

IFS Collaborative Research Forum

TACHIBANA

October 28, 2015

Chair: Gota Kikugawa (Tohoku University, Japan)

9:00-10:30 **Short Oral Presentaion**

(3 min for Short Oral Presentation)

- CRF-1 **Aerodynamic Characteristics of a Silent Supersonic Biplane Model using a New Force Balance**
Shohei Miki, Hiromitsu Kawazoe (Tottori University, Japan), Shigeru Obayashi (Tohoku University, Japan)
- CRF-2 **Study of the Unsteady Flow at Near Mach Number 1.0**
Takamasa Kikuchi, Shota Baba, Hiroto Nishihara (Nihon University, Japan), Kiyonobu Ohtani (Tohoku University, Japan)
- CRF-3 **Numerical Analysis of Sonic Boom Propagation Through Atmospheric Turbulence**
Romie Oktovianus Bura (Bandung Institute of Technology, Indonesia), Koji Shimoyama, Shigeru Obayashi (Tohoku University, Japan)
- CRF-4 **Cartesian-based CFD Approach Toward Investigation of Aerodynamic Characteristics of Low-Reynolds Number Airfoils**
Daisuke Sasaki, Daiki Iioka, Yuya Kojima, Takeshi Akasaka, Masato Okamoto (Kanazawa Institute of Technology, Japan), Takashi Misaka, Shigeru Obayashi, Koji Shimoyama (Tohoku University, Japan)
- CRF-5 **Flow Analysis around Moving Objects by Cartesian Mesh Method**
Ryohei Serizawa, Kenya Nozawa, Shun Takahashi (Tokai University, Japan), Daisuke Sasaki, Masato Okamoto (Kanazawa Institute of Technology, Japan), Shigeru Obayashi (Tohoku University, Japan)
- CRF-6 **Numerical Analysis on High Speed Flow Control using Repetitive Energy Deposition**
Akira Iwakawa, Takeharu Sakai, Akihiro Sasoh (Nagoya University, Japan), Shigeru Obayashi (Tohoku University, Japan)
- CRF-7 **Application of Data Assimilation to Aviation Safety**
Junho Cho (Seoul National University, Korea), Takashi Misaka, Shigeru Obayasho (Tohoku University, Japan), Yee Kwanjung (Seoul National University, Korea), Shinkyu Jeong (Kyunghee University, Korea)
- CRF-8 **Numerical Study of Non-equilibrium Flow with Dissociation and Vibrational Relaxation over a Wedge**
Georgy Shoev, Pavel Vashchenkov (Novosibirsk State University / Khristianovich Institute of Theoretical and Applied Mechanics SB RAS, Russia), Shigeru Yonemura (Tohoku University, Japan), Yevgeniy Bondar (Novosibirsk State University / Khristianovich Institute of Theoretical and Applied Mechanics SB RAS, Russia)

