Project Code	Project Title	Applicant	Institution	IFS responsiblemember or non-IFSresponsible member	Institution
J19I001	Towards Next Generation CFD Models of Intracranial Aneurysm (NX-CFD): In-vitro validation studies and in-silico benchmarking of intracranial transitional flow	Tupin Simon Andre	Institute of Fluid Science, Tohoku University	Saqr Khalid	Arab Academy for Science, Technology and Maritime Transport
J19I002	Chemical interpretation of the two-stage cool flame of diethylether	SAKAI Yasuyuki	University of Fukui	Hisashi nakamura	Institute of Fluid Science, Tohoku University
J19I003	Mixture of Experts in Bayesian Optimization for Complex Aerospace Designs	Rhea Liem	Hong Kong University of Science and Engineering (HKUST)	Koji Shimoyama	Institute of Fluid Science, Tohoku University
J19I004	Discharge phenomenon in laser-induced bubble and formation mechanism of microjet by cavitation bubble	Takehiko Sato	Institute of Fluid Science, Tohoku University	FARHAT Mohamed	Ecole Polytechnique Federale de Lausanne (EPFL)
J19I005	The Role of Signal-anchor Region of Type II Transmembrane Protein in Subcellular Localization	Yuri Mukai−Ikeda	Meiji University	Makoto Ohta	Institute of Fluid Science, Tohoku University
J19I006	Application of core-based inversion to reconstruct stress field in an underground geoscience laboratory	Takatoshi Ito	Institute of Fluid Science, Tohoku University	Xiaondong Ma	ETH Zurich
J19I007	Thermal conductivity reduction and carrier concentration optimization for development of nanocomposite materials with enhanced thermoelectric figure of merit	Vladimir Khovaylo	National University of Science and Technology "MISiS"	Toshiyuki Takagi	Institute of Fluid Science, Tohoku University
J19I008	Efficient Uncertainty Quantification of Fluid Flow Problems via Combination of Kriging Surrogate Modeling and Proper Orthogonal Decomposition	Mehrdad Raisee Dehkordi	University of Tehran	Koji Shimoyama	Institute of Fluid Science, Tohoku University
J19I009	Estimation of fracture permeability by integrating microseismic observational data and reservoir engineering modeling	Yusuke Mukuhira	Institute of Fluid Science, Tohoku University	Justin Rubinstein	United States Geological Survey
J19I010	Mechanical Analysis of a Patented Biodegradable Zinc Alloy Stent Based on a Degradation Model	Aike Qiao	Beijing University of Technology	Makoto Ohta	Institute of Fluid Science, Tohoku University
J19I011	Development of nanodots distance controlled etching mask by cage-shaped protein with outer-surface polymer modification.	Ichiro Yamashita	Osaka University	Seiji Samukawa	Institute of Fluid Science, Tohoku University
J19I012	Identification of the singular point associated with frequency selection of Karman vortices	Shohei Takagi	Tokyo Metropolitan University	Yasufumi Konishi	Institute of Fluid Science, Tohoku University
J19I013	Numerical molecular analysis of reactive species behavior bewteen discharge plasma and biological surface	Satoshi Uchida	Tokyo Metropolitan University	Takehiko Sato	Institute of Fluid Science, Tohoku University
J19I014	Development of Gradient-enhanced Bayesian Optimization Technique for Turbomachinery Design	Lavi Rizki Zuhal	Bandung Institute of Technology	Koji Shimoyama	Institute of Fluid Science, Tohoku University
J19I015	Development of Conservative Kinetic Force Method Near Equilibrium	Vladimir Saveliev	Institute of Ionosphere, National Center of Space Researches and Technologies	Shigeru Yonemura	Institute of Fluid Science, Tohoku University
J19I017	Experimental study on structural shape of conductive tether for removing space debris	Kanjuro Makihara	School of Engineering, Tohoku University	Kiyonobu Ohtani	Institute of Fluid Science, Tohoku University
J19I018	Experiment and Simulation of a Rotating Hollow Cylinder in Flight	Katsuya Hirata	Doshisha University	Jun Ishimoto	Institute of Fluid Science, Tohoku University
J19I019	Exploitation of deployable wing model fusing interdisciplinary fields: fluid/structure/control	Kanjuro Makihara	School of Engineering, Tohoku University	Hiroki Nagai	Institute of Fluid Science, Tohoku University
J19I020	Numerical study on wind instruments with compressible DNS	Kin'ya Takahashi	Kyushu Institute of Technology	Yuji Hattori	Institute of Fluid Science, Tohoku University
J19I021	On the multi dynamic mode analysis of flow- induced noise from an elastic bodies	Osamu Terashima	Toyama Prefectural University	Yasufumi Konishi	Institute of Fluid Science, Tohoku University
J19I022	Application of low-temperature sensitive fast response PSP on low-speed unsteady flow and its validation	Yasuhiro Egami	Aichi Insititute of Technology	Hiroki Nagai	Institute of Fluid Science, Tohoku University
J19I024	Investigation of bioheat transfer characteristics of skin tumor during non-invasive measurement of thermal conductivity	Takahiro Okabe	Hirosaki University	Junnosuke Okajima	Institute of Fluid Science, Tohoku University
J19I026	Design and development of engineering products by using multiphase flow simulation	Shun Takahashi	Tokai University	Shigeru Obayashi	Institute of Fluid Science, Tohoku University

