies for Glaucoma Management Through CFD Modeling of Aqueous Humor Flow | Muhamed Albadawi | Alexandria University (Egypt) / University College Dublin (Ireland) | Makoto Ohta | Tohoku University |
| J25I090 | Research on Power Generation Technology using Flow-induced Vibration | Hiroaki Hasegawa | Utsunomiya University | Hiroki Nagai | Tohoku University |
| J25I091 | Schlieren imagery of AC voltage EHD of Seeding Particle Enhanced Phase Change Materials | James Cotton | McMaster University | Takehiko Sato | Tohoku University |
| J25I093 | Precise Measurement of the Effect of Deceleration on the Drag Coefficient | Takamasa Kikuchi | Nihon University | Kiyonobu Ohtani | Tohoku University |
| J25I094 | Evaluation of Thermal Propagation Properties at the Interface between Nano-sized Semiconductors and Metals by Laser Heterodyne Photothermal Displacement Method | Atsuhiko Fukuyama | University of Miyazaki | Daisuke Ohori | Tohoku University |
| J25I095 | Development of Technology to Generate Quasi-atmospheric Winds by Injecting Multiple Shear Forces | Kotaro Takamure | Akita University | Ippei Oshima | Tohoku University |
| J25I096 | Strategic Deployment of Aerosol Sensors in Confined Spaces for Enhanced Respiratory Virus Detection: an Optimisation Study Based on Computational Fluid Dynamics Simulations | Yujie Li | Torrens University Australia | Makoto Ohta | Tohoku University |
| J25I097 | Development of Novel Gate Stack Process for Advanced Node MOSFETs | Yukinori Morita | National Institute of Advanced Industrial Science and Technology (AIST) | Kazuhiko Endo | Tohoku University |
| J25I098 | Development and Fundamental Research on a Two-Color DP-AA-PSP for High-Precision Pressure Field Measurement on the Surface of Supersonic Projectiles | Daiju Numata | Tokai University | Kiyonobu Ohtani | Tohoku University |
| J25I100 | Experimental Investigation on Shock Wave Development in Opaque Medium | Toshiharu Mizukaki | Tokai University | Kiyonobu Ohtani | Tohoku University |
| J25I101 | Elucidation of the Self-assembly Mechanism of Functional Amyloid Protein Derived from Filamentous Fungi | Keietsu Abe | Tohoku University | Takuya Mabuchi | Tohoku University |
| J25I102 | Three-dimensional Density Measurement of Wake Region behind Re-entry Capsule Model to Clarify the Mechanism of Its Dynamic Instability | Masanori Ota | Chiba University | Hiroki Nagai | Tohoku University |
| J25I104 | Combined In situ & Ex situ, Multi-scale Stress Measurements in Crystalline Geothermal Reservoirs | Xiaodong Ma | University of Science and Technology of China | Yusuke Mukuhira | Tohoku University |
| J25I105 | Numerical Analysis of Transfer Phenomena in Ultra-low Fill Rate Heat Pipe | Asami Hatamoto | Aoyama Gakuin University | Hiroki Nagai | Tohoku University |
| J25I106 | Control of Natural Convection Thermal Boundary Layer under High Grashof Number Condition and Heat Transfer Enhancement | Atsuki Komiya | Tohoku University | Nicholas Williamson | The University of Sydney |
| J25I107 | Harnessing Machine Learning for Enhancing Fluid Mechanics Understanding in Riblet Surfaces | Lavi Rizki Zuhal | Institut Teknologi Bandung | Aiko Yakeno | Tohoku University |
| J25I108 | Feature Importance in the Predictive Capabilities of Machine Learning Models: Application for Estimating Thermo-physical Properties of Organic Materials | Hari Krishna Chilukoti | National Institute of Technology, Warangal | Gota Kikugawa | Tohoku University |
| J25I109 | Molecular-scale Design of Flame Retardant Polymer Materials by using an Integrated Scheme of Quantum Chemistry and Molecular Simulation | Zhao Yinbo | Tongji University | Gota Kikugawa | Tohoku University |
| J25I110 | Analysis of Power Generation from Ammonia based Fuel in Solid Oxide Fuel Cells | Jeongmin Ahn | Syracuse University | Hisashi Nakamura | Tohoku University |

102 selected projects

**List of selected projects for International Multiple Collaborative Research Project 2025, IFS, Tohoku University**

| Project Code | Project Title | Applicant | Institution | IFS responsiblemember or non-IFS responsiblemember (Institution) |
|---|---|---|---|---|
| J25R001 | Tracheal Stent for Precision Drug Release Driven by the Piezoelectric Effect | Aike Qiao | Beijing University of Technology | Makoto Ohta (Tohoku University), Hongfang Song (Capital Medical Unversity) |
| J25R002 | Utilization of Coastal Wave Energy as Renewable Energy and Enhancement of Coastal Protection through Turbine Optimization in the Overtopping Breakwater for Energy Conversion (OBREC) | Pratama Raditya Hendra | National Research and Innovation Agency | Ippei Oshima (Tohoku University), Samsu Dlukha Nurcholik (Kalimantan Institute of Technology) |
| J25R003 | Proposal of a Simple Simulation Method for the Growth of Functional Materials | Satoru Kaneko | Kanagawa Institute of Industrial Science and Technology (KISTEC) | Takashi Tokumasu (Tohoku University), Ruei-Sung Yu (National Chin-Yi University of Technology), Sahoo Sumanta (Radhakrishna Institute of Technology and Engineering), Can Musa (Istanbul University), Ionita Mariana (University Politehnica of Bucharest), Meskinis Sarunas (Kaunas University of Technology) |
| J25R004 | Towards Fluid-structure Interaction Analysis using High-order Flux-reconstruction Scheme and Cross-platform-based Parallel Computation | Yoshiaki Abe | Tohoku University | Freddie Witherden (Texas A&M University), Peter Vincent (Imperial College London), Brian Vermeire (Concordia University), Jin Seok Park (Inha University) |

