

List of selected projects for General Collaborative Research Project 2016, IFS, Tohoku University

Project Code	Project Title	Applicant	Institution	IFS responsible member or non-IFS responsible member	Institution
J16001	The effects of unburned-gas temperature and heat loss on the dynamics of flames in premixed combustion	Kadowaki Satoshi	Nagaoka University of Technology	Kobayashi Hideaki	Tohoku University
J16002	Acoustic fluid analysis on edge tone	Takahashi Kin'ya	Kyushu Institute of Technology	Hattori Yuji	Tohoku University
J16005	Vortex dynamics of the high energy (negative temperature) state in quasi-geostrophic turbulence	Takahashi Naoya	Tokyo Denki University	Hattori Yuji	Tohoku University
J16007	Aerodynamic design of lighter-than-air hull for captive high-altitude platform system	Chiba Kazuhisa	The University of Electro-Communications	Obayashi Shigeru	Tohoku University
J16008	Technical development for the micro shape forming used by compression shearing method at room temperature	Nakayama Noboru	Shinshu University	Takagi Toshiyuki	Tohoku University
J16009	Study on Improvement of Aerodynamic Performance for an Airborne Project	Hasegawa Hiroaki	Akita University	Obayashi Shigeru	Tohoku University
J16010	Effect of environment attenuation of underwater explosion by porous complex mediums	Kitagawa Kazutaka	Aichi Institute of Technology	Ohtani Kiyonobu	Tohoku University
J16011	Coupled analysis of high-density hydrogen safety management	Ishimoto Jun	Tohoku University	Alain Combescure	INSA de Lyon
J16012	Multiphase fluid dynamic approach for fire whirl risk mitigation	Ishimoto Jun	Tohoku University	Kozo Saito	University of Kentucky
J16013	Numerical simulation and experimental observation of the blood cells behavior in microcirculation	Fukui Tomohiro	Kyoto Institute of Technology	Hayase Toshiyuki	Tohoku University
J16014	Research of highly functional characteristics produced by nanostructures and their applications	Takahashi Yasuo	Hokkaido University	Samukawa Seiji	Tohoku University
J16015	Control of Electronic Band Structure of Quantum Nanodisks for High-Efficiency solar cells and Laser applications	Fukuyama Atsuhiko	University of Miyazaki	Samukawa Seiji	Tohoku University
J16016	Topology-based multisensory realization of wake turbulence	Takehima Yuriko	Tokyo University of Technology	Obayashi Shigeru	Tohoku University
J16017	A study on the functionality improvement of nanoparticulate-filled carbon fiber reinforced plastic	Takayama Tetsuo	Yamagata University	kosukegawa hiroyuki	tohoku university
J16018	Seminar for Inspection, Repair, and Recycle of Carbon Fiber Reinforced Plastic (CFRP)	Takagi Toshiyuki	Tohoku University	Ito Hiroshi	Yamagata University
J16019	Efficient Uncertainty Quantification in Shallow Water Equations	Yamazaki Ayumu	Nagaoka University of Technology	Shimoyama Koji	Tohoku University
J16020	Study of the unsteady flow at near Mach number 1.0	Kikuchi Takamasa	Nihon University	Ohtani Kiyonobu	Tohoku University
J16021	Heat and Fluid Flow Characteristics of Liquid Film Flow along Heat Transfer Surface with Microscopic Grooves	Adachi Takahiro	Akita University	Okajima Junnosuke	Tohoku University
J16022	Investigation of Non-equilibrium Turbulence and Its Application to Flow Control	Sakai Yasuhiko	Nagoya University	Hayase Toshiyuki	Tohoku University

