

List of selected projects for General Collaborative Research Project 2015, IFS, Tohoku University

Project Code	Project Title	Applicant	Institution	IFS responsible member or non-IFS responsible member	Institution
J15001	Development of novel multi-layer magnetorheological elastomer isolators	Li Weihua	University of Wollongong	Nakano Masami	Tohoku University
J15002	Numerical simulation for reducing future tsunami damage	Obayashi Shigeru	Tohoku University	Togashi Fumiya	Applied Simulations Inc.
J15003	Tornado Formation Research with Wind Tunnel	Rongjia Tao	Temple University	Nakano Masami	Tohoku University
J15004	Measurements of aerodynamic characteristics of the turbo-jav	Sugihara-Seki Masako	Kansai University	Obayashi Shigeru	Tohoku University
J15005	The effects of intermediate product on the intrinsic instability of premixed flames	Kadowaki Satoshi	Nagaoka University of Technology	Kobayashi Hideaki	Tohoku University
J15006	Molecular dynamics study on thermal transpiration flow	Yamaguchi Hiroki	Nagoya University	Kikugawa Gota	Tohoku University
J15007	Control of thermal transport across a solid-liquid interface by using self-assembled monolayer	Shiomi Junichiro	The University of Tokyo	Kikugawa Gota	Tohoku University
J15008	Technical development for the micro shape forming used by compression shearing method at room temperature	Nakayama Noboru	Shinshu University	Takagi Toshiyuki	Tohoku University
J15009	Attenuation and reduction effect of underwater explosion by porous materials	Kitagawa Kazutaka	Aichi Institute of Technology	Ohtani Kiyonobu	Tohoku University
J15010	Influence of aerodynamic performances on airship and tether for behavior of captive upper-platform system	Chiba Kazuhisa	The University of Electro-Communications	Obayashi Shigeru	Tohoku University
J15011	Air-leakage detection system for space-debris impact using mechanochromism metal complex	Makihara Kanjuro	Tohoku University	Ohtani Kiyonobu	Tohoku University
J15012	Study on optimization of tailing edge for low noise airfoil	Yamagata Takayuki	Niigata University	Hayase Toshiyuki	Tohoku University
J15013	Atomizing characteristics of water and liquid nitrogen jets under high pressure environment	Watanabe Rikio	Tokyo City University	Kobayashi Hideaki	Tohoku University
J15014	Experimental Analysis on Surface Phenomena of Magnetic Fluid and Development of Micro Devices	Sudo Seiichi	Akita Prefectural University	Nishiyama Hideya	Tohoku University
J15015	Mechanical response of vascular endothelial cells under fluid shear stress with its spatial gradient	Yoshino Daisuke	Tohoku University	Sakamoto Naoya	Tokyo Metropolitan University
J15016	Vortex dynamics of the high energy (negative temperature) state in quasi-geostrophic turbulence	Takahashi Naoya	Tokyo Denki University	Hattori Yuji	Tohoku University
J15017	Study of improvement in sterilization effects on marine bacteria using underwater shock waves	Abe Akihisa	Kobe University	Sun Mingyu	Tohoku University
J15018	Research on the physical and the tribological properties of a soft metal layer originating in Me-DLC on sliding surface	Goto Minoru	UBE National College of Technology	Takagi Toshiyuki	Tohoku University
J15019	Topology-based multisensory realization of wake turbulence	Takeshima Yuriko	Tokyo University of Technology	Obayashi Shigeru	Tohoku University

