TACHIBANA, Conference Bldg.

9:00-9:20 **Opening Address**

9:20-12:00 **Plenary Lectures**

9:20-10:10
"Jets, Shocks and Light Emission from Collapsing Cavitation Bubbles"
Mohamed Farhat
Chair: Yuka Iga

10:15-11:05
"CFD-based Aircraft Design Optimization"
Joaquim R. R. A. Martins
Chair: Shigeru Obayashi

11:10-12:00
"Turbulent Reactive Flow Simulation: From Physical Modelling to Machine Learning"
Luc Vervisch
Chair: Kaoru Maruta

12:00-13:00 Scientific Committee Meeting @ CON-8, Conference Bldg.

EX-1	EX-2	EX-3	EX-4	CON-1	CON-2	CON-SAKURA 2	CON-5	CON-SHIRAKASHI 1	CON-SHIRAKASHI 2
OS7: Smart Fluids & Soft Matters and Their Advanced Applications *Chair: M. Nakano*		**OS6: New Dimensions of Magnetic Suspension and Balance System** *Chair: K. Asai*	**OS15: Turbulence: from Fundamentals to Applications** Turbulence theory *Chair: T. Ishihara*		**OS12: Complex Thermofluid System** Combustion and Energy *Chair: W.-H. Tien*	**OS18: The 15th International Students / Young Birds Seminar on Multi-scale Flow Dynamics**	**GS1: General Session** Flow Dynamics 1 *Chair: K. Ohtani*	**OS2:The Seventh International Symposium on Innovative Energy Research II** Non-conventional fuels combustion *Chair: P. Dagaut*	**OS2:The Seventh International Symposium on Innovative Energy Research II** *Chair: X. Gou*
14:00-14:30 OS7-1 *Invited* Electrorheology Lowers The Pour Point Temperature of Crude Oil *R. Tao , X. Xu* 14:30-14:50 OS7-2 Elastocaloric Effect in Polymers *G. Sebald , G. Coativy, K. Yuse, J.-F. Capsal, L. Lebrun* 14:50-15:10 OS7-3 Polarization and Elasticity Characterization in Crystal and Amorphous States of Polytetramethylene Oxide Elastomer *A. Suzuki , M. Miyano, R. Miura, J.-Y. Cavaille, G. Diguet, G. Sebald*		14:00-15:00 OS6-1 *Invited* Demonstration of a Magnetic Suspension and Balance System with Transverse Magnetization *C. P. Britcher , M. Schoenenberger, D. Cox* 15:00-15:20 OS6-2 Dynamic Characteristics of Freestream-Aligned Circular Cylinder with Fineness Ratio of 0.75 under Small-Amplitude Forced Oscillation in 1-m MSBS *K. Shinji , H. Okuizumi, Y. Konishi, T. Nonomura, H. Sawada, K. Asai*	14:00-14:40 OS15-1 *Invited* Kolmogorov's Idea on the Universality of Turbulence and Finite-Reynolds-Number Effect *Y. Kaneda* 14:40-15:00 OS15-2 On the Applicability of Taylor's Frozen Hypothesis in Turbulent Channel Flow *A. Mehrez , Y. Yamamoto, Y. Tsuji* 15:00-15:20 OS15-3 Large Spatio–temporal Fluctuation and Energy Cascade Dynamics in von Kármán Turbulence *R. Araki , S. Goto*		14:00-14:20 OS12-1 *Invited* Effect of Plasma-Activated Gas on the Propagation Speed of a Tribrachial Flame in Laminar Non-Premixed Jets *T.-F. Tsai, Y.-H. Liao* 14:20-14:35 OS12-2 Numerical Simulation of Combustion Characteristics of a Helmholtz-type Pulse Combustor with Multiple Tailpipes *X. Zou , Q. Shen, Y. Zheng, M. Zhai*	15:00-(16:20) OS18-1 - OS18-36 *Short Oral Presentation*	14:00-14:20 GS1-1 Numerical Analysis of Thermochemical Nonequilibrium Flow in Expansion Tube by Adaptive Mesh Refinement Technique *H. Sakamoto , M. Takahashi, N. Ohnishi* 14:20-14:40 GS1-2 Mass Piston Effect in Near-critical Fluid Mixtures: Theory and Simulations *Z.-C. Hu, X.-R. Zhang* 14:40-15:00 GS1-3 Experimental Study on Heating Characteristics of a Hartmann-Sprenger Tube *J. Ishihara , A. Urita, T. Handa*	14:00-14:05 Introduction *P. Dagaut, H. Nakamura* 14:05-14:50 OS2-1 *Invited keynote* CO_2 Free Ammonia as CO_2 Free Fuel and Hydrogen Carrier - Achievements of SIP "Energy Carriers" [1] - *B. Shiozawa* 14:50-15:10 OS2-2 *Invited* Product Gas Characteristics of Strain and Swirl Stabilized Ammonia/air Flames *A. Hayakawa , H. Kobayashi*	14:00-14:25 OS2-12 *Invited* Flame Instability and Flame Structures Approaching to Limiting Conditions in a Thin Layer Geometry *M. Kuznetsov , F. Veiga-López, M. Sánchez-Sanz, J. Grune* 14:25-14:45 OS2-13 Propagation of Premixed Methane Flames in a Narrow-Gap-Disk-Burner (NGDB) of Constant-Volume *S. M. Lee , H. J. Jang, N. I. Kim*

