OS22: The 22nd International Symposium on Advanced Fluid Information (AFI-2022)
IFS Collaborative Research Forum

Remo
November 9, 2022

15:50-17:20 IFS Collaborative Research Forum
Free Discussion 1 (CRF-1 to 24)

Remo
November 10, 2022

13:10-14:40 IFS Collaborative Research Forum
Free Discussion 2 (CRF-25 to 40)

14:50-16:20 IFS Collaborative Research Forum
Free Discussion 3 (CRF-41 to 61)

Remo
November 11, 2022

14:50-16:20 IFS Collaborative Research Forum
Free Discussion 4 (CRF-62 to 80)

CRF-1 **Clean Energy Power Generation Using Flow-Induced Self-Excited Vibration of an Elastic Body**
Koki Shige, Naoyuki Takeda (Toyama Prefectural University, Japan), Miyu Okuno (Kanazawa University, Japan), Tsubasa Ikami, Tatsuya Kobayashi (Tohoku University, Japan), Osamu Terashima (Kanazawa University, Japan), Yasufumi Konishi, Hiroki Nagai (Tohoku University, Japan), Toshihiko Komatsuzaki (Kanazawa University, Japan)

CRF-2 **Study of Heat and Mass Transport in Evaporation inside Porous Media**
Zhanpeng Zhang, Biao Shen (University of Tsukuba, Japan), Kento Watanabe, Kosei Matsubara, Xingyu Chang, Hiroki Nagai (Tohoku University, Japan)

CRF-3 **Simulation in Micro EHD Conduction Pump with Asymmetric Flush Electrode**
Tomoya Ueda, Masahito Nishikawara, Hideki Yanada, Hiroshi Yokoyama (Toyohashi University of Technology, Japan), Hiroki Nagai (Tohoku University, Japan)

CRF-4 **Calculation of Skin and Core Temperature for Repeated Bathing of Sauna**
Takuma Kogawa, Kurumu Nishidate, Hikaru Ishibashi (National Institute of Technology, Hachinohe College, Japan), Junnosuke Okajima (Tohoku University, Japan)

CRF-5 **Radiation and Convection Coupling Calculation in a Direct Numerical Simulation for Misting Fire Extinguishing Devices**
Hiroki Gonome, Yuto Takagi, Kaito Suzuki (Yamagata University, Japan), Junnosuke Okajima (Tohoku University, Japan), Takuma Kogawa (National Institute Technology, Hachinohe College, Japan)

CRF-6 **Truncation Effect on Electrical and Thermal Performances on a Concentrating Photovoltaic**
Abid Ustaoglu, Volkan Akgül (Bartın University, Turkey), Junnosuke Okajima (Tohoku University, Japan), Bilal Kursuncu (Bartın University, Turkey)

CRF-7 **Study of Hydrothermal Behaviors of Impinging Droplets on a Heated Wall**
Takahiro Okabe, Kazuma Taguchi (Hirosaki University, Japan), Junnosuke Okajima (Tohoku University, Japan), Minori Shirota (Hirosaki University, Japan)

CRF-8 **Study on MHD Phenomena in Co-Axial Energy Conversion Device**
Hiromichi Kobayashi (Keio University, Japan), Hidemasa Takana (Tohoku University, Japan), Takahiro Hasebe, Takayasu Fujino (University of Tsukuba, Japan)

CRF-9 **Catalyst Synthesis Using Cavitation Plasma for Oxygen Reduction Reaction**
Nozomi Takeuchi, Souta Imaizumi, Ryotaro Harakawa (Tokyo Institute of Technology, Japan), Hidemasa Takana (Tohoku University, Japan), Oi Lun Li (Pusan National University, Korea)

CRF-10 **Numerical Simulation of a Thermal Plasma Reactor for the Wastes to Energy**
Hyeokjun Kang, Jeong-Hwan Oh, Jun-Hee Mun (Jeju National University, Korea), Hidemasa Takana (Tohoku University, Japan), Sooseok Choi, (Jeju National University, Korea)