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J15020	Coupled analysis of high-density hydrogen safety management	Ishimoto Jun	Tohoku University	Combesecure Alain	INSA de Lyon
J15021	Development of Pressure-Sensitive Paint Techniques for Ballistic Range Experiments	Numata Daiju	Tohoku University	Ohtani Kiyonobu	Tohoku University
J15022	Frequency-selection mechanism of Karman vortices and vortex suppression	Takagi Shohei	Tokyo Metropolitan University	Obayashi Shigeru	Tohoku University
J15023	Quantitative Visualization of Unsteady High-speed Fluid Phenomena in Nature Environment	Mizukaki Toshiharu	Tokai University	Obayashi Shigeru	Tohoku University
J15024	Thermodynamic Effect on Tip Leakage Vortex Cavitation	Kang Donghyuk	Aoyama Gakuin University	Iga Yuka	Tohoku University
J15025	Aerodynamic characteristics of a silent supersonic biplane model using a new force balance	Kawazoe Hiromitsu	Tottori University	Obayashi Shigeru	Tohoku University
J15026	Study of the unsteady flow at near mach number 1.0	Kikuchi Takamasa	Nihon University	Ohtani Kiyonobu	Tohoku University
J15027	Development of MHD Energy Conversion Device for Efficient Wind Energy Utilization	Iwamoto Yuhiro	Doshisha University	Takana Hidemasa	Tohoku University
J15028	Stability Analysis of Vortices with Axial Flow based on Energetics and its Application	Hattori Yuji	Tohoku University	Fukumoto Yasuhide	Kyusyu University
J15029	Rolling characteristics of neutrophils on PDMS surface mimicking the endothelial topography	Shirai Atsushi	Tohoku University	Rieu Jean-Paul	University Claude Bernard Lyon 1
J15030	Mechanism of shock wave propagation within the cell	Nakagawa Atsuhiro	Tohoku University Hospital	Ohtani Kiyonobu	Tohoku University
J15031	Heat and Fluid Flow Characteristics of Liquid Film Flow along Heat Transfer Surface with Microscopic Grooves	Adachi Takahiro	Akita University	Okajima Junnosuke	Tohoku University
J15032	Study on Energy transport by Radiation and Convection in Large Scale Environment	Yamada Noboru	Nagaoka University of Technology	Maruyama Shigenao	Tohoku University
J15033	Bubble Motion and Effect of Biological Tissue by Underwater Expansion Wave Irradiation	Hashimoto Tokitada	Saga University	Ohtani Kiyonobu	Tohoku University
J15034	Investigation on behavior of particles in MR fluid flows	Ido Yasushi	Nagoya Institute of Technology	Nakano Masami	Tohoku University
J15035	Aerodynamic Performance Improvement of Small UAV	Sasaki Daisuke	Kanazawa Institute of Technology	Shimoyama Koji	Tohoku University
J15036	Characteristic analysis of mucus of crawling locomotion in gastropods and its application to a wall climbing robot	Tsukagoshi Hideyuki	Tokyo Institute of Technology	Nakano Masami	Tohoku University