- CRF-9 **Study on Improvement of Aerodynamic Performance for an Airborne Projectile -The Results of Wind Tunnel Test on Air Permeability of Ski Jumpsuit Fabric-**
Shigekazu Tekuramori, Hiroaki Hasegawa (Akita University, Japan), Shigeru Obayashi (Tohoku University, Japan)
- CRF-10 **Position Indication of Air-Leakage caused by Space-Debris Impact using Photoluminescent Substance**
Yoshihiro Oki, Syu Kondo (Tohoku University, Japan), Sunao Hasegawa (JAXA ISAS, Japan), Miki Hasegawa (Aoyama Gakuin University, Japan), Kanjuro Makihara (Tohoku University, Japan)
- CRF-11 **Optimization of Influential Factors for Practical Application of an Ornithopter**
Tadateru Ishide, Kazuya Naganuma, Ryo Fujii, Kazuo Maeno (National Institute of Technology, Kisarazu College, Japan), Shigeru Obayashi, Koji Shimoyama (Tohoku University, Japan)
- CRF-12 **Liquid Film Breakup and Atomization of Water Spray Jet under High Ambient Pressure**
Rikio Watanabe, Hiroaki Ishii, Takamasa Tanaka (Tokyo City University, Japan), Hideaki Kobayashi (Tohoku University, Japan)
- CRF-13 **Thermodynamic Effect on Tip Leakage Vortex Cavitation**
Donghyuk Kang (Aoyamagakuin University, Japan), Daichi Nakai, Teppei Furusawa, Yuka Iga (Tohoku University, Japan)
- CRF-14 **PSP Development for Ballistic Range Experiments**
Daiju Numata, Keisuke Asai, Kiyonobu Ohtani (Tohoku University, Japan)
- CRF-15 **Feasibility Studies on a High-Altitude Captive Platform System**
Ryosuke Nishikawa, Kazuhisa Chiba (The University of Electro-Communications, Japan), Shigeru Obayashi (Tohoku University, Japan), Masahiko Onda (Sky Platform Technologies Co. Ltd., Japan), Shin Satori (Hokkaido University of Science, Japan), Ryojiro Akiba (Hokkaido Aerospace Science and Technology Incubation Center, Japan)
- CRF-16 **Topology-Based Multisensory Realization of Wake Turbulence**
Yuriko Takeshima (Tokyo University of Technology, Japan), Takashi Misaka, Shigeru Obayashi (Tohoku University, Japan)
- CRF-17 **Aerodynamic Optimization of Vehicle Shape Based on Genetic Algorithm**
Chenguang Lai, Xiaoxiong Chen, Kaiping Wen, Yuting Zhou (Chongqing University of Technology, China)
- CRF-18 **Study on Optimization of Tailing Edge for Low Noise Airfoil**
Takayuki Yamagata, Ryo Saito, Nobuyuki Fujisawa (Niigata University, Japan), Kosuke Inoue, Toshiyuki Hayase (Tohoku University, Japan)
- CRF-19 **Intrinsic Instabilities of Premixed Flames with High Lewis-Number Reactants and Intermediate Products**
Satoshi Kadowaki, Kenji Ando, Thwe Thwe Aung, Wataru Yamazaki (Nagaoka University of Technology, Japan), Hideaki Kobayashi (Tohoku University, Japan)

- CRF-20 **Numerical Studies of Ignition in ABC-Flow in Confined Domain with Nonadiabatic Boundary Conditions**
Evgeniy Sereshchenko, Roman Fursenko, Sergey Minaev (FEFU / SB RAS, Russia), Shengyang Shy (National Central University, Taiwan), Kaoru Maruta, (FEFU, Russia / Tohoku University, Japan), Hisashi Nakamura (Tohoku University, Japan)
- CRF-21 **On Numerical Modeling of Time-dependent 2D Processes in Porous Media with Zones of Heterogeneous Combustion**
Nickolay A. Lutsenko (Institute of Automation and Control Processes FEB RAS / Far Eastern Federal University, Russia), Kaoru Maruta (Far Eastern Federal University, Russia / Tohoku University, Japan)
- CRF-22 **Flammability Limits of Low-Lewis-number Premixed Flames**
Sergey Minaev, Roman Fursenko (Far Eastern Federal University, Russia), Kaoru Maruta (Tohoku University, Japan)
- CRF-23 **Investigation of Combustion Waves in the Model with Chain-branching and Radical Scavenging**
Vladimir Gubernov (Far Eastern Federal University / P.N. Lebedev Physical Institute of Russian Academy of Sciences, Russia), Sergei Minaev, Valeri Babushok (Far Eastern Federal University, Russia), Andrey Kolobov (P.N. Lebedev Physical Institute of Russian Academy of Sciences, Russia)
- CRF-24 **Magnetohydrodynamics Simulation on MHD Power Generator for Wind Energy**
Yuhiro Iwamoto (Doshisha University, Japan), Hidemasa Takana (Tohoku University, Japan), Kenta Taki, Hiroshi Yamaguchi (Doshisha University, Japan)
- CRF-25 **Numerical Analysis of In-flight Sprayed Particles in Plasma Jet for a Thermal Plasma Spray with an Externally Applied Magnetic Field**
Hiroki Saito, Yusuke Nakane, Takayasu Fujino (University of Tsukuba, Japan), Hidemasa Takana (Tohoku University, Japan)
- CRF-26 **Rapid Deposition of Photo-catalytic Titanium Oxide Film by Atmospheric SPPS using Ar Vortex Plasma Jet**
Kindole Dickson Zakaria, Yoshimasa Noda, Yasutaka Ando (Ashikaga Institute of Technology, Japan), Satoshi Uehara, Tomoki Nakajima, Hideya Nishiyama (Tohoku University, Japan), Oleg P. Solonenko (Siberian Branch RAS, Russia)
- CRF-27 **Characterization of Plastic Deformation using EMAT**
Cuixiang Pei, Siqi Zhao, Shejuan Xie, Zhenmao Chen (Xian Jiaotong University, China)
- CRF-28 **Investigation of Inhomogeneous Mixing of Plasma Species in a Hybrid-stabilized Argon-water Arc Discharge: The Very First Simulations**
Jiří Jeništa (Institute of Plasma Physics AS CR, v.v.i., Czech Republic), Hidemasa Takana, Satoshi Uehara, Hideya Nishiyama (Tohoku University, Japan), Milan Hrabovský (Institute of Plasma Physics AS CR, v.v.i., Czech Republic), Anthony B. Murphy (CSIRO Materials Science and Engineering, Australia), Milada Bartlová, Vladimír Aubrecht (Brno University of Technology, Czech Republic)