CRF-11 **Numerical Analysis of Changes in Transport Properties in Biological Membranes due to Plasma-Induced Charges and Electric Fields**
Yuta Iwata, Kosuke Takami, Satoshi Uchida (Tokyo Metropolitan University, Japan), Takehiko Sato (Tohoku University, Japan)

CRF-12 **The Instability of Hydrogen-Air-Steam Lean Premixed Flames: Calculations Based on the Detailed Chemical Reaction Model in Large Space**
Satoshi Kadowaki (Nagaoka University of Technology, Japan), Hideaki Kobayashi (Tohoku University, Japan)

CRF-13 **Effects of Pressure on Product Gas Characteristics of Ammonia/Hydrogen/Air Premixed Flames**
Akihiro Hayakawa (Tohoku University, Japan), Marina Kovaleva, Agustin Valera-Medina (Cardiff University, UK)

CRF-14 **Laminar Burning Velocity of Ammonia/Methane/Water Vapor/Air Premixed Flames**
Akihiro Hayakawa, Masao Hayashi (Tohoku University, Japan), Ekenechukwu C. Okafor (Kyushu University, Japan), Hideaki Kobayashi (Tohoku University, Japan)

CRF-15 **Damage Evaluation for Hollow Cylindrical Tethers with Cross-Shaped Keepers**
Nanami Karasawa, Daisuke Morimoto, Hikaru Takahashi, Kiyonobu Ohtani, Keisuke Otsuka, Kanjuro Makihara (Tohoku University, Japan)

CRF-16 **Study on the Injection Process of Next-Generation Liquified Fuels**
Noritsune Kawaharada (National Traffic Safety and Environment Laboratory, Japan), Ippei Oshima (Tohoku University, Japan)

CRF-17 **Analysis of In-Plane Thermal Conduction in Si-Nanopillar/Sige Composite Films by Laser Heterodyne Photothermal Displacement Signal and Theoretical Calculation**
Hiroki Ohyama (University of Miyazaki, Japan), Tomoki Harada (University of Miyazaki, Japan / Japan Society for the Promotion of Science, Japan), Kosuke Morita, Shogo Harada (University of Miyazaki, Japan), Daisuke Ohori, Seiji Samukawa (Tohoku University, Japan), Tetsuo Ikari, Atsuhiko Fukuyama (University of Miyazaki, Japan)

CRF-18 **Effect of Fining Hydrogen Source and Electrode Material for Ammonia Production with Plasma Method**
Soma Hiramatsu, Ryoya Shiraishi (Yamaguchi University, Japan), Yasutaka Hayamizu, Nanako Sehara (National Institute of Technology, Yonago College, Japan), Naoya Uene, Takashi Tokumasu (Tohoku University, Japan)

CRF-19 **Prediction of Epitaxial Growth of Magnesium Oxide on Silicon Substrate**
Satoru Kaneko, Masahiro Kurouchi, Manabu Yasui (KISTEC, Japan), Ruei-Sung Yu (Asian University, Taiwan), Shigeo Yasuhara, Tamio Endo (Japan Advanced Chemicals, Japan), Musa Can (Istanbul University, Turkey), Kripasindhu Sardar, Sumanta Kumar Sahoo, Masahiro Yoshimura (National Cheng Kung University, Taiwan), Takashi Tokumasu (Tohoku University, Japan)

CRF-20 **Oxygen Ion Conduction Property of Solid Oxide Membrane Based on Multi-Scale Analysis**
Takumi Ijichi (Tohoku University, Japan), Hiroki Nagashima (University of the Ryukyus, Japan), Alexander R. Hartwell, Jeongmin Ahn (Syracuse University, USA), Takashi Tokumasu (Tohoku University, Japan)

CRF-21 **Evaluation of Defects in CFRP Material Based on High Frequency Eddy Current Testing Method**
Guo Wei, Xie Shejuan, Chen Zhenmao, Du Yali (Xi'an Jiaotong University, China), Tetsuya Uchimoto, Toshiyuki Takagi (Tohoku University, Japan)