15:10-15:30 OS7-4 Integration of an Omnidirectional Self-powering Component to an MRE Isolator towards a Smart Passive Isolation System *J. Yang , S. Sun, M. Nakano, W. Li*					14:35-14:50 OS12-3 Flash Pyrolysis of Birch Sawdust in a Fluidized Bed Reactor for Bio-oil Production *S. Jin , Y. Zhang, Y. Zheng, M. Zhai* 14:50-15:05 OS12-4 System Identification of a Thermoacoustic System using its Noise-Induced Dynamics *M. Lee , Y. Guan, V. Gupta, L. K. B. Li* 15:05-15:20 OS12-5 Thermodynamic Analysis of Partially Evaporating Cycle for Low Temperature Waste Heat Recovery Using R245fa as the Working Fluid *Y.-T. Lee , K.-Y. Lai, Y.-H. Liu*			15:10-15:30 OS2-3 *Invited* Flame Propagation Characteristics of Ammonia and Coal Particle Cloud Mixture in Turbulent Fields: Experimental Investigations Using a Fan Stirred Constant Volume Vessel *N. Hashimoto , K. Hadi, Y. Xia, R. Ichimura, G. Hashimoto, O. Fujita*	14:45-15:05 OS2-14 Flame Behavior in Spiral Microchannel *A. Ponomareva, S. Mokrin , G. Uriupin, S. Minaev* 15:05-15:30 OS2-15 *Invited* Dynamics of the Burner Stabilized Hydrogen-Air Flames *V. Gubernov , V. Bykov, U. Maas*
15:30	**BREAK**									15:30
15:40	EX-1	EX-2	EX-3	EX-4	CON-1	CON-2	CON-SAKURA 2	CON-5	CON-SHIRAKASHI 1	CON-SHIRAKASHI 2	15:40
	OS7: Smart Fluids & Soft Matters and Their Advanced Applications *Chair: W. Li*	**OS14: Porous Media** *Chair: A. Suzuki*	**OS6: New Dimensions of Magnetic Suspension and Balance System** *Chair: Y. Saito*	**OS15: Turbulence: from Fundamentals to Applications** Turbulent transport *Chair: Y. Tsuji*	**OS1&OS3: The Seventh International Symposium on Innovative Energy Research I & III** *Chair: J. Ishimoto*	**OS12: Complex Thermofluid System** Numerical Modeling *Chair: K.-M. Lin*	**OS18: The 15th International Students / Young Birds Seminar on Multi-scale Flow Dynamics**	**GS1: General Session** Flow Dynamics 2 *Chair: K. Fujita*	**OS2:The Seventh International Symposium on Innovative Energy Research II** Non-conventional fuels combustion *Chair: H. Nakamura*	**OS2:The Seventh International Symposium on Innovative Energy Research II** *Chair: V. Gubernov*	
	15:40-16:10 OS7-5 *Invited* Performance of ECF Micropumps-integrated O/O (oil-in-oil) Droplet Generators *J.-W. Kim , Z. Mao, K. Yoshida* 16:10-16:30 OS7-6 Behavior of Self-propelled Drops on Hot Surfaces with Asymmetric Wettability in Low Temperature Regime. *Y. Konno, K. Narita, M. Kato, T. Okabe, M. Shirota*	15:40-16:40 OS14-1 *Invited* Simulations of Electric Double Layer Capacitors with Ionic Liquids as Electrolytes *P. A. Bonnaud , H. Shiba* 16:40-17:00 OS14-2 Topological Data Analysis for Estimating Flow Characteristics of 3D Fracture Network *M. Miyazawa , A. Suzuki, T. Ito*	15:40-16:00 OS6-3 A Force Evaluation Test of 5-Axis Controlled Model at High Angles of Attack in 1-m Magnetic Suspension and Balance System *K. Sasaki , Y. Konishi, H. Okuizumi, S. Obayashi* 16:00-16:20 OS6-4 Improvement of Sensor Subsystem for Rectangular Parallelepiped Model in 1-m Magnetic Suspended and Balance System *M. Horiguchi , M. Kuwata, T. Nonomura, K. Asai*	15:40-16:20 OS15-4 *Invited* Reactive Plume Dispersion over Urban Area *C.-H. Liu* 16:20-16:40 OS15-5 Cluster of Inertial Particles and Fluid Acceleration in Turbulence at High Reynolds Numbers *S. Oka , S. Goto* 16:40-17:00 OS15-6 Collision Statistics of Dust Particles in Compressible Turbulence *Y. Sakurai , T. Ishihara, H. Furuya, M. Umemura, K. Shiraishi*	15:40-16:10 OS1/3-1 *Invited* Novel Fire Fighting Strategy based on Vacuum Extinguish Method (VEM) *Y. Nakamura , T. Usuki, K. Wakatsuki* 16:10-16:40 OS1/3-2 *Invited* Flame/Smoldering Spread in a Narrow Channel *K. Kuwana* 16:40-17:00 OS1/3-3 Flow Pattern of Saturated Steam at Certain Dryness *S. Oki , Y. Tanzawa, J. Ishimoto*	15:40-16:00 OS12-6 *Invited* Improvement 2D-Axisymmetric Simulation of Direct Simulation Monte Carlo Method *M.-C. Lo, C.-C. Hsieh , J.-S. Wu* 16:00-16:20 OS12-7 *Invited* An Adaptive Time Stepping Scheme for Aeroacoustic Computations *C. G. Li , H. Lu, M. Tsubokura*	**15:00**-(16:20) OS18-1 - OS18-36 *Short Oral Presentation* (16:20-18:10) OS18-1 - OS18-36 *Poster Presentation*	15:40-16:00 GS1-4 An Investigation on Covariance Functions of Kriging for Surrogate Modeling in Fluid Dynamics *P. S. Palar , L. R. Zuhal, R. P. Liem, K. Shimoyama* 16:00-16:20 GS1-5 Experimental Study on Flow around Edges and Curved Surface of a Rotating Disk *Y. Nishio , K. Komori, S. Izawa, Y. Fukunishi*	15:40-16:05 OS2-4 *Invited topical* Recent Advances in Aluminium Particles Combustion for Propulsion and Heat Generation *F. Halter , C. Chauveau* OS2-5 CANCELED	15:40-16:00 OS2-16 Variation of Edge Flame Speeds of Lifted Laminar Jet Flames under Elevated Pressures *G. J. Hwang , N. I. Kim* 16:00-16:20 OS2-17 Novel Piston Engine and Electrochemical Hybrid System for Unmanned Aerial Systems *T. S. Welles , J. Ahn*	