- CRF-29 **Application of Magneto-Rheological Elastomers to Energy Harvesting**
Gael Sebald (INSA-Lyon, Université de Lyon, France), Masami Nakano
 (Tohoku University, Japan)
- 10:30-10:40 Break
- Chair: Satoshi Uehara (Tohoku University, Japan)
- 10:40-12:10 **Short Oral Presentaion**
 (3 min for Short Oral Presentation)
- CRF-30 **Kinetic Modeling of Energy Thermalization, Chemical Reactions, and
 Compression Wave Formation in Non-equilibrium Nanosecond Pulse
 Discharges in Nitrogen and Air**
Ivan Shkurenkov, Igor V. Adamovich (The Ohio State University, USA),
Hidemasa Takana, Hideya Nishiyama (Tohoku University, Japan)
- CRF-31 **Study on Energy Transport by Radiation and Convection in Large Scale
 Environment**
Noboru Yamada (Nagaoka University of Technology, Japan), Junnosuke
 Okajima, Atsuki Komiya, Shigenao Maruyama (Tohoku University, Japan)
- CRF-32 **Experimental and Numerical Investigations of Local Heating of Biological
 Tissue for Laser Therapy**
Tessai Sugiura, Takahiro Okabe, Junnosuke Okajima, Atsuki Komiya
 (Tohoku University, Japan), Yousuke Nakamura, Atsushi Sakurai (Niigata
 University, Japan), Victoria Timchenko (University of New South Wales,
 Australia), Tetsuya Kodama, Shigenao Maruyama (Tohoku University,
 Japan)
- CRF-33 **Non-invasive Detection of a Tumor in a Human Breast**
Koushik Das (National Institute of Technology Meghalaya, India), Subhash
 C. Mishra (Indian Institute of Technology Guwahati, India), Junnosuke
 Okajima, Shigenao Maruyama (Tohoku University, Japan)
- CRF-34 **Development of Magnetic Coil to Stimulate a Peripheral Nerve**
Shinya Kamo, Hitoshi Mori (IFG Corporation, Japan), Kenji Yashima
 (IFG Corporation / Tohoku University, Japan), Toshiyuki Takagi, Shinichi
 Izumi, Ryoichi Nagatomi, Hiroyuki Kosukegawa (Tohoku University,
 Japan), Toshihiko Abe (IFG Corporation, Japan)
- CRF-35 **Attenuation and Reduction Effect of Underwater Explosion by Porous
 Materials**
Kazutaka Kitagawa, Daiki Nagahiro (Aichi Institute of Technology, Japan),
Kiyonobu Ohtani, Yasufumi Konishi (Tohoku University, Japan), Atsushi
 Abe (ITOCHU Techno-Solutions Corporation (CTC), Japan)
- CRF-36 **Bubble Motion and Effect of Biological Tissue by Underwater Expansion
 Wave Irradiation**
Yuji Ogawa, Tokitada Hashimoto (Saga University, Japan), Kiyonobu
 Ohtani (Tohoku University, Japan)