Project Code	Project Title	Applicant	Institution	IFS responsiblemember or non-IFSresponsible member	Institution
J19I027	Investigation of phonon dynamics in quantum nano-structures by using high-sensitivity detection of the non-radiative recombination	Atsuhiko Fukuyama	University of Miyazaki	Seiji Samukawa	Institute of Fluid Science, Tohoku University
J19I028	Experimental observation and numerical simulation on the smart control of a suspension rheology	Tomohiro Fukui	Kyoto Institute of Technology	Toshiyuki Hayase	Institute of Fluid Science, Tohoku University
J19I029	Combustion characteristics of biogas at various pressures	Willyanto Anggono	Petra Christian University	Akihiro Hayakawa	Institute of Fluid Science, Tohoku University
J19I030	Investigation of a time response of cntTSP sensor for a dynamic visualization of the laminar-to-turbulent boundary layer transition	Daisuke Yorita	German Aerospace Center – DLR	Hiroki Nagai	Institute of Fluid Science, Tohoku University
J19I031	Study of coaxial inversion rotor aimed at realizing Mars helicopter	Hiroki Nagai	Institute of Fluid Science, Tohoku University	Kouichi Yonezawa	Central Research Institute of Electric Power Industry
J19I032	Optical characterization of ionic liquid upon its absorption of carbon dioxide gas	Furukawa Rei	The University of Electro-Communications	Hidemasa Takana	Institute of Fluid Science, Tohoku University
J19I033	Thermodynamic Property Gradients in Near- Surface Water Thin Film and its Impact on Liquid Flow in Microlayer	Shalabh C. Maroo	Syracuse University	Takashi Tokumasu	Institute of Fluid Science, Tohoku University
J19I034	Multifunctional hybrid filaments comprising aligned nanocellulose and carbon nanotubes synthesized by a field-assisted flow focusing method	Anthony B Dichiara	University of Washington	Hidemasa Takana	Institute of Fluid Science, Tohoku University
J19I036	Numerical Simulations as Evaluation Method for Biofluidic Experiments	Putra Narendra Kurnia	Insitut Teknologi Bandung	Hitomi Anzai	Institute of Fluid Science, Tohoku University
J19I037	Experimental and Chemical Kinetics Modeling Study of nitromethane in shock tubes and a micro-flow reactor with a controlled temperature profile	Olivier Mathieu	Texas A&M University	Hisashi nakamura	Institute of Fluid Science, Tohoku University
J19I039	Evaluation of Natural Convection Flow under Spatiotemporally Variable Thermal Condition	Atsuki Komiya	Institute of Fluid Science, Tohoku University	Nicholas Williamson	The University of Sydney
J19I041	Elucidation of Fluid Phenomena and its Application to Sports Fields	Hiroaki Hasegawa	Utsunomiya University	Shigeru Obayashi	Institute of Fluid Science, Tohoku University
J19I042	Large-scale simulation of mass transfer with solid-gas reaction in porous material with actual structure	Yohsuke Matsushita	Department of Chemical Engineering, Tohoku University	Atsuki Komiya	Institute of Fluid Science, Tohoku University
J19I044	The study on the Mechanism of Coupling Wall– Effect on Multidirectional Wings based on Multi– Objective Optimization	Chenguang Lai	Chongqing University of Technology	Shigeru Obayashi	Institute of Fluid Science, Tohoku University
J19I046	Development of brain-like memory integrated systems and stacked analog memory devices	Takashi Morie	Kyushu Institute of Technology	Seiji Samukawa	Institute of Fluid Science, Tohoku University
J19I047	Understanding tribological behaviour of hBN nanoparticles in TMP Ester based biolubricant by assessing its rheological properties	Takashi Tokumasu	Institute of Fluid Science, Tohoku University	Yusuf Rodjali, Nasruddin	Universitas Indonesia
J19I049	Analysis of oxygen transport resistance in catalyst layer of polymer electrolyte fuel cell based on molecular scattering phenomena	Takashi Tokumasu	Institute of Fluid Science, Tohoku University	Kinefuchi, Ikuya	The University of Tokyo
J19I050	Solid Oxide Fuel Cells Replacement of a Traditional Catalytic Converter	Jeongmin Ahn	Syracuse University	Hisashi nakamura	Institute of Fluid Science, Tohoku University
J19I051	Mechanism of generation and stabilization of fine bubbles generated by plasma in water	Takehiko Sato	Institute of Fluid Science, Tohoku University	NAKATANI Tatsuyuki	Okayama University of Science
J19I052	Electric Field Measurements in Nanosecond Pulse Discharges in Atmospheric Pressure Flames for Plasma Assisted Flameholding	Hidemasa Takana	Institute of Fluid Science, Tohoku University	Igor Adamovich	Ohio State University
J19I053	Development of thermal barrier sprinkler	Hiroki Gonome	Yamagata University	Junnosuke Okajima	Institute of Fluid Science, Tohoku University
J19I055	Clarification of the transition mechanism of cavitation instabilities	Donghyuk Kang	Saitama University	Yuka Iga	Institute of Fluid Science, Tohoku University
J19I056	Effects of the turbulence interaction on the rise time of a sonic boom pressure signature	Takahiro Ukai	Osaka Institute of Technology	Kiyonobu Ohtani	Institute of Fluid Science, Tohoku University