16:30-16:50 OS7-7 Synthesis of Faceted Magnetite Microparticles and Their Magnetorheology *H. Abe , K. Sato, Y. Suzuki, T. Naka, M. Nakano* 16:50-17:10 OS7-8 Development of Dry MR Fluid Brake for Super-compact Electric Vehicle *M. Nakano , O. Taguchi, F. Shibata, S. Sun, J. Yang, H. Abe*		16:20-16:40 OS6-5 Effect of Angle of Attack of up to 15 Degree on Aerodynamic Force on a Freestream-aligned Circular Cylinder of Aspect Ratio 1.0 in 0.3-m Magnetic Suspension and Balance System *M. Hassan , S. Yokota, T. Nonomura, K. Asai* 16:40-17:00 OS6-6 Investigation of Characteristic Flow Structure around Circular Cylinders with Fineness Ratio 0.5 – 2.25 in 0.3-m MSBS *S. Yokota , T. Nonomura, K. Asai*			16:20-16:35 OS12-8 The Simulation of Flow and Acoustics for Human Phonation System Using Implicit Compressible Flow Solver *H. J. Lu , C. G. Li, M. Tsubokura* 16:35-16:50 OS12-9 Numerical Simulation of Drag Reduction on the Biomimetic Modified Surfaces *H. T. Hsuan , Y.-H. Liu* 16:50-17:05 OS12-10 Numerical Performance Analysis of a Water Tank with Oscillating Wall for Wave Energy Harvesting *W. K. Koh , C.-Y. Liu, T.-S. Yang*		16:20-16:40 GS1-6 Statistical Characteristics of Boundary Layer over Compliant Wall using Hot-Wire Anemometry *Y. Ichinose , N. Fujimatsu*	16:05-16:25 OS2-6 *Invited* Experimental and Numerical Study of the Oxidation of NH_3/N_2O Mixtures in a Micro-Flow Reactor with a Controlled Temperature Profile *O. Mathieu , M. Shindo, E. L. Petersen, T. Tezuka, H. Nakamura* 16:25-16:45 OS2-7 *Invited* Beyond the Selective Non-catalytic Reduction of NO by Ammonia: Mutual Sensitization of NO and Ammonia Oxidation. *P. Dagaut* 16:45-17:05 OS2-8 Morphology Analysis of Hydrogen Produced from Sodium-Water Reaction over the Transition Metal *A. Suzuki , M. Miyano, R. Miura, K. Ara*	16:20-16:40 OS2-18 Development of an Anode Supported Tubular Solid Oxide Fuel Cell with Internal Cathode *A. Hartwell , T. S. Welles, J. Ahn* 16:40-17:05 OS2-19 *Invited* Droplet Combustion under the Excitation of Ultrasonic Standing Wave *X. Long, X. Gou*
17:10					**BREAK**					17:10
17:20 EX-1	EX-2	EX-3	EX-4	CON-1	CON-2	CON-SAKURA 2	CON-5	CON-SHIRAKASHI 1	CON-SHIRAKASHI 2	17:20
OS7: Smart Fluids & Soft Matters and Their Advanced Applications *Chair: R. Tao*	**OS14: Porous Media** *Chair: S. Tupin*	**OS6: New Dimensions of Magnetic Suspension and Balance System** *Chair. S. Obayashi*	**OS15: Turbulence: from Fundamentals to Applications** Turbulence experiments *Chair: C. Liu*	**OS1&OS3: The Seventh International Symposium on Innovative Energy Research I & III** *Chair: J. Ishimoto*	**OS12: Complex Thermofluid System** Experimental Method *Chair: K. C. Lin*	**OS18: The 15th International Students / Young Birds Seminar on Multi-scale Flow Dynamics**	**GS1: General Session** Flow Dynamics 3 *Chair: H. Takana*	**OS2:The Seventh International Symposium on Innovative Energy Research II** Non-conventional fuels combustion *Chair: A. Hayakawa*	**OS2:The Seventh International Symposium on Innovative Energy Research II** *Chair: N. I. Kim*	
17:20-17:50 OS7-9 *Invited* Development of an Innovative MR Damper with Negative Stiffness Characteristics toward a New Generation of Vehicle Suspension System *W. Li , S. Sun, J. Yang, M. Nakano*	17:20-17:50 OS14-3 Accounting for Model and Observation Error in Geothermal Thermal Breakthrough Models *E. K. Bjarkason , A. Suzuki*	17:20-17:50 OS6-7 Flow Dynamics of Low Fineness Ratio Circular Cylinders Evaluated by IFS 0.1-m MSBS and Large-Eddy Simulation *M. Kuwata , A. Yakeno, Y. Abe, S. Obayashi* 17:50-18:20 Free Discussion	17:20-17:40 OS15-7 Shear Stress Measurement by Electrochemical Method in Pipe Flow *T. Tong , T. Tsuneyoshi, Y. Tsuji* 17:40-18:00 OS15-8 Secondary Instability of the Coherent Structure Artificially Excited in Turbulent Boundary Layer *K. Hirose , T. Itoh, T. Kikugawa, M. Matsubara*	17:20-17:50 OS1/3-4 *Invited* Impact of Elastic Properties on Phonon Energy Dispersion of Highly Ordered Silicon Nanowires *M.-H. Chuang , Y. Li, M.-Y. Lee, D. Ohori, S. Samukawa*	17:20-17:40 OS12-11 *Invited* Experimental Study on Taylor-Couette Filter for Platelet Concentrate Preparation *Y. Chang, S.-J. Chen, C.-S. Liang, Y.-W. Lu* 17:40-18:00 OS12-12 *Invited* On the Viscosity of Magnetic Nanofluids *Y.-H. Yen, M.-H. Chang, S.-K. Chou, Y.-E. Liu, U. Lei*	(**16:20**-18:10) OS18-1 - OS18-36 *Poster Presentation*	17:20-17:40 GS1-7 Structure Formation and Control Surface Actuation of Deployable Wing for Planetary Probe Using Inflatable-tube-embedded Laminated Thin Films with Different Thickness *I. Takahashi , K. Fujita*	17:20-17:40 OS2-9 Experimental Study of Turbulent Burning Velocity of Amonia/Oxygen/Nitrogen Mixture in a Fan-Stirred Closed Vessel *Y. Xia , G. Hashimoto, K. Hadi, N. Hashimoto, A. Hayakawa, H. Kobayashi, O. Fujita*	17:20-17:40 OS2-20 Dynamic Behaviors of Flame Ball in Flow *T. Akiba , T. Okuno, H. Nakamura, Y. Morii, T. Tezuka, R. Fursenko, S. Minaev, M. Kikuchi, K. Maruta*	