CRF-22 **Study on the Function of Au-DLC Nano-Composite Coatings Acting as Thermo-Sensor in The Sliding Interface Under Severe Corrosive Conditions**
Minoru Goto (National Institute of Technology, Ube College, Japan), Sho Takeda (Tohoku University, Japan), Kosuke Ito (Nihon University, Japan), Tetsuya Uchimoto, Hiroyuki Miki (Tohoku University, Japan)

CRF-23 **Direct Comparison Between Stress Drop and Resolved Shear Stress**
Zhiwei Wang, Yusuke Mukuhira (Tohoku University, Japan), Nana Yoshimitsu (Kyoto University, Japan), Hiroshi Asanuma (FREA, AIST, Japan)

CRF-24 **Data-Driven Modeling of Flow in Complex Structures: Flow Modeling of Microbially Induced Carbonate Precipitation**
Anna Suzuki (Tohoku University, Japan), James Minto (University of Strathclyde, UK)

CRF-25 **Thermal Conductivity Anomaly in Engineered Palm Oil Based Lubricants: Molecular Dynamic Study**
Rizky Ruliandini, Nasruddin Yusuf Rodjali (Universitas Indonesia, Indonesia), Takashi Tokumasu (Tohoku University, Japan)

CRF-26 **Molecular Dynamics Study of Mechanical Balance at Three-Phase Interface of Nanobubble on Solid Surface**
Yusuke Jonosono (University of the Ryukyus, Japan), Shin-ichi Tsuda (Kyushu University, Japan), Takashi Tokumasu (Tohoku University, Japan), Hiroki Nagashima (University of the Ryukyus, Japan)

CRF-27 **Analysis of Heat and Momentum Transport Phenomena Through Droplets in Nanochannels**
Akinori Fukushima (University of Fukui, Japan), Takashi Tokumasu (Tohoku University, Japan)

CRF-28 **Role of Pentanol Molecules in Surface Nanobubble Composed of Nitrogen Gas**
Takuma Hori (Tokyo University of Agriculture and Technology, Japan), Gota Kikugawa (Tohoku University, Japan), Ichiro Ueno (Tokyo University of Science, Japan), Yoichiro Matsumoto (The University of Tokyo, Japan)

CRF-29 **Development of Open-Source Deployment Method for Simulation and Optimization of Balloon Angioplasty and Stent Geometry Design Based on Numerical Simulation**
Narendra Kurnia Putra, Mikha Hilliard, Muhammad Rafi Sudrajat (Institut Teknologi Bandung, Indonesia), Bonfilio Naninggolan (Arizona State University, USA), Makoto Ohta, Hitomi Anzai (Tohoku University, Japan)

CRF-30 **The Effects of Atmospheric-Pressure Cold Plasma Generated Electrical Field, Short-Life Species, and Long-Life Species on Cancer Cells**
Po-Chien Chien, Chao-Yu Chen (National Chiao Tung University, Taiwan), Takehiko Sato (Tohoku University, Japan), Yun-Chien Cheng (National Chiao Tung University, Taiwan)

CRF-31 **Characteristics of High-speed Ultrafine Mist Flow**
Yunchen Xiao (Tohoku University, Japan), Seiji Kanazawa (Oita University, Japan), Tomoki Nakajima, Siwei Liu, Takehiko Sato (Tohoku University, Japan)

CRF-32 **Elucidation of a Blood Turbulence Using Electronic Stethoscope**
Hikaru Dalton Yukimura, Jota Sasaki, Masatsugu Hirano (National Institute of Technology, Akashi College, Japan), Kenichi Funamoto (Tohoku University, Japan), Katsuhito Yamasaki (Ono Hospital, Japan)

CRF-33 **Data Assimilation Method for Estimating Membrane Permeability Based on the Lagrange Multiplier Method: Effect of Signal-to-Noise Ratio on Estimation Accuracy**
Renon Shigeru, Suguru Miyauchi (University of Miyazaki, Japan), Shintaro Takeuchi (Osaka University, Japan), Kenichi Funamoto (Tohoku University, Japan)