Project Code	Project Title	Applicant	Institution	IFS responsiblemember or non-IFSresponsible member	Institution
J19I057	Development of Light-driven Micro/Nano Fluidic Devices	Noboru Yamada	Nagaoka University of Technology	Atsuki Komiya	Institute of Fluid Science, Tohoku University
J19I059	A study on nano-scale interfacial phenomena of surface-modified nanoparticle suspensions	Takao Tsukada	Graduate School of Engineering, Tohoku University	Atsuki Komiya	Institute of Fluid Science, Tohoku University
J19I060	Development of Aerodynamic and Propulsion System for High Performance Mars Exploration Aircraft	Shinkyu Jeong	Kyunghee University	Hiroki Nagai	Institute of Fluid Science, Tohoku University
J19I061	Study on the function of Me-DLC nano- composite coatings acting as thermo-sensor in the sliding interface	Minoru Goto	National Institute of Technology, Ube College	Toshiyuki Takagi	Institute of Fluid Science, Tohoku University
J19I062	Characterization of Fatigue Damage using Electromagnetic NDT Methods	Chen Zhenmao	Xi'an Jiaotong University	Toshiyuki Takagi	Institute of Fluid Science, Tohoku University
J19I063	Numerical study on gas lubrication system using micro/nanoscale dimples	Shigeru Yonemura	Institute of Fluid Science, Tohoku University	Bondar, Yevgeniy	Russian Academy of Science
J19I064	Effect of Wall Elasticity on Reduction of Wall Shear Stress in a Patient-Specific Aneurysm model in Middle Cerebral Artery	Gaku Tanaka	Chiba University	Makoto Ohta	Institute of Fluid Science, Tohoku University
J19I065	Unsteady Aerodynamics of Axially Oriented Low Fineness Ratio Cylinders	Colin Britcher	Old Dominion University	Shigeru Obayashi	Institute of Fluid Science, Tohoku University
J19I066	Effects of heat loss on the dynamics of hydrogen-air premixed flames	Satoshi Kadowaki	Nagaoka University of Technology	Hideaki Kobayashi	Institute of Fluid Science, Tohoku University
J19I070	Research of application of highly functional nano devices fabricated by using nanostructures	YASUO TAKAHASHI	Hokkaido University	Seiji Samukawa	Institute of Fluid Science, Tohoku University
J19I071	Experimental Study on Unsteady Aerodynamic Characteristics of a Badminton Shuttlecock	Hiroaki Hasegawa	Utsunomiya University	Hiroki Nagai	Institute of Fluid Science, Tohoku University
J19I072	Fuel sensitivity on end-gas autoignition behavior during knocking combustion	Hiroshi Terashima	Hokkaido University	Hisashi nakamura	Institute of Fluid Science, Tohoku University
J19I074	Development of Spinning Device Using Filmwise Pumping-up Mechnism with Induction Heating and Rotating Cone	Adachi Takahiro	Akita University	Junnosuke Okajima	Institute of Fluid Science, Tohoku University
J19I075	Instability and Wave Interactions in Helical Vortices	Yuji Hattori	Institute of Fluid Science, Tohoku University	Ivan Delbende	LIMSI
J19I076	Fully automatization of evolutionary optimum design system with unstructured computational fluid dynamics	Kazuhisa Chiba	The University of Electro-Communications	Shigeru Obayashi	Institute of Fluid Science, Tohoku University
J19I077	Magnetic and Electric Properties of Diamond Like Carbon-Magnetic Metal Nano-composite Films	Zhang Yiwen	Tianjin University	Hiroyuki Kosukegawa	Institute of Fluid Science, Tohoku University
J19I078	Active control of high-speed boundary layer flows	Yuji Hattori	Institute of Fluid Science, Tohoku University	Adrian Sescu	Mississippi State University
J19I079	Analysis of transport phenomena of oxygen ion in dual-phase electrolyte material	Takashi Tokumasu	Institute of Fluid Science, Tohoku University	Ahn, Jeongmin	Syracuse University
J19I080	The Effect of Hypertension and Anti-Coagulant to Aneurysm Rupture	Kahar Osman	Universiti Teknologi Malaysia	Makoto Ohta	Institute of Fluid Science, Tohoku University
J19I081	Interferometric measurement of temperature fields in turbulent flows	Juan Felipe Torres	The Australian National University	Atsuki Komiya	Institute of Fluid Science, Tohoku University
J19I082	Quantum molecular dynamics analysis of bubble inception in cryogenic liquid hydrogen	Shin−ichi Tsuda	Kyushu University	Takashi Tokumasu	Institute of Fluid Science, Tohoku University
J19I084	Thermal Conductivity of Silicon Nanowire Using Landauer Approach for Thermoelectric Application	Yiming Li	National Chiao-Tung University	Seiji Samukawa	Institute of Fluid Science, Tohoku University
J19I086	Investigation of centreline shock reflection and viscous effects in axisymmetric supersonic flow	Hideaki Ogawa	RMIT University	Kiyonobu Ohtani	Institute of Fluid Science, Tohoku University