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J16023	Numerical Analysis of In-flight Sprayed Particles in Plasma Jet for a Thermal Plasma Spray with Externally Applied Magnetic Field.	Fujino Takayasu	University of Tsukuba	Takana Hidemasa	Tohoku University
J16024	Thermodynamic Effect on Tip Leakage Vortex Cavitation	Kang Donghyuk	Aoyama Gakuin University	Iga Yuka	Tohoku University
J16025	Improvement and Micro-Channel Flow Evaluation of Electro-Rheological Nano-Suspensions	Tanaka Katsufumi	Kyoto Institute of Technology	Nakano Masami	Tohoku University
J16027	Experimental and Numerical Study on Improvement of Flight Performance of a Multicopter	Sasaki Daisuke	Kanazawa Institute of Technology	Shimoyama Koji	Tohoku University
J16028	Researches on the active control of hole tone phenomena	Matsuura Kazuo	Ehime University	Nakano Masami	Tohoku University
J16030	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
J16031	Development of a nanostructure analog memory device for massively-parallel brain-like LSIs	Morie Takashi	Kyushu Institute of Technology	Samukawa Seiji	Tohoku University
J16033	Development of MHD Energy Conversion Device for Efficient Wind Energy Utilization	Iwamoto Yuhiro	Nagoya Institute of Technology	Takana Hidemasa	Tohoku University
J16035	A study of laser thermotherapy using radiation element method	Sakurai Atsushi	Niigata University	Maruyama Shigenao	Tohoku University
J16036	An analysis of thermophysical properties of hydrogen/oxygen mixture at transcritical/supercritical state	Tokumasu Takashi	Tohoku University	Tsuda Shin-ichi	Kyushu University
J16037	Investigation into air-leakage detection in space-debris impact using photochemical material	Makihara Kanjuro	Tohoku University	Ohtani Kiyonobu	Tohoku University
J16038	Aerodynamic characteristics of a silent supersonic biplane model using a new force balance	Kawazoe Hiromitsu	Tottori University	Obayashi Shigeru	Tohoku University
J16042	Mechanism of thermal energy transfer in nanoscale solid-liquid systems	Ohara Taku	Tohoku University	Shibahara Masahiko	Osaka University
J16043	Kinetic modeling of high-pressure surface ionization waves generated by ns pulse discharges	Takana Hidemasa	Tohoku University	Igor Adamovich	The Ohio State University
J16045	Study on high efficiency disintegration method of thin resin plate using underwater shock wave induced by electrical discharge and microbubble	Koita Taketoshi	Saitama Institute of Technology	Sun Mingyu	Tohoku University
J16046	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
J16047	Mechanism of shock wave propagation within the cell	Nakagawa Atsuhiko	Tohoku University Hospital	Ohtani Kiyonobu	Tohoku University
J16050	Correlation between physicochemical properties of protein signal sequence variation and subcellular transportation	Mukai Yuri	Meiji University	Ohta Makoto	Tohoku University
J16051	Analysis of low and high temperature plasma characteristics and its effects on material surface	Yamada Gouji	Tokai University	Obayashi Shigeru	Tohoku University