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J15037	Study on Flow-induced Vibration of Soft Fins	Rinoshika Akira	Yamagata University	Nakano Masami	Tohoku University
J15038	Electronic Band Structure and Optical Properties of Quantum Dot structures for extremely high-efficiency solar cells	Fukuyama Atsuhiko	University of Miyazaki	Samukawa Seiji	Tohoku University
J15039	Development of magnetic coil to stimulate a peripheral nerve	Kamo Shinya	IFG Corporation	Takagi Toshiyuki	Tohoku University
J15040	Numerical Analysis of In-flight Sprayed Particles in Plasma Jet for a Thermal Plasma Spray with an Externally Applied Magnetic Field.	Fujino Takayasu	University of Tsukuba	Takana Hidemasa	Tohoku University
J15041	Development of high thermal efficiency plasma torch for fine particle synthesis using vortex plasma jet	Ando Yasutaka	Ashikaga Institute of Technology	Nishiyama Hideya	Tohoku University
J15042	Improvement and Micro-Channel Flow Evaluation of Electro-Rheological Nano-Suspensions	Tanaka Katsufumi	Kyoto Institute of Technology	Nakano Masami	Tohoku University
J15043	Analysis of complex spatiotemporal structures of vortices in turbulence	Ishihara Takashi	Nagoya University	Hattori Yuji	Tohoku University
J15044	Study on the high-performance and high-mobility MOS transistor by the neutral beam process	Endo Kazuhiko	National Institute of Advanced Industrial Science and Technology	Samukawa Seiji	Tohoku University
J15045	Researches on the active control of hole tone phenomena	Matsuura Kazuo	Ehime University	Nakano Masami	Tohoku University
J15046	Study on Improvement of Aerodynamic Performance for an Airborne Projectile	Hasegawa Hiroaki	Akita University	Obayashi Shigeru	Tohoku University
J15047	Investigation of Non-equilibrium Turbulence and Its Application to Flow Control	Sakai Yasuhiko	Nagoya University	Hayase Toshiyuki	Tohoku University
J15048	Characteristic simulation of neutral beam etching fabricated nanodisks for new material applications	Li Yiming	National Chiao-Tung University	Samukawa Seiji	Tohoku University
J15049	Investigating energy conversion and transfer processes in hybrid organic-silicon quantum dot heterojunction devices	YU Peichen	National Chiao-Tung University	Samukawa Seiji	Tohoku University
J15050	Propagation mechanism of streamer in water	Sato Takehiko	Tohoku University	Kanazawa Seiji	Oita University
J15051	Clarification of bubble generation and flow dynamics in the vicinity of an electrode by water plasma	Sato Takehiko	Tohoku University	Nakatani Tatsuyuki	Okayama University of Science
J15052	Study for Accurate Prediction of Unsteady Aerodynamic Characteristics around Moving Objects	Obayashi Shigeru	Tohoku University	Takahashi Shun	Tokai University

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J15053	Fabrication of strained Ge-on-Insulator and device application	Sawano Kentarou	Tokyo City University	Samukawa Seiji	Tohoku University
J15054	Numerical Analysis on Supersonic Flow Control using High Repetitive Laser Pulses	Iwakawa Akira	Nagoya University	Obayashi Shigeru	Tohoku University
J15055	Ignition Studies of Gaseous Pre-mixtures in Turbulent Flow	Fursenko Roman	Far-Eastern Federal University	Maruta Kaoru	Tohoku University
J15056	Cavity formation mechanism in a cavitation process	Sato Takehiko	Tohoku University	Farhat Mohamed	Ecole Polytechnique Federale de Lausanne (EPFL)
J15057	Characterization of Plastic Deformation using Electromagnetic NDT Methods	Chen Zhenmao	Xi'an Jiaotong University	Takagi Toshiyuki	Tohoku University
J15058	Numerical and experimental research on active control of self-sustained flow oscillations with sound interaction	Langthjem Mikael A.	Yamagata University	Nakano Masami	Tohoku University
J15059	Investigation of inhomogeneous mixing of plasma species in the hybrid-stabilized argon-water arc discharge for subsonic-supersonic quasi-laminar plasma flow regimes	Jenista Jiri	Institute of Plasma Physics ASCR, v.v.i.	Nishiyama Hideya	Tohoku University
J15060	Energy release dynamics in porous media	Lutsenko Nickolay	Far-Eastern Federal University	Maruta Kaoru	Tohoku University
J15061	Flammability limits of Low-Lewis-number premixed flames	Minaev Sergey	Far Eastern Federal University	Maruta Kaoru	Tohoku University
J15062	Development of Conservative Kinetic Force Method	Saveliev Vladimir	National Center of Space Researches and Technologies	Yonemura Shigeru	Tohoku University
J15063	Application of Magneto-Rheological Elastomers to energy harvesting	SEBALD Gael	Université de Lyon, INSA-Lyon	Nakano Masami	Tohoku University
J15064	The continuous spectrum in the Moore-Saffman-Tsai-Widnall instability	Llewellyn Smith Stefan	University of California, San Diego	Hattori Yuji	Tohoku University
J15065	Predictive kinetic modeling of energy thermalization, chemical reactions, and compression wave formation in non-equilibrium nanosecond pulse discharges in air and fuel-air mixtures	Takana Hidemasa	Tohoku University	Adamovich Igor	The Ohio State University
J15066	Generation and transport of chemical species in low-temperature atmospheric plasma for sanitization device	Shimizu Tetsuji	terraplasm a GmbH	Sato Takehiko	Tohoku University
J15067	Numerical study on gas lubrication of a textured surface in micro/nanoscale	Yonemura Shigeru	Tohoku University	Bondar Yevgeniy	Siberian Branch of Russian Academy of Science