17:50-18:10 OS7-10 Design and Analysis of the Magnetorheological Fluid Variable Differential Transmission *M. D. Christie , S. Sun, M. Nakano, W. Li* 18:10-18:30 OS7-11 Experimental and Theoretical Investigation on the Influence of the Volume Fraction of the Particles on MR and Villari Effect *G. Diguet , G. Sebald, M. Nakano, M. Lallart, J. Y. Cavaille* 18:30-18:50 OS7-12 Development of an Innovative Rubber Joint for Train Using Shear Thickening Fluids *S. Sun , J. Yang, M. Nakano, W. Li*	17:50-18:10 OS14-4 A Study on the Cancellous Bone Morphology and its Effect on Bone Marrow Flow *M. Ito , S. Tupin, M. Ohta* 18:10-18:30 OS14-5 On Nano-bubbles in Porous Geothermal Reservoir *M. Nakagawa , A. Aikawa, K. Tagomori, T. Kodama, S. Anzai, A. Kioka*			17:50-18:10 OS1/3-5 Coupling Simulation of Hydrogen Plasma and Flow Heat Transfer in MPCVD Equipment *J. Shuai, Z. Xun , Z. Y. Chi, S. Q. Hao, Z. Ming* 18:10-18:30 OS1/3-6 Experiment and Simulation of a Rotating Pipe in Flight *Y. Naito , H. Tanigawa, J. Ishimoto, M. Nakano, T. Noguchi, K. Hirata*	18:00-18:15 OS12-13 Experimental Investigation of Fluid Temperature Distribution in a Heated Flow Channel using Dual-Wavelength Self-Calibrated Temperature Sensitive Tracer Particle *W. Miu , S.-Y. Lin, L.-Y. Chen, W.-H. Tien* 18:15-18:30 OS12-14 Boiling Heat Transfer of Refrigerant HFO-1234yf in Mix Chevron Angle Plate Heat Exchangers *K.-T. Chen, C.-Y. Yang, Y.-T. Kuo*		17:40-18:00 GS1-8 Study on Effect of Discharge Resistance on Electrical Discharge Forming in Water-Backed Plate Model *T. Koita , T. Namihira, M. Matsuda, M. Furuta, T. Nagano* 18:00-18:20 GS1-9 Numerical Analyses on Solitary Wave Reflected by a Vertical Wall with a Rectangular Block *C.-H. Chang*	17:40-18:00 OS2-10 Flow and Flame Structures of Non-premixed NH3/N2/O2 Co-planar Jets: CFD Study with Detailed Chemistry *M. Ooe , H. Terashima, J. Hayashi, F. Akamatsu, N. Oshima* 18:00-18:20 OS2-11 Experimental Study of Flame Propagation Limits of Ammonia/methane/air Mixture in Turbulent Fields *G. Hashimoto , K. Hadi, Y. Xia, A. Hamid, N. Hashimoto, A. Hayakawa, H. Kobayashi, O. Fujita*	17:40-18:00 OS2-21 Numerical Investigation on the Burning Characteristics of Wood Particle in Microgravity *C.-H. Lin , S.-Y. Hsu* 18:00-18:20 OS2-22 Flame-assisted Fuel Cell Boiler for Combined Heating and Micro-power Generation *M. Chu , A. R. Hartwell, T. S. Welles, J. Ahn* 18:20-18:40 OS2-23 Numerical Study on CH_4/air Flame with Repetitive Extinction and Ignition in a Micro Flow Reactor with a Controlled Temperature Profile *K. Akita , Y. Morii, H. Nakamura, T. Tezuka, K. Maruta*
18:50	**19:00-20:00 Students / Young Birds Friendship Night @ CON-SAKURA 2, Conference Building.**								18:50
20:00									20:00

