List of selected projects for General Collaborative Research Project 2013, IFS, Tohoku University

№	Project Title	Applicant	Institution	IFS responsiblemember or non-IFS responsiblemember	Institution
J13 001	Development and Micro-Channel Flow Evaluation of Electro-Rheological Nano-Suspensions	Tanaka Katsufumi	Kyoto Institute of Technology	Nakano Masami	Tohoku University
J13 002	Study on Flight Stability of Badminton Shuttlecocks for Impulsive Change of Angle of Attack	Hasegawa Hiroaki	Akita University	Obayashi Shigeru	Tohoku University
J13 003	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
J13 004	Magnetic Interfacial Instability of Micro Magnetic Fluid Drop	Sudo Seiichi	Akita Prefectural University	Nishiyama Hideya	Tohoku University
J13 005	Increment in Lift on an Airfoil Installed Active Boundary Layer Control System Using Vortex Generator Jets	Hasegawa Hiroaki	Akita University	Obayashi Shigeru	Tohoku University
J13 007	Measurement of diffusion coefficient through artificial miro and nanopores	Gary Rosengarten	RMIT University	Komiya Atsuki	Tohoku University
J13 008	Intelligent information processing circuits using nanodisk array structure	Morie Takashi	Kyushu Institute of Technology	Samukawa Seiji	Tohoku University
J13 009	Research of quantum size effects produced in nanostructures and their applications	Takahashi Yasuo	Hokkaido University	Samukawa Seiji	Tohoku University
J13 010	Fabrication of Quantum Dot Superlattice Using Precise Beam Flux-Control Technique	Kita Takashi	Kobe University	Samukawa Seiji	Tohoku University
J13 011	Reconstruction of Wall thinning from Pulsed ECT Signals	Chen Zhenmao	Xi'an Jiaotong University	Takagi Toshiyuki	Tohoku University
J13 012	Study on the advanced MOS transistor of the neutral beam process	Endo Kazuhiko	National Institute of Advanced Industrial Science and Technology	Samukawa Seiji	Tohoku University
J13 013	The continuous spectrum in the Moore–Saffman–Tsai–Widnall instability	Llewellyn Smith, Stefan	University of California, San Diego	Hattori Yuji	Tohoku University
J13 014	Visualization of Objective and Variable Spaces for Multi-Objective Optimization	Itoh Takayuki	Ochanomizu University	Obayashi Shigeru	Tohoku University
J13 015	A numerical study of the effect of large deformations of a trailing vortex on its breakdown	Takahashi Naoya	Tokyo Denki University	Hattori Yuji	Tohoku University
J13 016	Thermal resistance between nano-structured surfaces and liquids	Ohara Taku	Tohoku University	Shibahara Masahiko	Osaka University
J13 017	Cavity formation mechanism in a cavitation process	Sato Takehiko	Tohoku University	Farhat Mohamed	Ecole Polytechnique Federale de Lausanne (EPFL)
J13 018	Nano-device cleaning by using reactive multiphase flow	Ishimoto Jun	Tohoku University	Jin-Goo Park	Hanyang University