CRF-34 **Effects of Pulsatile Flow on Endothelial Permeability and Cell Motility**
Kenichi Funamoto (Tohoku University, Japan), Eugenia Corvera Poiré (National Autonomous University of Mexico, Mexico)

CRF-35 **Visualization of Extracellular Vesicles Transport Across Brain Microvasculature in a Human 3D Blood-Brain Barrier Chip**
Yuka Sakamaki, Mai Inagaki, Momoko Sato, Miku Inai (Tokushima University, Japan), Kenichi Funamoto (Tohoku University, Japan), Masanori Tachikawa (Tokushima University, Japan)

CRF-36 **Explore the Shaping Effects of Arteriovenous Fistula on Haemodynamics in Patients Receiving Haemodialysis**
Mingzi Zhang (Macquarie University, Australia), Makoto Ohta (Tohoku University, Japan), Itsu Sen (Macquarie University, Australia), Yujie Li (Torrens University Australia), Hitomi Anzai, Kazuki Takeda (Tohoku University, Japan)

CRF-37 **Simulation of Increasing Aortic Stiffness and its Impact on Carotid Compliance**
Yujie Li, Marjana Petrova (Torrens University, Australia), Makoto Ohta (Tohoku University, Japan), Craig McLachlan (Torrens University, Australia)

CRF-38 **Sugar Type Discrimination Methods of Protein Sugar Modifications Based on Subcellular Localization**
Kenji Etchuya (Aoyama Gakuin University, Japan), Makoto Ohta (Tohoku University, Japan), Yuri Mukai (Meiji University, Japan)

CRF-39 **Finite Element Analysis of Degradation Processes of Biodegradable Stents under the Action of Various Factors**
Hanbing Zhang, Shiliang Chen, Aike Qiao (Beijing University of Technology, China), Hongfang Song (Capital Medical University, China), Wenyu Fu (Beijing Union University, China), Hitomi Anzai, Makoto Ohta (Tohoku University, Japan)

CRF-40 **Conductive Mechanism of Carbon Nanotube Dispersed Silicone Rubber Composite Materials**
Noboru Nakayama, Shun Otaka, Taisei Iwasaki (Shinshu University, Japan), Sho Takeda, Tetsuya Uchimoto (Tohoku University, Japan), Hiroyuki Miki (Ishinomaki Senshu University, Japan)

CRF-41 **Preliminary Study on Quadrotor Wake in Ground Effect Using Symmetry Walls**
Taisei Hara, Hikaru Otsuka, Hiroshi Tokutake (Kanazawa University, Japan), Hiroki Nagai (Tohoku University, Japan)

CRF-42 **Geometrically Nonlinear Beam Model for Slender Multibody Wings**
Keisuke Otsuka (Tohoku University, Japan), Yinan Wang (University of Liverpool, UK), Kelvin Cheng (Imperial College London, UK), Shuonan Dong (Tohoku University, Japan), Koji Fujita (Kanazawa Institute of Technology, Japan), Rafael Palacios (Imperial College London, UK), Hiroki Nagai, Kanjuro Makihara (Tohoku University, Japan)

CRF-43 **Computational and Experimental Study of Unsteady Flowfield Around Flexible-Membrane Wing at Low Reynolds Number Toward Mars Airplane**
Daisuke Sasaki, Atsushi Nakaya, Masato Okamoto, Takeshi Akasaka, Koji Fujita, (Kanazawa Institute of Technology, Japan), Shun Takahashi (Tokai University, Japan), Hiroki Nagai (Tohoku University, Japan)

CRF-44 **Analysis of High-Speed Plasma Flow on Space Transportation System**
Masayuki Takahashi, Naoki Tsunezawa, Soichiro Suzuki, Hoshiki Sato, Hiroki Nagai (Tohoku University, Japan)