	EX-1	EX-2	EX-3	EX-4	CON-1	CON-2	CON-TACHIBANA	CON-SAKURA 2	CON-5	CON-SHIRAKASHI 1	CON-SHIRAKASHI 2	
9:00	**OS20: AFI-2019 IFS Lyon Center Collaborative Research Forum**	**OS9: Biomedical Flow Dynamics** *Chair: K. Takashima*	**OS4: Flow Dynamics and Combustion Technology of Hybrid Rocket Propulsion, 11th Edition** Technology Innovation *Chair: K. Sawada*	**OS15: Turbulence: from Fundamentals to Applications** Turbulence phenomena I *Chair: M. Matsubara*	**OS13: Flow Realization, Measurement and Visualization** *Chair: N. Fujisawa*	**OS12: Complex Thermofluid System** Fingering / Interfacial Phenomena I *Chair: C.-Y. Chen*	**OS19: IFS Collaborative Research Forum (AFI-2019)**	**OS18: The 15th International Students / Young Birds Seminar on Multi-scale Flow Dynamics**	**GS1: General Session** Aerodynamics *Chair: Y. Abe*	**OS2:The Seventh International Symposium on Innovative Energy Research II** *Chair: F. Halter*	**OS2:The Seventh International Symposium on Innovative Energy Research II** *Chair: J. J. Guo*	9:00
	9:00-9:40 OS20-1 *Invited* "Elastomer Materials: From Practical Aspects to Fundamental Questions" *L. Chazeau* 9:40-10:10 OS20-2 Behavior by Design: a New Way of Thinking about Mechanical Properties *G. Martin, E. Plancher, L. Héraud, P. Lhuissier, R. Dendievel, D. Fabrègue, JJ. Blandin* 10:10-10:30 OS20-3 Coarse-grained Modeling and Monte Carlo Study of Strain Induced Crystallization of Rubbers *H. Koibuchi, V. Egorov, O. Maximowa, C. Bernard, J.-M. Chenal, O. Lame, G. Diguet, G. Sebald, J.-Y. Cavaille, T. Takagi, L. Chazeau*	9:00-9:40 OS9-1 *Invited* Chick Embryo based Microcirculation Platform for Biomedical Applications *T. Kawahara* 9:40-10:00 OS9-2 Development of Wearable Device for Blood Pressure Estimation Based on Pulse Rate Measurement: Fundamental Study of Estimation Algorithm *S. Kuroe, T. Hayase, S. Miyauchi, D. Ito, S. Pak, O. Iwamoto* 10:00-10:20 OS9-3 Computational Simulation of Blood Flow Dynamics to the Patient-Specific Shunt Models. *KM Surabhi, V. Q. H. Huynh, T. Watanabe, H. Sugiyama, H. Suito, D. Srikanth*	9:00-10:00 OS4-1 *Invited* Progress on Hybrid-Hybrid Propulsion Technology Development *M.-C. Li, S.-S. Wei, Y.-C. Cheng, A. Lai, Y. Lu, T.-H. Chou, J.-S. Wu* 10:00-10:30 OS4-2 Role and Prospect of Hybrid Rocket Technology in Promoting Space Tourism *T. Shimada*	9:00-9:40 OS15-9 *Invited* Rotating Disks and Cones - Known and Unknowns in Transition to Turbulence *K. Kato, P. H. Alfredsson, R. J. Lingwood* 9:40-10:00 OS15-10 Improved Predictions of Trailing-edge Noise using Rapid-distortion Theory and CFD Data *M. Z. Afsar* 10:00-10:20 OS15-11 Heat Transfer and Pressure Drop in a Cross-Flow Heat Exchanger Integrated with Perforated Splitter Plate *A. Chaudhary, S. Chamoli, B. Kishore, M. Kumar*	9:00-9:20 OS13-1 Development of Acoustic Resonance Tube for Evaluating Time Response Characteristics of Unsteady Pressure-Sensitive Paints *D. Numata, S. Kawazoe, A. Wakayama* 9:20-9:40 OS13-2 Two-Dimensional Ultrasonic–Measurement-Integrated Blood Flow Analysis for the Arm Artery : Blood Flow in Radial Artery *S. Kimura, S. Miyauchi, T. Hayase, T. Inoue* 9:40-10:00 OS13-3 Fundamental study of Three-Dimensional Ultrasonic-Measurement-Integrated Blood Flow Analysis System : Verification of 3D-UMI Simulation Algorithm with Flow Phantom Experiment *H. Kudo, S. Miyauchi, T. Hayase, K. Inoue* 10:00-10:20 OS13-4 Skin Friction Correlation for Shock-Boundary Layer Interaction Flows *M. Kshetrimayum, V. Menezes, K. J. Irimpan*	9:00-9:20 OS12-15 *Invited* A Natural Control of Miscible Radial Viscous Fingering *V. Sharma, S. Nand, S. Pramanik, C.-Y. Chen, M. Mishra* 9:20-9:35 OS12-16 Deviation from Capillary Number Scaling of Nonlinear Viscous Fingering Formed by the Injection of Newtonian Surfactant Solution *R. Tanaka, R. Tsuzuki, T. Ban, Y. Nagatsu* 9:35-9:50 OS12-17 Investigation on Confined Chemical Garden Pattern by Interfacial Rheology *T. Maeda, Y. Nagatsu* 9:50-10:05 OS12-18 Experiment of Immiscible Viscous Fingering via Alternating Injection *W.-C. Huang, C.-C. Chou, C.-Y. Chen* 10:05-10:20 OS12-19 Stabilization of Viscous Fingering in a Partially Miscible System *S. Seya, R. X. Suzuki, T. Ban, M. Mishra, Y. Nagatsu*	9:00-10:30 CRF-1 - CRF-35 *Short Oral Presentation 1*	9:00-(10:10) OS18-37 - OS18-67 *Short Oral Presentation* (10:10-12:00) OS18-37 - OS18-67 *Poster Presentaiton*	9:00-9:20 GS1-10 Lift-Force Characterization on a Pantograph for Conventional Railway under Cross-Wind Environment *T. Isono, T. Mitsumoji, H. Hirakawa, T. Usuda* 9:20-9:40 GS1-11 Computational Fluid Dynamics Simulations for Aerodynamic Performance Evaluation of Suborbital Space Vehicle *M. H. Al Fatih, K. Shimoyama, K. Kamisori* 9:40-10:00 GS1-12 Numerical Investigation on Aerodynamic Characteristics of NACA0012 Wing in the Accelerating / Decelerating Flows *Y. Shimojo, N. Fujimatsu* 10:00-10:20 GS1-13 Experimental Investigation of Propeller Slipstream Effect on Membrane-Skin Wing at Low Reynolds Number *K. Fujita, K. Kanbodin, K. Takahashi, H. Nagai*	9:00-9:20 OS2-24 CANCELED 9:20-9:45 OS2-25 *Invited* Effects of Turbulence on Forced Ignition in a Premixture *X. Chen, W. Han, Z. Chen* 9:45-10:05 OS2-26 Kinetic Study of Ignition Process of Methane/n-heptane Fuel Blends under High-pressure Direct-injection Engine-like Condition *J. Li, H. Liu, Y. Ye, H. Wang, M. Yao* 10:05-10:25 OS2-27 A Numerical Investigation on the Effects of Prechamber Jet Flame Acceleration on a Constant Volume Combustion Bomb *Y. Ying, L. Haifeng, L. Jingrui, W. Hu, Y. Mingfa*	9:00-9:20 OS2-39 Predictions of PAH Profiles in a Counterflow Flame of Isobutene *J.-S. Lin, K. C. Lin* 9:20-9:40 OS2-40 Formation of C_2 Hydrocarbons from Extremely Fuel-rich Combustion of CH_4/air Mixtures in Pre-sooting Region using a Micro Flow Reactor with a Controlled Temperature Profile *K. Kanayama, T. Tezuka, S. Hasegawa, H. Nakamura, K. Maruta* 9:40-10:00 OS2-41 Reduced Mechanism for Aromatics Formation from Butane Oxidation *Y.-H. Ma, T.-W. Lee, K. C. Lin* 10:00-10:20 OS2-42 Reduced Mechanism for Cyclohexane Oxidation and Lightweight PAH Formation *M.-S. Han, K. C. Lin*	
10:30	**BREAK**											10:30