№	Project Title	Applicant	Institution	IFS responsiblemember or non-IFS responsiblemember	Institution
J13019	Development of frontier energy using reactive multiphase flow	Ishimoto Jun	Tohoku University	Jin-Goo Park	Hanyang University
J13020	Flow instabilities of boiling nitrogen in a horizontal pipe	Ohira Katsuhide	Tohoku University	Kobayashi Hiroaki	JAXA
J13021	Pressure drop of vapor-liquid two-phase nitrogen flow in a corrugated pipe.	Ohira Katsuhide	Tohoku University	Kobayashi Hiroaki	JAXA
J13022	Air-leakage detection system for space-debris impact using mechanochromism metal complex	Makihara Kanjuro	Tohoku University	Ohtani Kiyonobu	Tohoku University
J13023	Advanced LES of Aircraft Wake Vortices	Obayashi Shigeru	Tohoku University	Thomas Gerz	German Aerospace Center (DLR)
J13024	Mechanism on thermodynamic effects in micro-bubble cavitation	Niiyama Kazuki	Kanazawa Institute of Technology	Iga Yuka	Tohoku University
J13025	Anti-bacterial effect of a glow discharge plasma against biofilm-producing gram negative bacilli	Fujimura Shigeru	Tohoku Pharmaceutical University	Sato Takehiko	Tohoku University
J13026	Development of high performance strained-Ge channel device utilizing neutral-beam oxidized film	Sawano Kentarou	Tokyo City University	Samukawa Seiji	Tohoku University
J13027	The Mechanism and the Control of the Unsteady Three-dimensional Wake Structure of Road Vehicle	Lai Chenguang	Chongqing University of Technology	Obayashi Shigeru	Tohoku University
J13028	Instability Analysis of Natural Convection in Closed Cavity Configuration	Komiya Atsuki	Tohoku University	Daniel Henry	Ecole Centorale Lyon
J13029	Effects of External Disturbances on Spatially Developing Turbulence and □ Its Application to Control of Thermo-Fluid Dynamics	Sakai Yasuhiko	Nagoya University	Hayase Toshiyuki	Tohoku University
J13030	Experimental study on advanced medical ultrasound imaging technology	Liu Lei	GE Healthcare Japan	Funamoto Kenichi	Tohoku University
J13031	Investigation of a novel magnetorheological shear thickening fluid	Li Weihua	University of Wollongong	Nakano, Masami	Tohoku University
J13032	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
J13033	Researches on a sensing-based dynamic forced ventilation control of leaking hydrogen	Nakano Masami	Tohoku University	Matsuura Kazuo	Ehime University
J13034	Researches on the suppression control of hole tone phenomena	Nakano Masami	Tohoku University	Matsuura Kazuo	Ehime University
J13035	Attenuation and reduction effect of underwater explosion by porous materials	Kitagawa Kazutaka	Aichi Institute of Technology	Ohtani Kiyonobu	Tohoku University
J13036	Sustainable integrated study of atomization and interfacial phenomena	Ishimoto Jun	Tohoku University	Saito Kozo	University of Kentucky
J13038	Clarification of bubble generation and flow dynamics in the vicinity of an electrode by water plasma	Sato Takehiko	Tohoku University	Nakatani Tatsuyuki	Toyo Advanced Technologies Co., Ltd.

№	Project Title	Applicant	Institution	IFS responsiblemember or non-IFS responsiblemember	Institution
J13 039	Mechanism of plasma thermo-fluid dynamics in water	Sato Takehiko	Tohoku University	Kanazawa Seiji	Oita University
J13 040	The effects of intermediate product on the intrinsic instability of premixed flames	Kadowaki Satoshi	Nagaoka University of Technology	Kobayashi Hideaki	Tohoku University
J13 041	Cardiac evaluation of fetal mice by ECG and ultrasound	Ito Takuya	Tohoku University	Funamoto Kenichi	Tohoku University
J13 042	Biological actuation with the magnetic stimulation.	Mori Hitoshi	IFG Co., Ltd.	Takagi Toshiyuki	Tohoku University
J13 043	Low damage fabrication of Si Photonic devices by Neutral Beam Technology	Wada Kazumi	The University of Tokyo	Samukawa Seiji	Tohoku University
J13 044	Mitigation effect of blast wave by the interaction with water	Matsuo Akiko	Keio University	Obayashi Shigeru	Tohoku University
J13 045	Mechanical response of vascular endothelial cells under fluid shear stress with its spatial gradient	Yoshino Daisuke	Tohoku University	Sakamoto Naoya	Kawasaki University of Medical Welfare
J13 046	Generation mechanism of rising film flow along the rotating conical outer surface and the subsequent atomization chracteristics	Adachi Takahiro	Akita University	Okajima Junnosuke	Tohoku University
J13 047	Mechanism of blast-induced traumatic brain injury	Nakagawa Atsuhiro	Tohoku University	Ohtani Kiyonobu	Tohoku University
J13 048	Analysis of the Combined Mode Heat Transfer in Complex Materials	Maruyama Shigenao	Tohoku University	Mishra Subhash Chandra	IIT
J13 049	Measurement of Radiative Properties Controlled-Film	Maruyama Shigenao	Tohoku University	Vaillon Rodolphe	INSA Lyon
J13 050	Evaluation and Analysis of Atmospheric Radiative Energy Transfer	Maruyama Shigenao	Tohoku University	Yamada Noboru	Nagaoka University of Technology
J13 051	Numerical simulation of ultrasound imaging in soft tissue	Tanabe Masayuki	Kumamoto University	Funamoto Kenichi	Tohoku University
J13 052	Improvement of reality of CG motion pictures by hydrodynamic effects	Ishihara Takashi	Nagoya University	Hattori Yuji	Tohoku University
J13 053	Aerodynamic Performance Improvement of Small UAV	Sasaki Daisuke	Kanazawa Institute of Technology	Shimoyama Koji	Tohoku University
J13 054	Ignition Studies of Gaseous Pre-mixtures in Turbulent Flow	Fursenko Roman	SB RAS	Maruta Kaoru	Tohoku University
J13 055	Kinetic modeling of energy transfer in nonequilibrium d nanosecond pulse discharges in air and fuel-air mixtures	Takana Hidemasa	Tohoku University	Adamovich Igor	The Ohio State University
J13 056	Improvement of Numerical Scheme and Theory for Kinetic Force Method	Saveliev Vladimir	National Center of Space Researches and Technologies	Yonemura Shigeru	Tohoku University