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J16053	Propagation mechanism of streamer in water	Sato Takehiko	Tohoku University	Kanazawa Seiji	Oita University
J16054	Frequency-selection mechanism of Karman vortices and vortex suppression	Takagi Shohei	Tokyo Metropolitan University	Obayashi Shigeru	Tohoku University
J16056	Evaluation of Flow Field in Closed Cavity under Temporally Variable Thermal Condition	Komiya Atsuki	Tohoku University	Nicholas Williamson	The University of Sydney
J16057	Evaluation of Flow Instability in Tilted Cavity Configuration	Komiya Atsuki	Tohoku University	Daniel Henry	Ecole Centorale Lyon
J16060	Analytical development of artificially modified bio-template for 2D ordered or dispersed nanoparticles etching array mask.	Yamashita Ichiro	Osaka University	Samukawa Seiji	Tohoku University
J16063	Study on Energy transport by Radiation and Convection in Large Scale Environment	Yamada Noboru	Nagaoka University of Technology	Maruyama Shigenao	Tohoku University
J16065	Study on Radiation Transfer Control by Nano-Micro Structure	Maruyama Shigenao	Tohoku University	Bong Jae Lee	KAIST
J16066	Bioheat transfer analysis for cancer treatment and diagnosis	Maruyama Shigenao	Tohoku University	Mishra Subhash Chandra	IIT
J16067	Development, Modeling and Characterization of Efficient Magneto-Rheological Elastomers for Vibrational Energy Harvesting	Gael Sebald	Université de Lyon, INSA-Lyon	Nakano Masami	Tohoku University
J16068	Development and Applications of Micro-Motors Consisting of Smart Polymer Rotor and Dielectric Liquid	Nakano Masami	Tohoku University	Miklos Zrinyi	Semmelweis University
J16069	Development of Novel Multi-Layer Magnetorheological Elastomer Isolators	Weihua Li	University of Wollongong	Nakano Masami	Tohoku University
J16071	Quantum Molecular Analysis for growth of carbon related thin films	Tokumasu Takashi	Tohoku University	Kaneko Satoru	Kanagawa Industrial Technology Center
J16072	The effect of surface scattering on the resistance of oxygen transport in catalyst layer	Tokumasu Takashi	Tohoku University	Kinefuchi Ikuya	Tokyo University
J16073	Theoretical and Experimental Study of Flow Stability, Flow Controllability, and Trapped Acoustic Modes in Cylindrical Expansion Chamber-Pipe System	Mikael A. Langthjem	Yamagata University	Nakano Masami	Tohoku University
J16075	Electronic and Spin Transport of Carriers Localized in 3D Array of Nano-Disks Fabricated by Bio-Template Top-Down Etching	Natalia Stepina	Institute of Semiconductor Physics	Samukawa Seiji	Tohoku University
J16077	Charge-up on Water Surface by Cold Atmospheric Plasma for Sanitization Device	Tetsuji Shimizu	terraplasma GmbH	Sato Takehiko	Tohoku University
J16078	Immersed Boundary Techniques for Building Cube Method	Obayashi Shigeru	Tohoku University	Arpiruk Hokpunna	Chiang Mai University
J16080	The Theoretical Modes of the Wake Flow of Road Vehicles	Chenguang Lai	Chongqing University of Technology	Obayashi Shigeru	Tohoku University
J16081	Measurement-Integrated Analysis Methodology for Complex Flow Systems	Hayase Toshiyuki	Tohoku University	Luca Brandt	KTH

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J16082	Nanostructured Heusler Alloys and Related Compounds Prepared by Mechanical Alloying and Plasma Electrolytic Methods for Energy Saving Thermoelectric Power Generation and Protective Coatings	Vladimir Khovaylo	National University of Science and Technology "MISIS"	Takagi Toshiyuki	Tohoku University
J16083	Numerical Study on Gas Lubrication of a Textured Surface in Micro/Nanoscale	Yonemura Shigeru	Tohoku University	Yevgeniy Bondar	Siberian Branch of Russian Academy of Science
J16088	Aeroacoustics of Low Reynolds Number Flows Via Dynamic Hybrid RANS/LES and Stochastic Noise Generation and Radiation	Adrian Sescu	Mississippi State University	Hattori Yuji	Tohoku University
J16089	Quantitative Temperature Measurement of High Pressure Flame Applying Laser Induced Thermal Grating Spectroscopy (LITGS)	hayakawa akihiro	Tohoku University	Simone Hochgreb	University of Cambridge
J16090	Physical Insight into Mach Reflection Transition and Its Hysteresis in Axisymmetric Intakes in Continuum and Rarefied Flow Conditions for High-Speed Airbreathing Propulsion	Hideaki Ogawa	RMIT University	Ohtani Kiyonobu	Tohoku University
J16094	Characteristic Simulation of Neutral Beam Etching Fabricated Nanodisks for New Material Applications	Li Yiming	National Chiao-Tung University	Samukawa Seiji	Tohoku University
J16095	Characterization of Plastic Deformation Using Electromagnetic NDT Methods	Chen Zhenmao	Xi'an Jiaotong University	Takagi Toshiyuki	Tohoku University
J16101	Analysis of Transport Phenomena of Oxygen Ion in Electrolyte of Solid Oxide Fuel Cell	Tokumasu Takashi	Tohoku University	Jeongmin Ahn	Syracuse University
J16104	Research of High-Speed Contact with Medical Devices	Ohta Makoto	Tohoku University	Philippe Kapsa	ECL
J16105	Development of Program for Surveying Stent Strut Position	Ohta Makoto	Tohoku University	Bastien Chopard	Geneva University
J16107	Verification of fetal cerebral hemorrhage risk in the autonomic nervous development stage in murine fetus	Ito Takuya	Tohoku University	Hayase Toshiyuki	Tohoku University
J16108	Study for Accurate Prediction of Unsteady Aerodynamic Characteristics around Moving Objects	Obayashi Shigeru	Tohoku University	Takahashi Shun	Tokai University

