

List of selected projects for General Collaborative Research Project 2017, IFS, Tohoku University

Project Code	Project Title	Applicant	Institution	IFS responsible member or non-IFS responsible member	Institution
J17I001	Application of low-temperature sensitive fast response PSP on low-speed unsteady flow and its validation	Egami Yasuhiro	Aichi Institute of Technology	Nagai Hiroki	Tohoku University
J17I002	Investigation into air-leakage detection in space-debris impact using photochemical material	Makihara Kanjuro	Tohoku University	Ohtani Kiyonobu	Tohoku University
J17I003	Effect of environment attenuation of underwater explosion by porous complex mediums	Kitagawa Kazutaka	Aichi Institute of Technology	Ohtani Kiyonobu	Tohoku University
J17I004	Improvement and Micro-Channel Flow Evaluation of Electro-Rheological Nano-Suspensions	Tanaka Katsufumi	Kyoto Institute of Technology	Nakano Masami	Tohoku University
J17I005	Acoustic fluid analysis on edge tone	Takahashi Kin'ya	Kyushu Institute of Technology	Hattori Yuji	Tohoku University
J17I006	Numerical analysis of the active species dynamics between discharge plasma and biological surface	Uchida Satoshi	Tokyo Metropolitan University	Sato Takehiko	Tohoku University
J17I008	Accurate/Efficient Uncertainty Quantification for Tsunami Inundation Flows	Yamazaki Ayumu	Nagaoka University of Technology	Shimoyama Koji	Tohoku University
J17I009	Exploitation of deployable wing model fusing interdisciplinary fields: fluid/structure/control	Makihara Kanjuro	Tohoku University	Nagai Hiroki	Tohoku University
J17I010	Mechanism of thermal energy transfer in nanoscale solid-liquid systems	Ohara Taku	Tohoku University	Shibahara Masahiko	Osaka University
J17I011	Application of Two-phase thermo-fluid Simulation for Accurate Design of Oscillating Heat Pipe	Takashi Shun	Tokai University	Nagai Hiroki	Tohoku University
J17I012	A study on the functionality improvement of nanoparticulate-filled carbon fiber reinforced plastic	Takayama Tetsuo	Yamagata University	Kosukegawa Hiroyuki	Tohoku University
J17I013	Seminar for Inspection, Repair, and Recycle of Carbon Fiber Reinforced Plastic (CFRP)	Takagi Toshiyuki	Tohoku University	Ito Hiroshi	Yamagata University
J17I014	Research of highly functional characteristics produced by nanostructures and their applications	Takahashi Yasuo	Hokkaido University	Samukawa Seiji	Tohoku University
J17I015	Investigation of Non-equilibrium Turbulence and Its Application to Flow Control	Sakai Yasuhiko	Nagoya University	Hayase Toshiyuki	Tohoku University
J17I016	Coupled analysis of high-density hydrogen safety management	Ishimoto Jun	Tohoku University	Combescure Alain	INSA de Lyon
J17I018	Development of Light-driven Micro/Nano Fluidic Devices	Yamada Noboru	Nagaoka University of Technology	Komiya Atsuki	Tohoku University