№	Project Title	Applicant	Institution	IFS responsiblemember or non-IFS responsiblemember	Institution
J13 058	Numerical studies of rarefied chemically reacting flows about space vehicles	Ivanov Mikhail	Siberian Branch of Russian Academy of Science	Yonemura Shigeru	Tohoku University
J13 059	Investigation of shock waves propagation on microscales	Ivanov Mikhail	Siberian Branch of Russian Academy of Science	Maruta Kaoru	Tohoku University
J13 060	Solution Particle Process Using Advanced Hybrid Plasma Flow System	Nishiyama Hideya	Tohoku University	Oleg P. Solonenko	Siberian Branch of Russian Academy of Science
J13 061	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
J13 062	Numerical and experimental research on active control of self-sustained flow oscillations with sound interaction	Mikael Langthjem	Yamagata University	Nakano Masami	Tohoku University
J13 063	Study on Flow-induced Vibration of Soft Fins	Rinoshika Akira	Yamagata University	Nakano Masami	Tohoku University
J13 064	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
J13 065	Stability Analysis of Vortices with Axial Flow based on Energetics and its Application	Hattori Yuji	Tohoku University	Fukumoto Yasuhide	Kyusyu University
J13 066	Fabrication of Ti/Al composite material by compression shearing method at room temperature	Nakayama Noboru	Shinshu University	Takagi Toshiyuki	Tohoku University
J13 067	Analyses of nano-scale surface damages generated during plasma etching processes	Hamaguchi Satoshi	Osaka University	Samukawa Seiji	Tohoku University
J13 068	Energy release dynamics in porous media	Lutsenko Nickolay	Far Eastern Federal University	Maruta Kaoru	Tohoku University
J13 069	Research of Friction and Drilling on bio-composite model	Ohta Makoto	Tohoku University	Kapsa Philippe	Ecole Centorale Lyon
J13 070	Development of a program for Blood flow and cell behaviors based on LBM method	Ohta Makoto	Tohoku University	Bastien Chopard	Geneva University
J13 071	Behaviors of nano-channel of Membrane protein	Ohta Makoto	Tohoku University	Liviu Movileanu	Syracuse University
J13 073	Observation of hypoxia cellular response by using microfluidic devices	Fukushima Shuichiro	Osaka University	Funamoto Kenichi	Tohoku University