Project Code	Project Title	Applicant	Institution	IFS responsiblemember or non-IFSresponsible member	Institution
J19I087	Development of Numerical Modeling on Enhancement of CO2 Absorption by Ionic Liquid Electrospray	Hidemasa Takana	Institute of Fluid Science, Tohoku University	Takayasu Fujino	University of Tsukuba
J19I088	Experimental Investigation on Atomization Process in Electro-Sprays by Surface Disturbance Measurements	Hidemasa Takana	Institute of Fluid Science, Tohoku University	Friedrich Dinkelacker	Leibniz Universität Hannover
J19I089	Elucidation of Mass Transfer Mechanism into Living Cells using Electric Potential Stimulation by Pulsed Discharge Plasma	Takamasa Okumura	National Institute of Technology, Ichinoseki College	Takehiko Sato	Institute of Fluid Science, Tohoku University
J19I090	Flight attitude stabilizing by side-jet generated by detached shock pulsation	Toshiharu Mizukaki	Tokai University	Kiyonobu Ohtani	Institute of Fluid Science, Tohoku University
J19I091	Numerical Investigation of Dynamic Stability for the High-Altitude Experimental Model of Martin Airplane	Masahiro Kanazaki	Tokyo Metropolitan University	Hiroki Nagai	Institute of Fluid Science, Tohoku University
J19I094	Characteristics of high enthalpy flows around a hypersonic vehicle	Gouji Yamada	Tokai University	Kiyonobu Ohtani	Institute of Fluid Science, Tohoku University
J19I096	Study on Fracture Behaviour of Single Natural Fiber	FUADI Zahrul	Syiah Kuala Univeristy, Indonesia	Toshiyuki Takagi	Institute of Fluid Science, Tohoku University
J19I097	Mathematical modeling and MC study of deformation of ferroelectric polymers under electric field	Koibuchi Hiroshi	National Institute of Technology, Sendai College	Toshiyuki Takagi	Institute of Fluid Science, Tohoku University
J19I098	Numerical simulation of flowfields over Mars entry capsules	Michiko Furudate	Chungnam National University	Hiroki Nagai	Institute of Fluid Science, Tohoku University
J19I100	Fluid dynamics and energy/scalar transport in coexisting flow of turbulence and non- turbulence	Yasuhiko Sakai	Nagoya University	Toshiyuki Hayase	Institute of Fluid Science, Tohoku University
J19I101	Seminar for Advanced Maintenance Technology of Fiber Reinforced Composites	Toshiyuki Takagi	Institute of Fluid Science, Tohoku University	Hiroshi Ito	Yamagata University
J19I102	Internal defect of plastic-fabricated Carbon Fiber Reinforced Thermo Plastics	Noboru Nakayama	Shinshu University	Toshiyuki Takagi	Institute of Fluid Science, Tohoku University
J19I106	Mechanism of inception and propagation of underwater streamer	Takehiko Sato	Institute of Fluid Science, Tohoku University	KANAZAWA Seiji	Oita University