10:40

EX-1	EX-2	EX-3	EX-4	CON-1	CON-2	CON-TACHIBANA	CON-SAKURA 2	CON-5	CON-SHIRAKASHI 1	CON-SHIRAKASHI 2
OS20: AFI-2019 IFS Lyon Center Collaborative Research Forum	**OS9: Biomedical Flow Dynamics** *Chair: S. Miyauchi*	**OS4: Flow Dynamics and Combustion Technology of Hybrid Rocket Propulsion, 11th Edition** Control Technology *Chair: Y. Saito*	**OS15: Turbulence: from Fundamentals to Applications** Turbulence applications I *Chair: D. Kolomenskiy*	**OS13: Flow Realization, Measurement and Visualization** *Chair: S. Iio*	**OS12: Complex Thermofluid System** Fingering / Interfacial Phenomena II *Chair: Y. Nagatsu*	**OS19: IFS Collaborative Research Forum (AFI-2019)**	**OS18: The 15th International Students / Young Birds Seminar on Multi-scale Flow Dynamics**	**GS1: General Session** Numerical Simulation 1 *Chair: M. Hirota*	**OS2:The Seventh International Symposium on Innovative Energy Research II** *Chair: O. Mathieu*	**OS2:The Seventh International Symposium on Innovative Energy Research II** *Chair: Z. Chen*
10:40-11:00 OS20-4 Investigation of the Thermal Behavior of In-flight Polymer Particle during Cold-Spray Process *C. Bernard, H. Takana, G. Diguet, K. Ravi, O. Lame, K. Ogawa, J.-Y. Cavaillé* 11:00-11:20 OS20-5 Electrical Conductivity Versus Electrostriction in Di-Block Co-polyurethane: New Insights *K. Yuse, G. Diguet, J.-Y. Cavaille* 11:20-11:40 OS20-6 Protein Mass Transfer Control by Using Hindered Diffusion in Membrane *A. Komiya, R. Watanabe, S. Livi* 11:40-12:00 OS20-7 Elucidation of the Pathophysiology of Skin Sodium and Water Metabolism *A. Rahman, A. Nishiyama, T. Elguedj, J. Ishimoto*	10:40-11:10 OS9-4 *Invited* Finite Element Analysis of the Mechanical Performance of a Zinc Alloy Stent with the Tenon-and-Mortise Structure *S. Wang, A. Qiao, J. Wang, K. Peng, Y. Mu* 11:10-11:30 OS9-5 Numerical Analysis of the Influence of Aortic Stenosis on Blood Flow Field in the Left Ventricle: Influence of Ejection Fraction *T. Takada, S. Miyauchi, T. Hayase*	10:40-11:10 OS4-3 Design and Tests of a Throttleable Hybrid Rocket Engine with Direct-Drive Thrust Vector Control *M.-C. Li, S.-S. Wei, J.-S. Wu* 11:10-11:40 OS4-4 Progress on Developing a Quad Hybrid Rocket Engine Levitating Platform (4-HELP) *Y. Lu, Y.-J. Hou, J.-W. Huang, Y.-L. Liu, M.-C. Li, S.-S. Wei, T.-L. Chen, M.-T. Ho, J.-S. Wu* 11:40-12:10 OS4-5 Evaluation of Laser Ranging Method Error in Time-Averaged Fuel Regression Rate Measurement *G. Naka, J. Messineo, K. Kitagawa, C. Carmicino, T. Shimada*	10:40-11:00 OS15-12 Attachment-line Receptivity around a Swept Wing by Direct Numerical Simulation *A. Yakeno, S. Obayashi* 11:00-11:20 OS15-13 Comparison of 3-D CFD Models for Free Convection Flow of Air above a Rotating Cylinder *X.-T. Chiou, K. C. Lin* 11:20-11:40 OS15-14 Numerical Investigations into Diurnal Wind Characteristics *Y. Song, L. Tian, N. Zhao*	10:40-11:00 OS13-5 Development of a Three-Dimensional Calibration Method for Particle Tracking Velocimetry with Light Emitting Diodes *S. Shimizu, S. Yamauchi, M. Matsubara* 11:00-11:20 OS13-6 Development of a Dynamic Anemometer Sensor Based on the Flexible Printed Circuit Technology *T. Miyakoshi, T. Ito, M. Ito, M. Matsubara* 11:20-11:40 OS13-7 Experimental Investigation of Time-averaged Bubble Velocity in a 3x3 Rod Bundle under Pool Condition *P.