CRF-45 **Propeller Wake Influence on Aerodynamic Characteristics of Mars Airplane in Preliminary Design**
Haruka Nakamura, Shiro Horie, Masahiro Kanazaki (Tokyo Metropolitan University, Japan), Koji Fujita(Kanazawa Institute of Technology, Japan), Hiroki Nagaki (Tohoku University, Japan)

CRF-46 **Numerical Simulation of 3-DOF Motion of a Return Capsule in Transonic Flow**
Seoeum Han, Bok Jik Lee (Seoul National University, Korea), Michiko Ahn Furudate (Chungnam National University, Korea), Kazuma Yomo, Hiroki Nagai (Tohoku University, Japan)

CRF-47 **Propeller-Slipstream/Main-Wing Aerodynamic Interaction for Mars Airplane, Part II**
Keiichi Kitamura, Yoshikatsu Furusawa (Yokohama National University, Japan), Tsubasa Ikami, Masaki Okawa (Tohoku University, Japan), Koji Fujita (Kanazawa Institute of Technology, Japan), Hiroki Nagai (Tohoku University, Japan)

CRF-48 **Postprocessing Method for Pressure-Sensitive Paint Data Based on Mathematical Optimization**
Koyo Kubota, Tomoki Inoue (Waseda University, Japan), Tsubasa Ikami (Tohoku University, Japan), Yasuhiro Egami (Aichi Institute of Technology, Japan), Hiroki Nagai (Tohoku University, Japan), Yu Matsuda (Waseda University, Japan)

CRF-49 **Study on Heat Transfer Characteristics of a 2 M Cryogenic Loop Heat Pipe with a Passive Capillary Starter Pump**
Kimihide Odagiri (Japan Aerospace Exploration Agency, Japan), Xinyu Chang, Hiroki Nagai (Tohoku University, Japan), Hiroyuki Ogawa (Japan Aerospace Exploration Agency, Japan)

CRF-50 **Quantitative Density Measurement of Wake Region Behind Re-Entry Capsule : Improvement of the BOS Measurement System**
Masaya Shirato, Sumitaka Nogi, Shoki Sato, Masato Yamagishi, Masanori Ota (Chiba University, Japan), Yota Hosono, Kiyonobu Ohtani, Hiroki Nagai (Tohoku University, Japan)

CRF-51 **Development and Application of Ultra-Fast Pressure Sensitive Paint Technology**
Hiroki Nagai, Shintaro Tamakuma, Tsubasa Ikami (Tohoku University, Japan), Shun Takahashi (Tokai University, Japan)

CRF-52 **Development of Pressure Distribution Measurement Technique for Free Flight Next-Generation Re-Entry Capsule (2)**
Hiroki Nagai, Yota Hosono (Tohoku University, Japan), Daiki Kurihara, Hirotaka Sakaue (Tokai University, Japan)

CRF-53 **Transition Delay Effect of Ultra-Fine Surface Roughness by Aircraft Paint or Film Processing**
Aiko Yakeno, Shingo Hamada, Sayaka Suzuki (Tohoku University, Japan), Masanari Hattori (Kyoto University, Japan), Masayoshi Mizutani, Yoshiaki Abe, Shigeru Obayashi (Tohoku University, Japan)

CRF-54 **Characterisation of Centreline Reflection for Inward-Turning Axisymmetric Shock Waves**
Hideaki Ogawa, Masanobu Matsunaga (Kyushu University, Japan), Justin Kin Jun Hew, Roderick W. Boswell (Australian National University, Australia), Chihiro Fujio (Kyushu University, Japan), Yoshitaka Higa, Yasumasa Watanabe, Taro Handa (Toyota Technological Institute, Japan), Kiyonobu Ohtani (Tohoku University, Japan)

CRF-55 **Basic Research for Quantitative Visualization of Flow Field around Free-Flight Projectiles by Point Diffraction Interferometer**
Daiju Numata (Tokai University, Japan), Kiyonobu Ohtani (Tohoku University, Japan)