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J17I022	Mechanism of shock wave propagation within the cell	Nakagawa Atsuhiko	Tohoku University Hospital	Ohtani Kiyonobu	Tohoku University
J17I023	Study for Accurate Prediction of Unsteady Aerodynamic Characteristics around Moving Objects	Takahashi Shun	Tokai University	Obayashi Shigeru	Tohoku University
J17I025	Nanostructured Heusler alloys and related compounds prepared by mechanical alloying and plasma electrolytic methods for energy saving thermoelectric power generation and protective coatings	Khovaylo Vladimir	National University of Science and Technology "MISIS"	Takagi Toshiyuki	Tohoku University
J17I026	Quantitative temperature measurement of high pressure flame applying Laser Induced Thermal Grating Spectroscopy (LITGS)	Hayakawa Akihiro	Tohoku University	Hochgreb Simone	University of Cambridge
J17I029	Investigation of a time response of cntTSP sensor for a dynamic visualization of the laminar-to-turbulent boundary layer transition	Yorita Daisuke	German Aerospace Center - DLR	Nagai Hiroki	Tohoku University
J17I030	Theoretical and experimental study of flow stability, flow controllability, and trapped acoustic modes in cylindrical expansion chamber-pipe systems	Langthjem Mikael A.	Yamagata University	Nakano Masami	Tohoku University
J17I031	Atomizing characteristics of superheated water injected from a fan spray nozzle	Watanabe Rikio	Tokyo City University	Kobayashi Hideaki	Tohoku University
J17I032	Elucidation of Fluid Phenomena and Application to Sports Fields	Hasegawa Hiroaki	Utsunomiya University	Obayashi Shigeru	Tohoku University
J17I033	Kinetic modeling of high-pressure surface ionization waves generated by ns pulse discharges	Takana Hidemasa	Tohoku University	Adamovich Igor	The Ohio State University
J17I034	Development of hydrogen production process by MHD mixing	Iwamoto Yuhiro	Nagoya Institute of Technology	Takana Hidemasa	Tohoku University
J17I035	Experimental and Numerical Study on Improvement of Flight Performance of a Multicopter	Sasaki Daisuke	Kanazawa Institute of Technology	Shimoyama Koji	Tohoku University
J17I036	Development of a nanostructure analog memory device for massively-parallel brain-like LSIs	Morie Takashi	Kyushu Institute of Technology	Samukawa Seiji	Tohoku University
J17I037	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
J17I038	Development of Molecular Imaging Technology for Investigation of Projectile Aerodynamics	Numata Daiju	Tokai University	Ohtani Kiyonobu	Tohoku University
J17I039	Study on the fundamental characteristics of an actuator for adding high-frequency oscillatory momentum to supersonic flows	Handa Taro	Toyota Technological Institute	Ohtani Kiyonobu	Tohoku University
J17I040	Analytical development of artificially modified bio-template for 2D ordered or dispersed nanoparticles etching array mask.	Yamashita Ichiro	Osaka University	Samukawa Seiji	Tohoku University

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J17I043	Numerical Investigation of Dynamic Stability of the High-Altitude Experimental Model for the Martin Airplane	Kanazaki Masahiro	Tokyo Metropolitan University	Nagai Hiroki	Tohoku University
J17I044	Development, modeling and characterization of efficient Magneto-Rheological elastomers for vibrational energy harvesting	SEBALD Gael	INSA de Lyon	Nakano Masami	Tohoku University
J17I045	Development of Novel Multi-Layer Magnetorheological Elastomer Isolators	Li Weihua	University of Wollongong	Nakano Masami	Tohoku University
J17I047	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
J17I048	Discharge phenomenon in laser-induced bubble and formation mechanism of microjet by cavitation bubble	Sato Takehiko	Tohoku University	Farhat Mohamed	Ecole Polytechnique Federale de Lausanne(EPFL)
J17I049	Computational fluid dynamics study of neuro-endovascular treatments for cerebrovascular diseases	Nakajima Shintaro	Juntendo University	Ohta Makoto	Tohoku University
J17I051	The summer school for aerospace fluid science researches	Obayashi Shigeru	Tohoku University	Imamura Taro	Tokyo University
J17I055	The Theoretical Modes of the Wake Flow of Road Vehicles	Lai Chenguang	Chongqing University of Technology	Obayashi Shigeru	Tohoku University
J17I056	Application of nanostructure surfaces to enhance the thermal performance of heat pipe	Zhang Peng	Shanghai Jiao Tong University	Nagai Hiroki	Tohoku University
J17I057	Application of a data assimilation methodology to a numerical simulation of pedestrian flow	Fumiya Togashi	Applied Simulations Inc.	Obayashi Shigeru	Tohoku University
J17I060	Effect of Wall Elasticity on Reduction of Wall Shear Stress in a Patient-Specific Aneurysm model in Middle Cerebral Artery	Yamaguchi Ryuhei	Chiba University	Ohta Makoto	Tohoku University
J17I064	Establishment of a simulation method for electromagnetic ultrasonic testing and its application	Yamamoto Toshihiro	Japan Power Engineering and Inspection Corporation	Takagi Toshiyuki	Tohoku University
J17I065	Eddy Current Testing and Electromagnetic Acoustic Transducers: modelling materials behavior for advanced Non Destructive Testing techniques	SEBALD Gael	INSA de Lyon	Uchimoto Tetsuya	Tohoku University
J17I066	Molecular Dynamics Study of Transport phenomena of Nanoscale Water Droplet in a Nano Pore	Tokumasu Takashi	Tohoku University	Philippe Vergne	INSA de Lyon
J17I069	2017 Maintenance Science Summer School in Sendai	Uchimoto Testuya	Tohoku University	Christian Boller	Saarland University
J17I070	Attitude control of supersonic projectile by detached shock pulsation	Mizukaki Toshiharu	Tokai University	Obayashi Shigeru	Tohoku University

