

List of selected projects for General Collaborative Research Project 2014, IFS, Tohoku University

Project Code	Project Title	Applicant	Institution	IFS responsible member or non-IFS responsible member	Institution
J14001	Investigation of a novel magnetorheological shear thickening fluid	Li Weihua	University of Wollongong	Nakano Masami	Tohoku University
J14002	Air-leakage detection system for space-debris impact using mechanochromism metal complex	Makihara Kanjuro	Tohoku University	Ohtani Kiyonobu	Tohoku University
J14003	The effects of intermediate product on the intrinsic instability of premixed flames	Kadowaki Satoshi	Nagaoka University of Technology	Kobayashi Hideaki	Tohoku University
J14004	Comparative visualization of fluid simulation results	Itoh Takayuki	Ochanomizu University	Obayashi Shigeru	Tohoku University
J14005	Study on Improvement of Aerodynamic Performance for an Airborne Projectile	Hasegawa Hiroaki	Akita University	Obayashi Shigeru	Tohoku University
J14006	Technological research on locomotive organs and functions of arthropods	Sudo Seiichi	Akita Prefectural University	Hayase Toshiyuki	Tohoku University
J14007	Magnetic Interfacial Instability of Micro Magnetic Fluid Drop	Sudo Seiichi	Akita Prefectural University	Nishiyama Hideya	Tohoku University
J14008	Characterization of Plastic Deformation using Electromagnetic NDT Methods	Chen Zhenmao	Xi'an Jiaotong University	Takagi Toshiyuki	Tohoku University
J14009	Attenuation and reduction effect of underwater explosion by porous materials	KITAGAWA Kazutaka	Aichi Institute of Technology	Ohtani Kiyonobu	Tohoku University
J14010	Intelligent information processing circuits using nanodisk array structure	Morie Takashi	Kyushu Institute of Technology	Samukawa Seiji	Tohoku University
J14011	Atomizing characteristics of water and liquid nitrogen jets under high pressure environment	Watanabe Rikio	Tokyo City University	Kobayashi Hideaki	Tohoku University
J14012	Solution Particle Process Using Advanced Hybrid Plasma Flow System	Nishiyama Hideya	Tohoku University	Oleg P. Solonenko	Siberian Branch of Russian Academy of Science
J14013	Effects of External Disturbances on Spatially Developing Turbulence and Its Application to Control of Thermo-Fluid	Sakai Yasuhiko	Nagoya University	Hayase Toshiyuki	Tohoku University
J14014	Development of a micro-motor for MEMS utilizing smart polymer fabricated by photolithography.	Nakano Masami	Tohoku University	Zrinyi Miklos	Semmelweis University
J14015	Researches on the suppression control of hole tone phenomena	Nakano Masami	Tohoku University	Matsuura Kazuo	Ehime University
J14016	Pressure drop of vapor-liquid two-phase nitrogen flow in a corrugated pipe.	Ohira Katsuhide	Tohoku University	Kobayashi Hiroaki	JAXA
J14017	Vortex dynamics of the high energy (negative temperature) state in quasi-geostrophic turbulence	Takahashi Naoya	Tokyo Denki University	Hattori Yuji	Tohoku University
J14018	Investigation of shock waves propagation on microscales	Bondar Yevgeniy	Siberian Branch of Russian Academy of Science	Maruta Kaoru	Tohoku University