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J15068	Application of Data Assimilation to Aviation Safety System	Obayashi Shigeru	Tohoku University	Jeong Shinkyu	Kyunghee University
J15069	Aerodynamic Design and Optimization of High Speed Transport Aircraft	Obayashi Shigeru	Tohoku University	Bura Romie Oktovianus	Bandung Institute of Technology
J15070	Development and applications of micro-motors consisting of smart polymer rotor and dielectric liquid	Nakano Masami	Tohoku University	Zrinyi Miklos	Semmelweis University
J15071	Numerical study of thermal and chemical non-equilibrium effects in near-continuum hypersonic flows	Shoev Georgy	Novosibirsk State University	Yonemura Shigeru	Tohoku University
J15072	Evaluation of Flow Instability in Tilted Cavity Configuration	Komiya Atsuki	Tohoku University	Daniel Henry	Ecole Centorale Lyon
J15073	Investigation of nozzle flows at low Reynolds numbers	Bondar Yevgeniy	Novosibirsk State University	Maruta Kaoru	Tohoku University
J15074	Investigation of flame inhibition through radical scavenging mechanisms	Gubernov Vladimir	Far-Eastern Federal University	Maruta Kaoru	Tohoku University
J15075	Development of bio-template process for realizing etching mask of 2D ordered or dispersed array of nanoparticle	Yamashita Ichiro	NAIST	Samukawa Seiji	Tohoku University
J15076	Inactivation of virus by a plasma flow in a closed small vessel	Sato Takehiko	Tohoku University	Oshitani Hitoshi	Tohoku University
J15077	A study of laser thermotherapy using radiation element method	Sakurai Atsushi	Niigata University	Maruyama Shigenao	Tohoku University
J15078	Molecular Dynamics Study on Thermal Resistance of Solid-Liquid Interfaces	Ohara Taku	Tohoku University	Shibahara Masahiko	Osaka University
J15079	Study of thin films and ribbons of Heusler alloys for the use in energy saving magnetic refrigeration technology	Khovaylo Vladimir	National University of Science and Technology "MISiS"	Takagi Toshiyuki	Tohoku University
J15080	Measurement-integrated analysis methodology for complex flow systems	Hayase Toshiyuki	Tohoku University	Brandt Luca	KTH Royal Institute of Technology
J15081	Theoretical and Experimental Studies of Local Heating Method in Hyperthermia Treatment	Maruyama Shigenao	Tohoku University	Timchenko Victoria	The University of New South Wales
J15082	Study on Radiation Transfer Control by Nano-Micro Structure	Maruyama Shigenao	Tohoku University	Vaillon Rodolphe	INSA Lyon
J15083	Bioheat transfer analysis for cancer treatment and diagnosis	Maruyama Shigenao	Tohoku University	Mishra Subhash Chandra	IIT