- CRF-37 **Relationship between Cell Orientation and Strain Distribution in Endothelial Cells under Fluid Shear Stress with Its Spatial Gradient**
Daisuke Yoshino (Tohoku University, Japan), Naoya Sakamoto (Tokyo Metropolitan University, Japan), Masaaki Sato (Tohoku University, Japan)
- CRF-38 **Rolling Characteristics of Neutrophils on PDMS Surface Mimicking the Endothelial Topography**
Atsushi Shirai (Tohoku University, Japan), Jean-Paul Rieu (Université Claude Bernard Lyon 1, France)
- CRF-39 **Generation and Transport of Chemical Species in Low-temperature Atmospheric Plasma for Sanitization Device**
Tetsuji Shimizu, Gregor E. Morfill (terraplasma GmbH, Germany), Naoya Kishimoto, Hideto Kamiyama, Takehiko Sato (Tohoku University, Japan)
- CRF-40 **Development of Small Sterilization Device using Low Temperature Plasma Flow for Inactivation of Pathogens**
Kazuki Okazaki, Takehiko Sato, Hitoshi Oshitani, Michiko Okamoto, Tomoki Nakajima (Tohoku University, Japan), Shigeru Fujimura (Tohoku Pharmaceutical University, Japan)
- CRF-41 **Development of a Program for Blood Flow and Cell Behaviors based on LBM Method (Third Report)**
Makoto Ohta, Mingzi Zhang (Tohoku University, Japan), Bastien Chopard (Geneva University, Japan), Xiaobo Han, Yujie Li, Hitomi Anzai (Tohoku University, Japan)
- CRF-42 **Research of Friction and Drilling on Bio-composite Model (Third Report)**
Makoto Ohta, Yuta Muramoto (Tohoku University, Japan), Vincent Fridrici, Kaihong Yu, Philippe Kapsa (Ecole Centrale de Lyon, France)
- CRF-43 **Correlation between Physicochemical Properties of Protein Signal Sequence Variation and Subcellular Transportation**
Kenji Etchuya, Hiromu Sugita, Tatsuki Kikegawa, Kota Hamada, Naoyuki Takachio, Noritaka Kato (Meiji University, Japan), Makoto Ohta (Tohoku University, Japan), Yuri Mukai (Meiji University, Japan)
- CRF-44 **Molecular Dynamics Study on Thermal Resistance of Solid-Liquid Interfaces**
Masahiko Shibahara (Osaka University, Japan), Taku Ohara, Gota Kikugawa (Tohoku University, Japan)
- CRF-45 **Molecular Dynamics Study on Thermal Transpiration Flow**
Hiroki Yamaguchi (Nagoya University, Japan), Gota Kikugawa (Tohoku University, Japan)
- CRF-46 **Control of Thermal Transport across a Solid-liquid Interface by using Self-assembled monolayer**
Shih-Wei Hung, Junichiro Shiomi (The University of Tokyo, Japan), Gota Kikugawa (Tohoku University, Japan)