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J14 019	Numerical studies of rarefied chemically reacting flows about space vehicles	Bondar Yevgeniy	Siberian Branch of Russian Academy of Science	Yonemura Shigeru	Tohoku University
J14 020	Investigation of subsonic-supersonic hybrid-stabilized argon-water electric arc with inhomogeneous mixing of plasma species	Jenista Jiri	Institute of Plasma Physics ASCR, v.v.i.	Nishiyama Hideya	Tohoku University
J14 021	Study for Accurate Prediction of Unsteady Aerodynamic Characteristics around Moving Objects	Obayashi Shigeru	Tohoku University	Takahashi Shun	Tokai University
J14 022	Researches on a sensing-based dynamic forced ventilation control of leaking hydrogen	Matsuura Kazuo	Ehime University	Nakano Masami	Tohoku University
J14 023	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
J14 024	The continuous spectrum in the Moore-Saffman-Tsai-Widnall instability	Llewellyn Smith Stefan	University of California, San Diego	Hattori Yuji	Tohoku University
J14 025	Research of quantum size effects produced in nanostructures and their applications	Takahashi Yasuo	Hokkaido University	Samukawa Seiji	Tohoku University
J14 026	The Theoretical Modes of the Wake Flow of Road Vehicles	Lai Chenguang	Chongqing University of Technology	Obayashi Shigeru	Tohoku University
J14 027	Kinetic modeling of energy transfer in non-equilibrium nanosecond pulse discharges in air and fuel-air mixtures	Takana Hidemasa	Tohoku University	Adamovich Igor	The Ohio State University
J14 028	Fabrication of Ti/Al composite material by compression shearing method at room temperature	Nakayama Noboru	Shinshu University	Takagi Toshiyuki	Tohoku University
J14 029	Correlation between physicochemical properties of protein signal sequence variation and subcellular transportation	Ikeda Mukai Yuri	Meiji University	Ohta Makoto	Tohoku University
J14 030	Development of MHD Energy Conversion Device for Efficient Wind Energy Utilization	Iwamoto Yuhiro	Doshisha University	Takana Hidemasa	Tohoku University
J14 031	Numerical and experimental research on active control of self-sustained flow oscillations with sound interaction	Langthjem Mikael A.	Yamagata University	Nakano Masami	Tohoku University
J14 032	Extension of design informatics for aerospace vehicle with unstable phenomena	Chiba Kazuhisa	Hokkaido Institute of Technology	Obayashi Shigeru	Tohoku University
J14 033	Development of a high performance heat transfer surface for nucleate boiling by controlling heat conduction within the surface.	Miyata Kazushi	Tohoku University	Mori Hideo	Kyusyu University
J14 034	Energy release dynamics in porous media	Lutsenko Nickolay	Far Eastern Federal University	Maruta Kaoru	Tohoku University
J14 035	Control of optical responses in three-dimensional structure of quantum dots for next-generation solar cells	Kita Takashi	Kobe University	Samukawa Seiji	Tohoku University

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J14 036	Development and Micro-Channel Flow Evaluation of Electro-Rheological Nano-Suspensions	Tanaka Katsufumi	Kyoto Institute of Technology	Nakano Masami	Tohoku University
J14 037	Ignition Studies of Gaseous Pre-mixtures in Turbulent Flow	Fursenko Roman	Siberian Branch of Russian Academy of Science	Maruta Kaoru	Tohoku University
J14 038	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
J14 039	Fabrication of strained Ge-on-Insulator and device application	Sawano Kentarou	Tokyo City University	Samukawa Seiji	Tohoku University
J14 040	Analysis of complex spatiotemporal structures of vortices in turbulence	Ishihara Takashi	Nagoya University	Hattori Yuji	Tohoku University
J14 041	Sustainable integrated study of atomization and interfacial phenomena	Ishimoto Jun	Tohoku University	Saito Kozo	University of Kentucky
J14 042	Nano-device cleaning by using reactive multiphase flow	Ishimoto Jun	Tohoku University	Park Jin-Goo	Hanyang University
J14 044	Biological actuation with the magnetic stimulation	Mori Hitoshi	IFG Co., Ltd.	Takagi Toshiyuki	Tohoku University
J14 045	Numerical study of thermal and chemical non-equilibrium effects in near-continuum hypersonic flows	Shoiev Georgy	Siberian Branch of Russian Academy of Science	Yonemura Shigeru	Tohoku University
J14 046	Elucidation of mechanisms of the frictional characteristics of erythrocytes under inclined centrifugal force	Funamoto Kenichi	Tohoku University	Brandt Luca	KTH Royal Institute of Technology
J14 047	Improvement of Numerical Scheme and Theory for Kinetic Force Method	Saveliev Vladimir	National Center of Space Researches	Yonemura Shigeru	Tohoku University
J14 048	International Workshop on Fluid and Material Sciences in Cooperation between Tohoku University and KTH	Hayase Toshiyuki	Tohoku University	Lundell Fredrik	KTH Royal Institute of Technology
J14 049	Development of Pressure-Sensitive Paint Techniques for Ballistic Range Experiments	Numata Daiju	Tohoku University	Ohtani Kiyonobu	Tohoku University
J14 050	Generation and transport of chemical species in low-temperature atmospheric plasma for sanitization device	Shimizu Tetsuji	Max-Planck Institute for extraterrestrial physics	Sato Takehiko	Tohoku University
J14 051	Advanced LES of Aircraft Wake Vortices	Obayashi Shigeru	Tohoku University	Gerz Thomas	German Aerospace Center (DLR)
J14 052	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	Takagi Toshiyuki	Tohoku University