CRF-56 **Development Study on an Air Transportation System with a Roadable Aircraft Among Remote Islands and Major Cities Around Okinawa**
Seiichiro Morizawa (National Institute of Technology, Okinawa College, Japan), Ryotaro Sakai (Japan Aerospace Exploration Agency, Japan), Ryota Kikuchi (Kyoto University, Japan), Shigeru Obayashi (Tohoku University, Japan)

CRF-57 **Development of Reduced Order Models for Controlling Unsteady Thermocapillary Convection**
Kouki Tanaka, Masaki Kudo (Tokyo Metropolitan College of Industrial Technology, Japan), Shigeru Obayashi (Tohoku University, Japan)

CRF-58 **Development of a Small Birdlike High-Performance Flying Robot**
Utaka Kagawa, Taichiro Arai, Masaki Hirano, Hajime Izumi, Tadateru Ishide (National Institute of Technology, Kisarazu College, Japan), Koji Shimoyama, Shigeru Obayashi (Tohoku University, Japan)

CRF-59 **Influence of Particle Density and Relative Position on Aerodynamic Interference Between Two Moving Particles Driven by Shock-Induced Flows**
Shun Takahashi (Tokai University, Japan), Takayuki Nagata (Tohoku University, Japan), Yusuke Mizuno (Tokai University, Japan), Taku Nonomura, Shigeru Obayashi (Tohoku University, Japan)

CRF-60 **Aeroacoustic Generation and Propagation Characteristics of Annular-Wing Under WIG Effect**
Chenguang Lai, Liangkui Tan, Yujie Zhu (Chongqing University of Technology, China), Shigeru Obayashi (Tohoku University, Japan)

CRF-61 **Numerical Analysis on the Flow Around a Flapping Wing**
Yohei Okada, Tadateru Ishide, Hajime Izumi (National Institute of Technology, Kisarazu College, Japan), Atsushi Harada (Nippon Bunri University, Japan), Koji Shimoyama, Shigeru Obayashi (Tohoku University, Japan)

CRF-62 **Study on Heat Flux Prediction Method for Cartesian-Mesh CFD Under Supersonic Flows**
Daisuke Sasaki, Kumpei Abe, Hideki Moriai (Kanazawa Institute of Technology, Japan), Shun Takahashi, Gouji Yamada (Tokai University, Japan), Shinichiro Ogawa, Koichi Mori (Osaka Metropolitan University, Japan), Shigeru Obayashi, Koji Shimoyama (Tohoku University, Japan)

CRF-63 **Towards Robust Optimization of Marine Current Turbines**
Arya Toghraei, Setayesh Eslami (University of Tehran, Iran), Mohamad Sadeq Karimi (Sharif University of Technology, Iran), Koji Shimoyama (Tohoku University, Japan), Mehrdad Raisee (University of Tehran, Iran)

CRF-64 **Estimating Rotational Diffusion Constant of Cellulose Nanofiber Suspension by Brownian Dynamics Simulation**
Yukitaka Ishimoto, Yuya Watanabe (Akita Prefectural University, Japan), Hidemasa Takana (Tohoku University, Japan)

CRF-65 **Schlieren Visualization of Phase Change Material Heat Transfer Enhancement under the Application of Electrohydrodynamics**
Ethan Chariandy (McMaster University, Canada), Siwei Liu, Tomoki Nakajima, Takehiko Sato (Tohoku University Japan), James S. Cotton (McMaster University, Canada)

CRF-66 **Visualization of Collapse Processes of Laser-Induced Cavitation Bubble**
Marc Tinguely (Ecole Polytechnique Fédérale de Lausanne, Switzerland), Kiyonobu Ohtani (Tohoku University, Japan), Mohamed Farhat (Ecole Polytechnique Fédérale de Lausanne, Switzerland), Takehiko Sato (Tohoku University, Japan)

CRF-67 **A Study on Nano-Scale Interfacial Phenomena between Surface-Modified Nanoparticle and Dispersed Media**
Takamasa Saito, Masaki Kubo, Takao Tsukada, Eita Shoji, Gota Kikugawa, Donatas Surblys, Atsuki Komiya (Tohoku University, Japan)