- CRF-47 **Study on Gas Lubrication of a Textured Surface in Micro/nanoscale**
Shigeru Yonemura, Yoshiaki Kawagoe (Tohoku University, Japan),
Alexander Shevyrin, Pavel Vashchenkov, Yevgeniy Bondar (Khristianovich
Institute of Theoretical and Applied Mechanics, Russia)
- CRF-48 **Investigation of Nozzle Flows at Low Reynolds Numbers**
Kaoru Maruta (Tohoku University, Japan), Yevgeniy Bondar, Georgy Shoev,
Anton Shershnev (Khristianovich Institute of Theoretical and Applied
Mechanics / Novosibirsk State University, Russia)
- CRF-49 **Photoluminescence Study on GaAs Quantum Nanodisk Array Fabricated by
Bio-nano-template and Neutral Beam Etching**
Daisuke Otori, Kiyofumi Kondo (University of Miyazaki, Japan), Cedric
Thomas, Akio Higo, Seiji Samukawa (Tohoku University, Japan), Tetsuo
Ikari, Atsuhiko Fukuyama (University of Miyazaki, Japan)
- CRF-50 **Growth of Multigraphene on 10B Pencil Drawing Paper Irradiated by
Femtosecond Laser**
Rieko Sudo (Sagamihara Inc. Center, Japan), Takashi Tokumasu (Tohoku
University, Japan), Shigeo Yasuhara (Japan Advanced Chemicals, Japan),
Kazuo Satoh (Technology Research Institute of Osaka Prefecture, Japan),
Yoshitada Shimizu, Takeshi Rachi, Satomi Tanaka, Chihiro Kato, Manabu
Yasui, Satoru Kaneko (Kanagawa Industrial Technology Center, Japan)
- CRF-51 **Effect of Electric Fields on the Inception of Primary and Secondary
Streamers in Water**
Hidemasa Fujita (Tohoku University, Japan), Seiji Kanazawa (Oita
University, Japan), Kiyonobu Ohtani, Atsuki Komiya, Toshiro Kaneko,
Takehiko Sato (Tohoku University, Japan)
- CRF-52 **Development of Bubble Measurement Method by Plasma**
Takehiko Sato, Yohei Nagasawa, Kiyonobu Ohtani (Tohoku University,
Japan), Takashi Miyahara (Shizuoka University, Japan), Tatsuyuki
Nakatani (Okayama University of Science, Japan)
- CRF-53 **Stability Analysis of Vortices with Axial Flow based on Energetics and Its
Application**
Yuji Hattori, Makoto Hirota (Tohoku University, Japan), Yasuhide
Fukumoto (Kyushu University, Japan)
- CRF-54 **The Continuous Spectrum in the Moore-Saffman-Tsai-Widnall Instability**
Yuji Hattori, Makoto Hirota (Tohoku University, Japan), Stefan G.
Llewellyn Smith (UCSD, USA)
- CRF-55 **Measurement-Integrated Analysis Methodology for Complex Flow Systems:
Collaborative Research Overview**
Toshiyuki Hayase, Suguru Miyauchi, Kosuke Inoue (Tohoku University,
Japan), Luca Brandt, Shervin Bagheri, Fredrik Lundell (KTH Royal
Institute of Technology, Sweden)
- CRF-56 **Coupled Analysis of High-Density Hydrogen Safety Management**
Jun Ishimoto (Tohoku University, Japan), Alain Combescure (INSA de Lyon,
France)