Exploratory Collaborative Research Project 2016, IFS, Tohoku University

Project Code	Project Title	Applicant	Institution	IFS responsible member or non-IFS responsible member	Institution
J16H001	Dynamics of thermal pyrolysis occurring in the interior of wood biomass	Ogami Yasuhiro	Akita Prefectural University	Nakamura Hisashi	Tohoku University
J16H002	Image Base Analysis of Aluminum Alloy	Suzuki Katsuyuki	Tokyo University	Obayashi Shigeru	Tohoku University
J16H003	Field Observation and Flow Analysis of a Flying Pipe	Hirata Katsuya	Doshisha University	Nakano Masami	Tohoku University
J16H004	Aerodynamic Improvement of a Delta wing by using in combination of leading edge flaps	Ishide Tadateru	Kisarazu National College of Technology	Shimoyama Koji	Tohoku University
J16H005	Effectiveness of flexible wing in a flapping flight	Ishide Tadateru	Kisarazu National College of Technology	Obayashi Shigeru	Tohoku University

International Multiple Collaborative Research Project 2016, IFS, Tohoku University

Project Code	Project Title	Applicant	Institution	IFS responsible member or non-IFS responsible member (Institution)
J16R001	The Characteristics of the Flow Induced by an Over-Expanded Bubble	Sun Mingyu	Tohoku University	Jiming Yang (University of Science and Technology of China), Nicholas Apazidis (KTH), Abe Akihisa (Kobe University), Koita Taketoshi (Saitama Institute of Technology)
J16R003	Investigation of Inhomogeneous Mixing of Plasma Species in the Hybrid-Stabilized Argon-Water Arc Discharge for Subsonic-Supersonic Quasi-Laminar Plasma Flow Regimes	Jiří Jeništa	Institute of Plasma Physics ASCR, v.v.i.	Hideya Nishiyama(Tohoku University), Milan Hrabovský(Institute of Plasma Physics ASCR, v.v.i.), Anthony B. Murphy(CSIRO Materials Science and Engineering)
J16R004	Instability and Nonlinear Dynamics of Curved Vortices	Hattori Yuji	Tohoku University	Stéphane Le Dizès(IRPHE and Aix-Marseille University), Stefan G. Llewellyn Smith(MAE, University of California), Yasuhide Fukumoto (Institute of Math-for-Industry, Kyushu University)
J16R005	International collaborative research on smart layered materials and structures for energy saving	Takagi Toshiyuki	Tohoku University	Jean-Yves Cavallé(INSA de Lyon), Christian Boller(Fraunhofer Institute for NDT), Jinhao Qiu(Nanjing University of Aeronautics and Astronautics), Julien Fontaine(EC Lyon), Manfred Kohl(Karlsruhe Institute of Technology), Henrik Alfredsson (KTH Royal Institute of Technology)
J16R006	Filtrational Gas Combustion in Porous Media and Micro Combustion	Sergey Minaev	Engineering School, Far-Eastern Federal University	Roman Fursenko(ITAM SB RAS), Alexander Kirdyashkin(Department Structural Macrokinetics, TSC), Vladimir Gubernov(ICKC SB RAS, Novosibirsk), Andrey Shmakov(Lebedev Physical Institute RAS), Kaoru Maruta(Tohoku University)