№	Project Title	Applicant	Institution	IFS responsiblemember or non-IFS responsiblemember	Institution
J13 074	Development of the heat transfer surface with micro-pits to enhance the critical heat flux in nucleate boiling	Miyata Kazushi	Tohoku University	Mori Hideo	Kyusyu University
J13 075	Inactivation of virus by a plasma flow at atmospheric pressure	Sato Takehiko	Tohoku University	Oshitani Hitoshi	Tohoku University
J13 076	Study on the electronic states in high-density and regularly-arrayed quantum dot systems fabricated by neutral beam etching	Saiki Toshiharu	Keio University	Samukawa Seiji	Tohoku University
J13 077	Development of a micro-motor for MEMS utilizing smart polymer fabricated by photolithography.	Nakano Masami	Tohoku University	Zrinyi Mikols	Semmelweis University
J13 078	Particle structural formations of colloidal MR fluid and their influences on magnetic rheological response	Abe Hiroya	Osaka University	Nakano Masami	Tohoku University
J13 079	Development of a Forensic Visualization Lifecycle Management System	Fujishiro Issei	Keio University	Takeshima Yuriko	Tohoku University
J13 080	Database of intracranial aneurysms with hymodynamic analysis	Sugiyama Shinichiro	Kohnan Hospital	Ohta Makoto	Tohoku University
J13 081	Evaluation of intracranial aneurysm rupture using MR-measurement-integrated simulation	Sugiyama Shinichiro	Kohnan Hospital	Funamoto Kenichi	Tohoku University
J13 082	Effect of Electron Behavior in front of Shock Wave on Thermo-Chemical Process Behind the Shock Wave	Kawazoe Hiromitsu	Tottori University	Obayashi Shigeru	Tohoku University
J13 083	Study of the mechanism of contact alignment for the slider specimen of tribometer	Goto Minoru	UBE National College of Technology	Takagi Toshiyuki	Tohoku University
J13 084	Momentum Transport Phenomena in a Liquid Bridge under Shear	Tokumasu Takashi	Tohoku University	Vergne Philippe	INSA-Lyon
J13 085	Transport phenomena of substances in electrolyte of solid oxide fuel cell	Tokumasu Takashi	Tohoku University	Ahn Jeongmin	Syracuse University
J13 086	Construction of interaction model for dissipative particle dynamics method based on molecular dynamics simulation	Tokumasu Takashi	Tohoku University	Kinefuchi Ikuya	Tokyo University
J13 087	Seminar for next generation sensors for super-high temperature environment	Takagi Toshiyuki	Tohoku University	Shishido Ikuro	Intelligent Cosmos Research Institute
J13 088	An analysis of effect of quantum nature on the thermodynamic/transport properties of liquid hydrogen using molecular dynamics method	Tokumasu Takashi	Tohoku University	Tsuboi Nobuyuki	Kyushu Institute of Technology
J13 089	Quantum Molecular Analysis for the deposition process of SiC substrate	Tokumasu Takashi	Tohoku University	Sudo Rieko	Sagamihara Incubation Center
J13 090	Development of force balance and its application to a silent supersonic biplane model in the low speed wind tunnel	Kawazoe Hiromitsu	Tottori University	Obayashi Shigeru	Tohoku University
J13 094	Theoretical and Experimental Studies of Local Heating Method in Hyperthermia Treatment	Maruyama Shigenao	Tohoku University	Timchenko Victoria	The University of New South Wales

№	Project Title	Applicant	Institution	IFS responsiblemember or non-IFS responsiblemember	Institution
J13 095	Simulation analysis on grain boundaries thought relation between Cr depletion distribution and local magnetic properties	Yamaguchi Katsuhiko	Fukushima University	Takagi Toshiyuki	Tohoku University
J13 096	Design Exploration for the Next Generation High Wing Aircraft	Obayashi Shigeru	Tohoku University	Jeong Shinkyu	Kyunghee University
J13 097	Optimization of Artificial Island Arrangement for Reduction of Tsunami Damage	Obayashi Shigeru	Tohoku University	Togashi Fumiya	SAIC
J13 098	Effects of temporal and spatial oxygen heterogeneity on cell processes	Funamoto Kenichi	Tohoku University	Roger D. Kamm	Massachusetts Institute of Technology
J13 099	Development of bio-template process for realizing etching mask of 2D ordered or dispersed array of nanoparticle	Yamashita Ichiro	NAIST	Samukawa Seiji	Tohoku University
J13 101	Control of 3-D boundary-layer transition on swept wings	Takagi Shohei	Muroran Institute of Technology	Obayashi Sigeru	Tohoku University

Transdisciplinary Collaborative Research Project 2013, IFS, Tohoku University

№	Project Title	Applicant	Institution
J13 B01	Frontier Science of Next Generation Reactive Fluid	Ishimoto Jun	Tohoku University

Multiple Collaborative Research Project 2013, IFS, Tohoku University

№	Project Title	Applicant	Institution
J13 R01	Supercomputing and scale modeling of flotsam mixed tsunami	Ishimoto Jun	Tohoku University
J13 R02	Flammability limits of Low-Lewis-number premixed flames	Minaev Sergey	Far Eastern Federal University
J13 R03	International collaborative research on smart layered materials and structures for energy saving	Takagi Toshiyuki	Tohoku University