82 selected projects

List of selected projects for Exploratory Collaborative Research Project 2019, IFS, Tohoku University

Pro Co	ject ode	Project Title	Applicant	Institution	IFS responsiblemember or non-IFSresponsible member	Institution
J19I	H001	Comparison of data assimilation methods in fluid problems	Takashi Misaka	National Institute of Advanced Industrial Science and Technology (AIST)	Shigeru Obayashi	Institute of Fluid Science, Tohoku University
J19I	-1002	Aerodynamic drag reduction using a coating material in flapping wing	Tadateru Ishide	National Institute of Technology, Kisarazu College	Shigeru Obayashi	Institute of Fluid Science, Tohoku University
J19I	4003	Aerodynamic design of wingtip devices for suppression of tip vortex using biomimetic technology	Seiichiro Morizawa	National Institute of Technology, Okinawa College	Shigeru Obayashi	Institute of Fluid Science, Tohoku University
J19I	1004	Elucidation of the flow state of wet steam	Yoshiaki Tanzawa	Nippon Institute of Technology	Jun Ishimoto	Institute of Fluid Science, Tohoku University
J19I	4005	Numerical analysis of a morphing jet-flap under ground effect	Dzieminska Edyta	Sophia University	Shigeru Obayashi	Institute of Fluid Science, Tohoku University

5 selected projects

Project Code	Project Title	Applicant	Institution	IFS responsible member or non-IFSresponsible member (Institution)
J19R001	Micro-combustion for micro-tubular flame- assisted fuel cell power generation	Jeongmin Ahn	Syracuse University	Kaoru Maruta (Institute of Fluid Science, Tohoku University), Ryan Milcarek(Arizona State University)
J19R003	Micro channel burners for energy production on the basis of micro combustion	Sergey Minaev	Far–Eastern Federal University	Kaoru Maruta (Institute of Fluid Science, Tohoku University), Fursenko Roman (ITAM SB RAS, Russia), Gubernov Vladimir (Lebedev Physical Institute RAS, Moscow, Russ), Kirdyashkin Alexander (Department Structural Macrokinetics, TSC, Russia), Tcoi Konstantin (Engineering School, Far Eastern Federal University, Russia)
J19R004	An efficient algorithm of inlet turbulence generation for cross-platform-based parallel computation and its application for flows over a low-pressure turbine cascade	Yoshiaki Abe	Institute of Fluid Science, Tohoku University	Peter E Vincent (Imperial College London, Department of Aeronautics), Freddie D Witherden (Texas A&M University), Brian Vermeire (Concordia University)
J19R005	Link between tracer and microseismic analysis to comprehensive understanding of hydraulic feature of fractured geothermal reservoir	Anna Suzuki	Institute of Fluid Science, Tohoku University	Roland N. Horne (Energy Resources Engineering, Stanford University), Michael Fehler (Earth Resources Laboratory, MIT), Takuya Ishibashi (AIST), Peter K. Kang (University of Minnesota), Adam J. Howkins (Energy Resources Engineering, Stanford University)