CRF-68 **Shock Wave-Particles Interaction**
Kazuya Tajiri, Abhishek Keripale (Michigan Technological University, USA), Aiko Yakeno, Shingo Hamada (Tohoku University, Japan)

CRF-69 **Numerical Viscosity Estimation Considering Inertial Migration in Plane Poiseuille Suspension Flow**
Misa Kawaguchi (Tokyo University of Agriculture and Technology, Japan), Tomohiro Fukui (Kyoto Institute of Technology, Japan), Kenichi Funamoto (Tohoku University, Japan)

CRF-70 **Peculiar Flow Waveform in Elastic Cerebral Aneurysm Phantom**
Ryuhei Yamaguchi (Tohoku University, Japan), Gaku Tanaka (Chiba University, Japan), Atsushi Totsuka, Makoto Ohta (Tohoku University, Japan)

CRF-71 **Study on Improvement of Soil Removable Effects for Textile Using the Underwater Explosion Environment**
Hayate Ueda, Kazutaka Kitagawa (Aichi Institute of Technology, Japan), Kiyonobu Ohtani, Yasufumi Konishi (Tohoku University, Japan)

CRF-72 **Flow Viualization Around High-Speed Projectile with Point-Diffraction Interferomety**
Faming Wang, Ibuki Nagayama, Toshiharu Mizukaki (Tokai University, Japan), Kiyonobu Ohtani (Tohoku University, Japan)

CRF-73 **Experienced-Based Scientific Meeting of Fluid Dynamics**
Ippei Oshima (Tohoku University, Japan), Yasufumi Horimoto (Hokkaido University, Japan)

CRF-74 **Improvement of Aerodynamic Performance of Flying Object Clothed with Fabrics of Air Permeability**
Shotaro Asakura, Hiroaki Hasegawa (Utsunomiya University, Japan), Shigeru Obayashi (Tohoku University, Japan), Kenichi Nakagawa (Utsunomiya University, Japan)

CRF-75 **Sonic Boom Variation of North Atlantic Supersonic Flight**
Hiroshi Yamashita, Bastian Kern (German Aerospace Center, Germany), Rei Iura, Takahiro Ukai (Osaka Institute of Technology, Japan), Takashi Misaka (National Institute of Advanced Industrial Science and Technology, Japan), Shigeru Obayashi (Tohoku University, Japan)

CRF-76 **Transport and Dissipation Mechanism of Turbulent Energy and Scalar in Wakes Behind Bars and Grids**
Muyang Wang, Yasumasa Ito (Nagoya University, Japan), Yi Zhou (Nanjing University of Science and Technology, China), Koji Nagata, Tomoaki Watanabe, Koji Iwano, Yasuhiko Sakai (Nagoya University, Japan), Yuji Hattori (Tohoku University, Japan)

CRF-77 **Numerical Study on Wind Instruments with Compressible Direct Numerical Simulation**
Yuki Nakahara, Rei Sumita, Ryoya Tabata, Sho Iwagami (Kyushu Institute of Technology, Japan), Takeshi Nanri, Taizo Kobayashi (Kyushu University, Japan), Yuji Hattori (Tohoku University, Japan), Kin'ya Takahashi (Kyushu Institute of Technology, Japan)

CRF-78 **Interactive Topological Dynamics between Vortical Flow Structure and Bundle of Vorticity Lines in Turbulent Flow**
Katsuyuki Nakayama (Aichi Institute of Technology, Japan), Yuji Hattori (Tohoku University, Japan)

CRF-79 **Study of Turbulent Transition and Statistical Properties of Turbulence of Destabilized Helical Vortex**
Yuji Hattori (Tohoku University, Japan), Ivan Delbende, Maurice Rossi (Sorbonne Université, France)

CRF-80 **On the Stability of Flame Front in Magnetic Field with Small Mach Numbers**
Keigo Wada (Kanazawa University, Japan), Makoto Hirota (Tohoku University, Japan)