- CRF-R1 **Supercomputing and Scale Modeling of Flotsam Mixed Tsunami**
Jun Ishimoto (Tohoku University, Japan), Kozo Saito (University of Kentucky, USA)
- 12:10-13:10 **Lunch and Poster Session** (CRF-1 to 56, CRF-R1)
- Chair: Daisuke Yoshino (Tohoku University, Japan)
- 13:10-14:40 **Short Oral Presentation**
 (3 min for Short Oral Presentation)
- CRF-57 **Energy Spectra Simulation of Neutral-Beam-Etching Fabricated Semiconductor Nanodisk**
Ming-Yi Lee, Yi-Chia Tsai (National Chiao Tung University, Taiwan), Yiming Li (National Chiao Tung University, Taiwan / Tohoku University, Japan), Seiji Samukawa (Tohoku University, Japan)
- CRF-58 **Development of Bio-template for Etching Mask of 2D Ordered/dispersed Array of Nanoparticle**
Ichiro Yamashita, Naofumi Okamoto (Nara Institute of Science and Technology, Japan), Rikako Tsukamoto, Seiji Samukawa (Tohoku University, Japan)
- CRF-59 **Formation of Damage-Free Fin Channel by Neutral-Beam Etching for Ge FinFETs**
Wataru Mizubayashi, Kazuhiko Endo, Hiroyuki Ota (National Institute of Advanced Industrial Science and Technology, Japan), Tomohiro Kubota, Shuichi Noda, Seiji Samukawa (Tohoku University, Japan)
- CRF-60 **Analysis of Transport Phenomena of Oxygen Ion in an Electrolyte of Solid Oxide Fuel Cell**
Hiroki Nagashima (University of the Ryukyus, Japan), Takashi Tokumasu (Tohoku University, Japan), Jeongmin Ahn (Syracuse University, USA)
- CRF-61 **A Discussion on the Effect of Quantum Nature on Density Structure of Liquid Hydrogen using Molecular Simulation**
Chiharu Katayama (Kyushu University, Japan), Hiroki Nagashima (University of Ryukyus, Japan), Takashi Tokumasu (Tohoku University, Japan), Nobuyuki Tsuboi (Kyushu Institute of Technology, Japan), Satoshi Watanabe, Shin-ichi Tsuda (Kyushu University, Japan)
- CRF-62 **Molecular Simulation of Oxygen Scattering on Ionomer Surface in Catalyst Layer of PEFC**
Masataka Nakauchi (Tohoku University, Japan), Ikuya Kinefuchi (The University of Tokyo, Japan), Hideki Takeuchi (National Institute of Technology, Kochi College, Japan), Takashi Tokumasu (Tohoku University, Japan)

- CRF-63 **Molecular Dynamics Study of the Momentum Transport by the Droplet Shearing**
Akinori Fukushima (Tokyo University of Agriculture and Technology, Japan), Nicolas Fillot (Université de Lyon, France), Takashi Tokumasu (Tohoku University, Japan), Philippe Vergne (Université de Lyon, France)
- CRF-64 **Investigation of the Fatigue Damage in Cast Aluminum Alloy using Synchrotron Microtomography Image Processing and Image-based Finite Element Analysis**
Vinicius Aguiar de Souza (Tohoku University, Japan), Osamu Kuwazuru (University of Fukui, Japan), Katsuyuki Suzuki (The University of Tokyo, Japan), Masakazu Kobayashi (Toyohashi University of Technology, Japan), Hiroyuki Toda (Kyushu University, Japan), Shigeru Obayashi (Tohoku University, Japan)
- CRF-65 **Technical Development for the Micro Shape Forming used by Compression Shearing Method at Room Temperature**
Shota Sakagami, Noboru Nakayama (Shinshu University, Japan), Toshiyuki Takagi, Hiroyuki Miki, Hiroyuki Kosukegawa (Tohoku University, Japan)
- CRF-66 **Research on the Physical and the Tribological Properties of a Soft Metal Layer Originating in Me-DLC on Sliding Surface**
Minoru Goto (National Institute of Technology, Ube College, Japan), Toshiyuki Takagi (Tohoku University, Japan), Kosuk Ito (Nihon University, Japan), Takanori Takeno, Hiroyuki Miki, Hiroyuki Kosukegawa (Tohoku University, Japan)
- CRF-67 **Improvement and Micro-Channel Flow Evaluation of Electro-Rheological Nano-Suspensions**
Katsufumi Tanaka, Seiya Robson, Haruki Kobayashi, Midori Takasaki (Kyoto Institute of Technology, Japan), Masami Nakano, Atsushi Totsuka (Tohoku University, Japan)
- CRF-68 **Polymer Rotor for Micro-Electromotor**
Miklos Zrinyi (Semmelweis University, Hungary), Masami Nakano (Tohoku University, Japan)
- CRF-69 **Microjet Formation Mechanism in a Cavitation Process**
Tomoya Minami, Takehiko Sato, Kiyonobu Ohtani, Tomoki Nakajima, Toshiro Kaneko (Tohoku University, Japan), Mohamed Farhat (Ecole Polytechnique Fédérale de Lausanne, Switzerland)
- CRF-70 **Heat and Fluid Flow Characteristics of Liquid Film Flow along Heat Transfer Surface with Microscopic Grooves**
Takanori Hirasawa, Takahiro Adachi, Koji Higashiono (Akita University, Japan), Junnosuke Okajima (Tohoku University, Japan), Takeshi Akinaga (Aston University, United Kingdom)
- CRF-71 **Transport Properties and Hall Effect of Ni(Co)-Mn-Al Melt Spun Ribbons**
Vladimir Khovaylo, Maria Lyange, Alexey Kononov, Marina Seredina (National University of Science and technology “MISiS”, Russia), Hiroyuki Miki, Toshiyuki Takagi (Tohoku University, Japan), Ratnamala Chatterjee (Indian Institute of Tehnology Delhi, India), Lajos Karoly Varga (Hungarian Academy of Sciences, Hungary)