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J14053	Magnetic simulation for localized structure of stressed stainless steel	Yamaguchi Katsuhiko	Fukushima University	Takagi Toshiyuki	Tohoku University
J14054	Physical insight into Mach reflection transition and its hysteresis in axisymmetric intakes in continuum and rarefied conditions for high-speed airbreathing engines	Ogawa Hideaki	RMIT University	Ohtani Kiyonobu	Tohoku University
J14055	Effects of temporal and spatial oxygen heterogeneity on cell processes	Funamoto Kenichi	Tohoku University	Kamm Roger D.	Massachusetts Institute of Technology
J14056	Mechanical responses of vascular endothelial cells under fluid shear stress with its spatial gradient	Yoshino Daisuke	Tohoku University	Sakamoto Naoya	Kawasaki University of Medical Welfare
J14057	Investigation of Graphene edge effect on carrier transport property of Graphene-based device	Masubuchi Satoru	The University of Tokyo	Samukawa Seiji	Tohoku University
J14058	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
J14059	Instability Analysis of Natural Convection in Closed Cavity Configuration	Komiya Atsuki	Tohoku University	Daniel Henry	Ecole Centrale de Lyon
J14060	Stability Analysis of Vortices with Axial Flow based on Energetics and its Application	Hattori Yuji	Tohoku University	Fukumoto Yasuhide	Kyusyu University
J14061	Development of bio-template process for realizing etching mask of 2D ordered or dispersed array of nanoparticle.	Yamashita Ichiro	NAIST	Samukawa Seiji	Tohoku University
J14062	Flammability limits of Low-Lewis-number premixed flames	Minaev Sergey	Far Eastern Federal University	Maruta Kaoru	Tohoku University
J14063	Anti-bacterial effect of a glow discharge plasma against biofilm-producing gram negative bacilli	Fujimura Shigeru	Tohoku Pharmaceutical University	Sato Takehiko	Tohoku University
J14064	Application of MR-measurement-integrated hemodynamic simulation to cerebrovascular diseases	Sugiyama Shinichiro	Kohnan Hospital	Funamoto Kenichi	Tohoku University
J14065	Hemodynamic analysis of neck internal carotid artery stenosis	Sugiyama Shinichiro	Kohnan Hospital	Ohta Makoto	Tohoku University
J14066	Aerodynamic characteristics of a silent supersonic biplane model using a new force balance	Kawazoe Hiromitsu	Tottori University	Obayashi Shigeru	Tohoku University
J14067	Analysis of Precursor Phenomena by Two-Wavelength Mach-Zehnder Interferometer	Kawazoe Hiromitsu	Tottori University	Obayashi Shigeru	Tohoku University
J14068	Cavity formation mechanism in a cavitation process	Sato Takehiko	Tohoku University	Farhat Mohamed	Ecole Polytechnique Federale
J14069	Constructing CFD model of marrow flow in an ilium	Nakayama Toshio	Tohoku University	Ohta Makoto	Tohoku University
J14072	Seminar for next generation sensors for super-high temperature environment (phase 2)	Uchimoto Tetsuya	Tohoku University	Sakamoto Toshiaki	Intelligent Cosmos Research Institute

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J14-073	Evaluation and Analysis of Atmospheric Radiative Energy Transfer	Maruyama Shigenao	Tohoku University	Yamada Noboru	Nagaoka University of Technology
J14-074	Measurement of diffusion coefficient through artificial micro and nanopores	Gary Rosengarten	RMIT University	Komiya Atsuki	Tohoku University
J14-075	Thermal resistance between nano-structured surfaces and liquids	Ohara Taku	Tohoku University	Shibahara Masahiko	Osaka University
J14-076	Study on Flow-induced Vibration of Soft Fins	Rinoshika Akira	Yamagata University	Nakano Masami	Tohoku University
J14-077	Quantitative Visualization of Unsteady High-speed Fluid Phenomena in Nature Environment	Mizukaki Toshiharu	Tokai University	Obayashi Shigeru	Tohoku University
J14-078	Aerodynamic Performance Improvement of Small UAV	Sasaki Daisuke	Kanazawa Institute of Technology	Shimoyama Koji	Tohoku University
J14-079	Analysis of the Combined Mode Heat Transfer in Complex Materials	Maruyama Shigenao	Tohoku University	Mishra Subhash Chandra	Indian Institute of Technology Guwahati
J14-080	Measurement of Radiative Properties Controlled-Film	Maruyama Shigenao	Tohoku University	Vaillon Rodolphe	INSA de Lyon
J14-081	Theoretical and Experimental Studies of Local Heating Method in Hyperthermia Treatment	Maruyama Shigenao	Tohoku University	Timchenko Victoria	The University of New South Wales
J14-082	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
J14-083	Aerodynamic Design Optimization for Novel Civil Aircraft	Kanazaki Masahiro	Tokyo Metropolitan University	Obayashi Shigeru	Tohoku University
J14-087	Observation of hypoxia cellular response by using microfluidic devices	Fukushima Shuichiro	Osaka University	Funamoto Kenichi	Tohoku University
J14-088	Generation mechanism of rising film flow along the rotating conical outer surface and the subsequent atomization characteristics.	Adachi Takahiro	Akita University	Okajima Junnosuke	Tohoku University
J14-089	Analysis of plasma surface reaction by combination of calculation and experiment	Hamaguchi Satoshi	Osaka University	Samukawa Seiji	Tohoku University
J14-090	Particle structural formations of colloidal MR fluid and their influences on magnetic rheological response	Abe Hiroya	Osaka University	Nakano Masami	Tohoku University
J14-091	Numerical simulation for reducing future tsunami damage	Obayashi Shigeru	Tohoku University	Togashi Fumiya	Applied Simulations Inc.
J14-092	Cardiac evaluation of fetal mice by ECG and ultrasound	Sugibayashi Rika	National Center for Child Health and Development	Funamoto Kenichi	Tohoku University