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J15085	Analysis of transport phenomena of oxygen ion in solid oxide fuel cell materials	Tokumasu Takashi	Tohoku University	Ahn Jeongmin	Syracuse University
J15086	Development of a smart material with cellulose	Ohta Makoto	Tohoku University	Lundell Fredrik	KTH Royal Institute of Technology
J15087	Development of a program for Blood flow and cell behaviors based on LBM method	Ohta Makoto	Tohoku University	Bastien Chopard	Geneva University
J15088	Research of Friction and Drilling on bio-composite model	Ohta Makoto	Tohoku University	Kapsa Philippe	ECL
J15089	Quantum Molecular Analysis for growth of carbon related thin films	Tokumasu Takashi	Tohoku University	Sudo Rieko	Sagamihara Incubation Center
J15090	Constructing CFD model of marrow flow in an ilium	Nakayama Toshio	National Institute of Technology, Tsuruoka College	Ohta Makoto	Tohoku University
J15091	An analysis of thermophysical properties of hydrogen/oxygen mixture at transcritical/supercritical state	Tokumasu Takashi	Tohoku University	Tsuda Shin-ichi	Kyushu University
J15092	The effect of surface scattering on the resistance of oxygen transport in catalyst layer	Tokumasu Takashi	Tohoku University	Kinefuchi Ikuya	Tokyo University
J15093	Seminar for next generation sensors for super-high temperature environment (phase 2)	Uchimoto Tetsuya	Tohoku University	Sakamoto Toshiaki	Intelligent Cosmos Research Institute
J15094	Correlation between physicochemical properties of protein signal sequence variation and subcellular transportation	Mukai Yuri	Meiji University	Ohta Makoto	Tohoku University
J15095	The Theoretical Modes of the Wake Flow of Road Vehicles	Lai Chenguang	Chongqing University of Technology	Obayashi Shigeru	Tohoku University
J15097	Seminar for Carbon Fiber Reinforced Plastic (CFRP)	Takagi Toshiyuki	Tohoku University	Ito Hiroshi	Yamagata University
J15107	Measurement of diffusion coefficient through artificial micro and nanopores	Gary Rosengarten	RMIT University	Komiya Atsuki	Tohoku University
J15108	Transport phenomena of nanoscale water droplet in a nano pore	Tokumasu Takashi	Tohoku University	Vergne Philippe	INSA-Lyon

Exploratory Collaborative Research Project 2015, IFS, Tohoku University

Project Code	Project Title	Applicant	Institution	IFS responsible member or non-IFS responsible member	Institution
J15H001	Optimization of influential factors for practical application of an ornithopter	Ishide Tadateru	Kisarazu National College of Technology	Obayashi Shigeru	Tohoku University
J15H002	Hopf bifurcation of 2D driven cavity flows	Iwatsu Reima	Tokyo Denki University	Hattori Yuji	Tohoku University
J15H003	Image Base Analysis of Aluminum Alloy	Suzuki Katsuyuki	The Univerisity of Tokyo	Obayashi Shigeru	Tohoku University

Multiple Collaborative Research Project 2015, IFS, Tohoku University

Project Code	Project Title	Applicant	Institution	IFS responsible member or non-IFS responsible member	Institution
J15R001	Cardiac evaluation of fetal mice by ECG and ultrasound	Sugibayashi Rika	National Center for Child Health and Development	Hayase Toshiyuki, Funamoto Kenichi, Ito Takuya	
J15R002	Supercomputing and scale modeling of flotsam mixed tsunami	Ishimoto Jun	Tohoku University	Fumihiko Imamura, Kozo Saito, Jean-Yves Cavaille	
J15R003	Investigation on advanced medical ultrasound imaging technology	Tanabe Masayuki	Kumamoto University	Hayase Toshiyuki, Hashimoto Hiroshi	
J15R004	International collaborative research on smart layered materials and structures for energy saving	Takagi Toshiyuki	Tohoku University	Jean-Yves Cavaille, Christian Boller, Jinhao Qiu, Julien Fontaine, Kohl Manfred, Henrik Alfredsson	
J15R005	Physical insight into Mach reflection transition and its hysteresis in axisymmetric intakes in continuum and rarefied flow conditions for high-speed airbreathing propulsion	Ogawa Hideaki	RMIT University	Kiyonobu Ohtani, Sannu Mölder, Evgeny Timofeev, Georgy Shoev, Yevgeniy Bondar	
J15R006	Control of micro culture environment for regenerative tissue engineering	Fukushima Shuichiro	Osaka University	Hayase Toshiyuki, Funamoto Kenichi	
J15R007	Development of a nanostructure analog memory device for massively-parallel brain-like LSIs	Morie Takashi	Kyushu Institute of Technology	Samukawa Seiji, Takahashi Yasuo	