4 selected projects

	Project Code	Project Title	Applicant	Institution	IFS responsible member or non-IFSresponsible member (Institution)
	J19J001	Multiscale flow and interfacial transport phenomena at phase and material boundaries	Taku Ohara	Institute of Fluid Science, Tohoku University	Kwak Dongyoun (JAXA), Hirotaka Sakaue (University of Notre Dame), Hirofumi Wada (Ritsumeikan University), Mitsuo Hashimoto (Tohoku University),Takashi Iijima (AIST), Alain Combescure (INSA de Lyon), Lalita Udpa (Michigan State University), Bernd Valeske (Fraunhofer IZFP)
	J19J002	Science of ultrafine drop and high speed impact	Takehiko Sato	Institute of Fluid Science, Tohoku University	Masao Watanabe (Hokkaido University),Takeru Yano (Osaka University)
ļ	J19J003	Science and technology for utilizations of carbon free energy carriers	Hideaki Kobayashi	Institute of Fluid Science, Tohoku University	Nozomu Hashimoto (Hokkaido University),Yutaka Watanabe (Tohoku University),Dany ESCUDIE (INSA Lyon),Cedric GALIZZI (INSA Lyon)

List of selected projects for Priority Collaborative Research Project 2019, IFS, Tohoku University

Project Code	Project Title	Applicant	Institution	IFS responsiblemember or non-IFSresponsible member	Institution
J19Ly01	Numerical modelling of particle-laden effect on supersonic flow for cold-spray polymer coating	BERNARD Chrystelle	Frontier Research Institute for Interdisciplinary Sciences	Hidemasa Takana	Institute of Fluid Science, Tohoku University
J19Ly02	Ionic Liquid Polymer for corrosion resistance applications	Mary Nicolas	ELyTMaX, CNRS, Tohoku University, Université de Lyon	Tetsuya Uchimoto	Institute of Fluid Science, Tohoku University
J19Ly03	Coupled computing of fluid-structure interaction problems for multiphase energy systems	Jun Ishimoto	Institute of Fluid Science, Tohoku University	Thomas Elguedj	INSA de Lyon
J19Ly04	Stability and Transition to Turbulence of Taylor Vortex in a Gap between Rotating Two Cones	Takahiro Adachi	Akita University	Atsuki Komiya	Institute of Fluid Science, Tohoku University
J19Ly05	Modelling materials behavior for advanced electromagnetic Non Destructive Testing techniques	SEBALD Gael	CNRS, Université de Lyon, INSA-Lyon, Tohoku University	Tetsuya Uchimoto	Institute of Fluid Science, Tohoku University
J19Ly06	Corrosion characterization for pipe wall by ultrasonic wave	Hiroyuki Nakamoto	Kobe University	Toshiyuki Takagi	Institute of Fluid Science, Tohoku University
J19Ly07	Response Characteristics of Cellulose Nanofibril under AC Electric Field	Hidemasa Takana	Institute of Fluid Science, Tohoku University	Laurent Chazeau	INSA Lyon
J19Ly08	Elucidation of the pathophysiology of skin sodium and water metabolism	Rahman Asadur	Kagawa University	Jun Ishimoto	Institute of Fluid Science, Tohoku University
J19Ly09	Active Control of Protein Mass Transfer by Membrane Utilizing Variation of Surrounding Condition	Atsuki Komiya	Institute of Fluid Science, Tohoku University	Sebastien Livi	INSA Lyon
J19Ly10	Eddy Current Magnetic Signature (EC-MS) micro-magnetic nondestructive method for the evaluation of Fe-Si electric steel.	Benjamin DUCHARNE	LGEF INSA LYON	Tetsuya Uchimoto	Institute of Fluid Science, Tohoku University
J19Ly11	Microfluidic Tools to study Aerotaxis in Eukaryotic Cells	Rieu Jean−Paul	University Claude Bernard Lyon 1	Kenichi Funamoto	Institute of Fluid Science, Tohoku University
J19Ly12	Sensitivity analysis for fast and efficient CFD design under unsteady flow behavior	Aiko Yakeno	Institute of Fluid Science, Tohoku University	Gillot, Frederic	Ecole Centrale Lyon