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J14 093	Quantum Molecular Analysis for the deposition process of SiC substrate	Tokumasu Takashi	Tohoku University	Sudo Rieko	Sagamihara Incubation Center
J14 094	Construction of interaction model for dissipative particle dynamics method based on molecular dynamics simulation	Tokumasu Takashi	Tohoku University	Kinefuchi Ikuya	The University of Tokyo
J14 095	Transport phenomena of nanoscale water droplet in a nano pore	Tokumasu Takashi	Tohoku University	Vergne Philippe	INSA de Lyon
J14 096	Transport phenomena of substances in electrolyte of solid oxide fuel cell	Tokumasu Takashi	Tohoku University	Ahn Jeongmin	Syracuse University
J14 097	An analysis of effect of quantum nature on the phase transition phenomena of hydrogen using molecular dynamics method	Tokumasu Takashi	Tohoku University	Tsuboi Nobuyuki	Kyusyu Institute of Technology
J14 098	Propagation mechanism of streamer in water	Sato Takehiko	Tohoku University	Kanazawa Seiji	Oita University
J14 099	Development of a program for Blood flow and cell behaviors based on LBM method	Ohta Makoto	Tohoku University	Bastien Chopard	Geneva University
J14 100	Development of a smart material with cellulose.	Ohta Makoto	Tohoku University	Lundell Fredrik	KTH Royal Institute of Technology
J14 101	Research of Friction and Drilling on bio-composite model	Ohta Makoto	Tohoku University	Kapsa Philippe	Ecole Centorale de Lyon
J14 103	Inactivation of virus by a plasma flow at atmospheric pressure	Sato Takehiko	Tohoku University	Oshitani Hitoshi	Tohoku University

Exploratory Collaborative Research Project 2014, IFS, Tohoku University

Project Code	Project Title	Applicant	Institution	IFS responsible member or non-IFS responsible member	Institution
J14 H00 1	Optimization of influential factors for practical application of an ornithopter	Ishide Tadateru	Kisarazu National College of Technology	Obayashi Shigeru	Tohoku University
J14 H00 2	Eco-friendly Resist Removal-Cleaning Technology Using Cryogenic Micro-Solid Nitrogen Spray	Horibe Hideo	Osaka City University	Ishimoto Jun	Tohoku University
J14 H00 3	Hopf bifurcation of 2D driven cavity flows	Iwatsu Reima	Tokyo Denki University	Hattori Yuji	Tohoku University
J14 H00 4	Study of 3D recognition by glycosyltransferase in protein sugar modification	Ikeda Mukai Yuri	Meiji University	Ohta Makoto	Tohoku University
J14 H00 5	Optimization of the thermal plasma fine particle synthesis process using vortex plasma jet	Ando Yasutaka	Ashikaga Institute of Technology	Nishiyama Hideya	Tohoku University

Multiple Collaborative Research Project 2014, IFS, Tohoku University

Project Code	Project Title	Applicant	Institution	IFS responsible member or non-IFS responsible member (Institution)
J14R01	Supercomputing and scale modeling of flotsam mixed tsunami	Ishimoto Jun	Tohoku University	Imamura Fumihiko (Tohoku University), Saito Kozo (University of Kentucky), Jean-Yves Cavaiile (INSA de Lyon)
J14R02	Investigation on advanced medical ultrasound imaging technology	Hashimoto Hiroshi	GE Healthcare Japan	Tanabe Masayuki (Kumamoto University), Funamoto Kenichi (Tohoku University)
J14R03	International collaborative research on smart layered materials and structures for energy saving	Takagi Toshiyuki	Tohoku University	Jean-Yves Cavaiile (INSA de Lyon), Christian Boller (Fraunhofer Institute for NDT), Qiu Jinhao (Nanjing University Aeronautics and Astronautics), Julien Fontaine (Ecole Centrale de Lyon), Manfred Kohl (Karlsruhe Institute of Technology), Henrik Alfredsson (KTH Mechanics)