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J17I071	Experimental study of the influence of microbubble diameter on disintegration of thin resin plate using the underwater electrical discharge and microbubbles	Koita Taketoshi	Saitama Institute of Technology	Sun Mingyu	Tohoku University
J17I072	A study on flow characteristics of high concentration nanofluids using a coupled particle-fluid flow simulation	Tsukada Takao	Tohoku University	Komiya Atsuki	Tohoku University
J17I076	Electronic and spin properties of carriers localized in 3D array of Ge/Si and Ge/Si/Sn Nano-disks fabricated by Bio-template Top-down Etching	Stepina Natalia	Institute of Semiconductor Physics	Samukawa Seiji	Tohoku University
J17I078	Development and applications of micro-motors consisting of smart polymer rotor and dielectric liquid	Nakano Masami	Tohoku University	Zrinyi Miklos	Semmelweis University
J17I082	Mechanism of inception and propagation of underwater streamer	Sato Takehiko	Tohoku University	Kanazawa Seiji	Oita University
J17I083	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
J17I084	Simultaneous Evaluation of Plastic Deformation and Residual Stress with ENDE Methods	Chen Zhenmao	Xi'an Jiaotong University	Takagi Toshiyuki	Tohoku University
J17I085	The development and applications of pressure-sensitive paint on the investigations of gases mixing in T-type micromixers	Huang, Chih-Yung	National Tsing Hua University	Nagai Hiroki	Tohoku University
J17I086	Study on the function of Me-DLC nano-composite coatings acting as thermo-sensor in the sliding interface	Goto Minoru	National Institute of Technology, Ube College	Takagi Toshiyuki	Tohoku University
J17I088	Analysis of transport phenomena of oxygen ion in electrolyte of solid oxide fuel cell	Tokumasu Takashi	Tohoku University	Ahn Jeongmin	Syracuse University
J17I095	International Workshop on Fluid and Material Sciences in Cooperation between Tohoku University and KTH	Hayase Toshiyuki	Tohoku University	Fredrik Lundell	KTH Mechanics
J17I096	Micro combustion for clean and efficient syngas formation and fuel cell applications	Ahn Jeongmin	Syracuse University	Maruta Kaoru	Tohoku University
J17I097	Measurement-integrated analysis methodology for complex flow systems	Hayase Toshiyuki	Tohoku University	Brandt Luca	KTH Mechanics
J17I100	Characteristic simulation of neutral beam etching fabricated nanodisks for new material applications	Li Yiming	National Chiao-Tung University	Samukawa Seiji	Tohoku University
J17I102	Development of Program for surveying stent strut position	Ohta Makoto	Tohoku University	Bastien Chopard	Geneva University
J17I103	Research of high-speed contact with medical devices	Ohta Makoto	Tohoku University	Vincent Fridrici	Ecole Centorale de Lyon

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J17I104	Optimization and Data Mining of Transonic Compressor blade via Active Subspace Method for an Energy-Efficient Turbomachinery Design	Lavi Rizki Zuhail	Bandung Institute of Technology	Shimoyama Koji	Tohoku University
J17I105	The sensitivity analysis and multi-objective optimization of the biodegradable zinc alloy stent	Aike Qiao	Beijing University of Technology	Ohta Makoto	Tohoku University
J17I107	AERODYNAMIC DESIGN AND OPTIMIZATION OF HIGH SPEED TRANSPORT AIRCRAFT	Romie Oktovianus Bura	Bandung Institute of Technology	Obayashi Shigeru	Tohoku University
J17I108	Evaluation of Flow Field in Closed Cavity under Temporally Variable Thermal Condition	Komiya Atsuki	Tohoku University	Nicholas Williamson	The University of Sydney
J17I109	Application of Data Assimilation to Aviation Safety System	Shinkyu Jeong	Kyunghee University	Obayashi Shigeru	Tohoku University
J17I110	Interfacial design and functionalization of triboelectric materials for high-performance energy harvesters	Dukhyun Choi	Kyung Hee University	Samukawa Seiji	Tohoku University