4 selected projects

**List of selected projects for LyC Collaborative Research Project 2025, IFS, Tohoku University (as 19th May, 2025)**

| Project Code | Project Title | Applicant | Institution | IFS responsible member or non-IFS responsible member | Institution |
|---|---|---|---|---|---|
| J25Ly01 | Turing Patterns on Thermally Fluctuating Membranes: Numerical and Mathematical Studies on the Origin of Anisotropic Turing Patterns | Fumitake Kato | National Institute of Technology, Ibaraki College | Tetsuya Uchimoto | Tohoku University |
| J25Ly02 | KERATOX project : Study of the Impact of Hypoxia on Human Keratinocytes | Aznar Nicolas | Tissue Biology and Therapeutic Engineering Laboratory | Kenichi Funamoto | Tohoku University |
| J25Ly03 | Shape Estimation of Pipe Inner Corrosion Based on Ultrasonic Reflection | Hiroyuki Nakamoto | Kobe University | Tetsuya Uchimoto | Tohoku University |
| J25Ly04 | Local Compression Test of 3D-Printed SiC in an Electron Microscope | Hiroki Kurita | Graduate School of Environmental Studies, Tohoku University | Tetsuya Uchimoto | Tohoku University |
| J25Ly05 | Carbon Diffusion in Iron Assisted by an Electric Field: Model and Experiment | Patrice Chantrenne | INSA Lyon | Takashi Tokumasu | Tohoku University |
| J25Ly06 | Monitoring Eukaryotic Cell Functions under Controlled Oxygen Conditions with Microfluidic Devices | Rieu Jean-Paul | University Claude Bernard Lyon 1 | Kenichi Funamoto | Tohoku University |
| J25Ly07 | Experimental Study of New Model Electroactive Materials (TEmPuRA) | Gildas Coativy | LGEF INSA Lyon | Hidemasa Takana | Tohoku University |
| J25Ly08 | Crossover Study between Dynamic Mode Decomposition and Stability Analysis of Nonlinear Flow Behavior Occurring between a Rotating Double Cylinder / Circular Cone | Takahiro Adachi | Akita University | Atsuki Komiya | Tohoku University |
| J25Ly09 | Mass Transfer Enhancement and Control by using Ultrasound Induced Flow | Atsuki Komiya | Tohoku University | Valery Botton | INSA Lyon |
| J25Ly10 | Evaluation of VIP Performance and Investigation of Degradation Mechanism by Aging Effect | Atsuki Komiya | Tohoku University | Genevieve Foray | INSA Lyon |

10 selected projects

**List of selected projects for Global Collaborative Research and Education Center for Integrated Flow Science (IFS-GCORE)**
**- Strategic Collaborative Research Program 2025, IFS, Tohoku University (as 18th August, 2025)**

| | Project Title | Internal Coordinator (Applicant) | Institution | International Coordinator | Institution |
|---|---|---|---|---|---|
| 1 | Experiment/Simulation Integrated Analysis toward Understanding Mechanism of Micro Power Generation by Capillary flow | Hidemasa Takana | Tohoku University | Anthony Dichiara | University of Washington |
| 2 | Theoretical, Numerical and Experimental Investigations of Ignition and Flame Characteristics in Ammonia Combustion | Youhi Morii | Tohoku University | Huangwei Zhang | National University of Singapore |
| 3 | Multiphase Flow Computing of Liquid Ammonia Atomization and Spray Combustion Characteristics | Jun Ishimoto | Tohoku University | Sławomir Pietrowicz | Wrocław University of Science and Technology |
| 4 | High-Resolution HAXPES Investigation of Nitridation in Superalloys for Ammonia-Based Energy Systems | Hisashi Nakamura | Tohoku University | S. Mani Sarathy | King Abdullah University of Science and Technology |
| 5 | Measurement of Droplet Diameter of Intermittent Liquid Ammonia Spray using PIA (Particle Image Analyzer) | Akihiro Hayakawa | Tohoku University | Christine Mounaïm-Rousselle | University of Orléans |
| 6 | International Workshop for Fuel Ammonia | Takashi Tokumasu | Tohoku University | S. Mani Sarathy | King Abdullah University of Science and Technology |

6 selected projects

**List of selected projects for Global Collaborative Research and Education Center for Integrated Flow Science (IFS-GCRE)**
**- Fuel Ammonia Supply Chain Collaborative Research Program 2025, IFS, Tohoku University (as 1st September, 2025)**

| | Project Title | Applicant | Institution | IFS responsible member | Institution |
|---|---|---|---|---|---|
| 1 | Zero-loss Hydrogen Production via Ammonia Decomposition Process Utilizing Low-temperature Waste Heat | Takaaki Tomai | Frontier Research Institute for Interdisciplinary Sciences, Tohoku University | Akihiro Hayakawa | Institute of Fluid Science, Tohoku University |
| 2 | Creation of Redox-active Molecular Catalysts for the Conversion of Ammonia into Electrical Energy | Haruka Yoshino | Institute for Materials Research, Tohoku University | Takashi Tokumasu | Institute of Fluid Science, Tohoku University |
| 3 | Development of Innovative Ammonia Adsorbents by Modifying the Pore Surfaces of High-Purity Porous Organic Polymers and Optimization by Simulation | Kohei Okubo | Institute of Multidisciplinary Research for Advanced Materials, Tohoku University | Hidemasa Takana | Institute of Fluid Science, Tohoku University |

3 selected projects