- CRF-72 **Development of a Compact Variable Stiffness and Damping Isolator**
Shuaishuai Sun, Jian Yang, Weihua Li (University of Wollongong, Australia), Masami Nakano (Tohoku University, Japan)
- CRF-73 **Capillary Phenomena of Magnetic Fluid Bridge between Two Permanent Magnets in Alternating Magnetic Field**
Seiichi Sudo, Kazuya Takahashi (Akita Prefectural University, Japan), Satoshi Uehara, Hideya Nishiyama (Tohoku University, Japan)
- CRF-74 **Investigation on Behavior of Particles in MR Fluid Flows**
Hiroaki Tsutsumi, Yasushi Ido (Nagoya Institute of Technology, Japan), Masami Nakano (Tohoku University, Japan)
- CRF-75 **Numerical Simulation of an Object Washout by Tsunami**
Fumiya Togashi (Applied Simulations Inc., USA), Rainald Lohner (George Mason University, USA), Orlando A. Soto (Applied Simulations Inc., USA), Masuhiro Beppu (National Defense Academy of Japan, Japan), Shigeru Obayashi (Tohoku University, Japan)
- CRF-76 **Eliminating Major Tornadoes in US Tornado Alley**
Rongjia Tao (Temple University, USA), Masami Nakano (Tohoku University, Japan)
- CRF-77 **Quantitative Visualization of Unsteady High-speed Fluid Phenomena in Nature Environment**
Toshiharu Mizukaki (Tokai University, Japan), Kiyonobu Otani, Shigeru Obayashi (Tohoku University, Japan)
- CRF-78 **Unsteady Solutions of the Driven Cavity Flow Problem —The Effect of Discretization on the Critical Reynolds Number —**
Reima Iwatsu (Tokyo Denki University, Japan)
- CRF-79 **Study on Flow-induced Vibration of Soft Fins**
Akira Rinoshika, Shunya Suzuki (Yamagata University, Japan), Masami Nakano (Tohoku University, Japan)
- CRF-80 **Rheological Properties of Snail's Mucus Enabling Adhesive Crawling Locomotion**
Masahiro Watanabe, Hideyuki Tsukagoshi (Tokyo Institute of Technology, Japan), Masami Nakano (Tohoku University, Japan)
- CRF-81 **Measurements of Aerodynamic Characteristics of the Turbo-jaw**
Shin Nakagawa (Kansai University, Japan), Yasufumi Konishi (Tohoku University, Japan), Tomoya Nakajima (Osaka Prefecture University, Japan), Tomoaki Itano, Masako Sugihara-Seki (Kansai University, Japan), Shigeru Obayashi (Tohoku University, Japan)
- CRF-82 **Vortex Dynamics of the High Energy (Negative Temperature) State in Quasi-geostrophic Turbulence**
Masaya Ishihara (The University of Electro-Communications, Japan), Naoya Takahashi (Tokyo Denki University, Japan), Takeshi Miyazaki (The University of Electro-Communications, Japan), Nozomu Hatakeyama, Yuji Hattori (Tohoku University, Japan)