Exploratory Collaborative Research Project 2017, IFS, Tohoku University

Project Code	Project Title	Applicant	Institution	IFS responsible member or non-IFS responsible member	Institution
J17H001	Aerodynamic Improvement of a Delta Wing by Using Combination of Leading Edge Flaps	Ishide Tadateru	National Institute of Technology, Kisarazu College	Shimoyama Koji	Tohoku University
J17H002	Effectiveness of flexible wing in a flapping flight	Ishide Tadateru	National Institute of Technology, Kisarazu College	Obayashi Shigeru	Tohoku University
J17H003	Dynamics of thermal pyrolysis occurring in the interior of wood biomass	Ogami Yasuhiro	Akita Prefectural University	Nakamura Hisashi	Tohoku University
J17H004	Field Observation and Flow Analysis of a Flying Pipe	Hirata Katsuya	Doshisha University	Nakano Masami	Tohoku University

International Multiple Collaborative Research Project 2017, IFS, Tohoku University

Project Code	Project Title	Applicant	Institution	IFS responsible member or non-IFS responsible member (Institution)
J17R001	Physical insight into Mach reflection transition and its hysteresis in axisymmetric intakes in continuum and rarefied flow conditions for high-speed air breathing propulsion	Ogawa Hideaki	RMIT University	Ohtani Kiyonobu (Tohoku University), Sannu Mölder (Ryerson University), Evgeny Timofeev (Ryerson University), Georgy Shoen (ITAM SB RAS)
J17R002	International collaborative research on smart layered materials and structures for energy saving	Takagi Toshiyuki	Tohoku University	Cavaillè Jean-Yves (INSA de Lyon), BOLLER Christian (Fraunhofer Institute for NDT), QIU Jinhao (Nanjing University Aeronautics and Astronautics), Fontaine Julien (Ecole Centrale de Lyon), Kohl Manfred (Karlsruhe Institute of Technology), Henrik Alfredsson (KTH Mechanics)
J17R003	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), Murphy B. Anthony (CSIRO Materials Science and Engineering)
J17R004	Instability and Nonlinear Dynamics of Curved Vortices	Hattori Yuji	Tohoku University	Stephane Le Dizès (IRPHE, Aix-Marseille University), Stefan Llewellyn Smith (UCSD), Fukumoto Yasuhide (Kyushu University)
J17R005	Link between tracer and microseismic analysis to comprehensive understanding of hydraulic feature of fractured geothermal reservoir	Suzuki Anna	Tohoku University	Roland N. Horne (Stanford University), Michael Fehler (Massachusetts Institute of Technology)
J17R006	Filtrational gas combustion in porous media and micro combustion	Minaev Sergey	Far-Eastern Federal University	Maruta Kaoru (Tohoku University), Roman Fursenko (ITAM SB RAS), Kiriyashkin Alexander (TSC), Vladimir Gubernov (Lebedev Physical Institute RAS), Shmakov Andrey (ICKC SB RAS)

Priority Collaborative Research Project 2017, IFS, Tohoku University

Project Code	Project Title	Applicant	Institution	IFS responsible member or non-IFS responsible member (Institution)
J17J001	Multiscale flow and interfacial transport phenomena at phase and material boundaries	Ohara Taku	Tohoku University	Kwak Dongyoun (JAXA), Sakaue Hirofumi (University of Notre Dame), Wada Hirofumi (Ritsumeikan University), Hashimoto Mitsuo (Nireco Co.), Iijima Takashi (AIST), Combes Alain (INSA de Lyon)
J17J002	Science and technology for utilizations of carbon free energy carriers	Kobayashi Hideaki	Tohoku University	Hashimoto Nozomu (Hokkaido University), Watanabe Yutaka (Tohoku University)