- CRF-83 **Study on Improvement in Sterilization Effect of Shock Wave for Marine Bacteria**
Jingzhu Wang (Kobe University, Japan), Toshiya Gonai (Tohoku University, Japan), Akihisa Abe (Kobe University, Japan), Mingyu Sun, Taketoshi Koita (Tohoku University, Japan)
- CRF-84 **Control of Karman Vortex Street behind a Thin Airfoil at Low Reynolds Number**
Shohei Takagi (Tokyo Metropolitan University, Japan), Yasufumi Konishi, Shigeru Obayashi (Tohoku University, Japan)
- 14:40-14:50 Break
- Chair: Naoya Ochiai (Tohoku University, Japan)
- 14:50-15:20 **Short Oral Presentaion**
(3 min for Short Oral Presentation)
- CRF-85 **Analysis of Complex Spatiotemporal Structures of Vortices in High Reynolds Number Turbulence**
Takashi Ishihara (Nagoya University, Japan), Yuji Hattori (Tohoku University, Japan)
- CRF-86 **Researches on the Active Control of Hole Tone Phenomena**
Kazuo Matsuura (Ehime University, Japan), Masami Nakano (Tohoku University, Japan)
- CRF-87 **Numerical and Experimental Research on Active Control of Self-Sustained Flow Oscillations with Sound Interaction**
Mikael A. Langthjem (Yamagata University, Japan), Masami Nakano (Tohoku University, Japan)
- CRF-88 **Development of Conservative Kinetic Force Method**
Vladimir Saveliev (NCSRT, Kazakhstan), Svetlana Filko (NCSRT / Zhetysu State University, Kazakhstan), Shigeru Yonemura (Tohoku University, Japan)
- CRF-89 **Investigation of Non-equilibrium Turbulence and Its Application to Flow Control**
Yasuhiko Sakai, Koji Nagata, Yasumasa Ito, Koji Iwano (Nagoya University, Japan), Toshiyuki Hayase (Tohoku Univerisity, Japan), Tomoaki Watanabe (Nagoya University, Japan), Yi Zhou (Imperial College, London, UK)
- CRF-R2 **Analog Memory Operation of Resistance Change Memory with MOSFET for Brain-like LSIs**
Hideyuki Ando, Kazumasa Tomizaki, Takashi Tohara, Takashi Morie (Kyushu Institute of Technology, Japan), Takahiro Hiroi, Akitoshi Nakane, Reon Katsumura, Atsushi Fukuchi, Masashi Arita, Yasuo Takahashi (Hokkaido University, Japan), Seiji Samukawa (Tohoku University, Japan)

- CRF-R3 **Cardiac Evaluation of Fetal Mice by ECG and Ultrasound**
Rika Sugibayashi (National Hospital for Child Health and Development / Tohoku University, Japan), Takuya Ito, Kenichi Funamoto, Toshiyuki Hayase, Yoshitaka Kimura (Tohoku University, Japan)
- CRF-R4 **Investigation on Advanced Medical Ultrasound Imaging Technology**
Masayuki Tanabe, Yu Naito, Masahiko Nishimoto (Kumamoto University, Japan), Hiroshi Hashimoto, Takao Jibiki, Tadashi Shimazaki (GE Healthcare Japan Corporation, Japan), Suguru Miyauchi, Kosuke Inoue, Toshiyuki Hayase (Tohoku University, Japan)
- CRF-R5 **Flow Physics of Stunted Busemann Intakes in Viscous and Rarefied Flow**
Hideaki Ogawa (RMIT University, Australia), Ben Shoesmith, Sannu Mölder (Ryerson University, Canada), Georgy Shoen, Yevgeniy Bondar (Khristianovich Institute of Theoretical and Applied Mechanics, Russian Academy of Sciences, Russia), Evgeny V. Timofeev (McGill University, Canada), Kiyonobu Ohtani, Shigeru Obayashi (Tohoku University, Japan)

15:20-16:20 **Poster Session** (CRF-57 to CRF-89, CRF-R2 to R5)