-S. Ruan, S.-W. Chen, M.-S. Lin, J.-D. Lee, J.-R. Wang, C. Shih* 11:40-12:00 OS13-8 Reynolds Number Effects on Laminar Mixing in a Blade-Free Planetary Mixer *T. Yamagata, N. Fujisawa*	10:40-11:00 OS12-20 Numerical Insights into Radial Fingering Instability induced by a Precipitation Reaction *V. Sharma, S. Pramanik, C.-Y. Chen, M. Mishra* 11:00-11:15 OS12-21 Investigation on Influence of Flow Rate on Reactive Viscous Fingering with Gel Production Based on Interfacial Rheology *S. Kadowaki, Y. Nagatsu* 11:15-11:30 OS12-22 Effects of Hydrodynamic Conditions on Temporal Increase in Viscoelasticity in a Reacting Polymer Solution Flow *S. Hirano, J. Iijima, T. Ueki, Y. Nagatsu* 11:30-11:45 OS12-23 Rosensweig Instability on a Hydrophobic Surface *C.-Y. Chuang, C.-Y. Chen* 11:45-12:00 OS12-24 Numerical Simulation of Internal Two-Phase Flow with Heat Transport in a Heat Pipe *Y. Nakamura, K. Suzuki, T. Yamada, N. Ono*	10:40-12:10 CRF-36 - CRF-64, CRF-R1 to CRF-R3, CRF-J1, CRF-J2 *Short Oral Presentation 2*	(**10:10**-12:00) OS18-37 - OS18-67 *Poster Presentaiton*	10:40-11:00 GS1-14 Fast Exponential Time Discretizations of the Navier-Stokes Equations *S.-J. Li* 11:00-11:20 GS1-15 Numerical Investigation on Non-advection Treatment for CIP Method on Curvilinear Coordinate *Y. Horikoshi, N. Fujimatsu* 11:20-11:40 GS1-16 Setup and Operation of Automated Regression Tests for CFD Solvers *P. Zehner, T. Ishida* 11:40-12:00 GS1-17 Aerostructural Analysis for Composite Aircraft Wings with Various Fiber Properties *S. Date, Y. Abe, T. Yamamoto, T. Okabe*	10:40-11:00 OS2-28 Initial Stage Reactions of Methane Induced by Dimethyl Ether Using a Micro Flow Reactor with a Controlled Temperature Profile *T. Sugita, H. Nakamura, T. Tezuka. K. Maruta* 11:00-11:25 OS2-29 *Invited* Time-resolved Quantitative Measurements of Intermediate Species in the Low-temperature Oxidation of Iso-octane using Mid-infrared Absorption Spectroscopy *K. Tanaka, S. Sugano, S. Sakaida, M. Konno, H. Nakamura, T. Tezuka* 11:25-11:45 OS2-30 On Unique Three-stage Oxidations of C_2HF_5 (R125)/air Weak flame in a Micro Flow Reactor a Controlled Temperature Profile *S. Takahashi, H. Nakamura, T. Tezuka, S. Hasegawa, K. Maruta* 11:45-12:10 OS2-31 *Invited* Further Investigations of the Formation of Highly Oxygenated Molecules through Low-temperature Oxidation of Ehers Using a Jet-stirred Reactor, APCI and Electrospray Ionization–high-resolution Mass Spectrometry. *P. Dagaut, N. Belhadj, R. Benoit, B. Grosselin, M. Lailliau*	10:40-11:00 OS2-43 Reaction Pathway Analyses for the Formation of Aromatic Hydrocarbons from the Pyrolysis of Acetylene *Y.-H. Chen, K. C. Lin* 11:00-11:25 OS2-44 *Invited* Influence of Ethanol Blending on Soot in Spray Combustion of Kerosene *T. M. Rault, Ö. L. Gülder* 11:25-11:45 OS2-45 Soot Formation in Toluene-doped Ethylene Laminar Diffusion Flames *J. Guo, Y. Tang, P. Selvaraj, C. Shao, A. Bennett, V. Raman, W. L. Roberts, S. M. Sarathy, H. G. Im* 11:45-12:05 OS2-46 Ignition Characteristics of Natural Gas under Low Oxygen Partial Pressure *X. Zou, S. Jin, Y. Zhang, Q. Shen, M. Zhai, P. Dong*

10:40

	EX-1	EX-2	EX-3	EX-4	CON-1	CON-2	CON-TACHIBANA	CON-SAKURA 2	CON-5	CON-SHIRAKASHI 1	CON-SHIRAKASHI 2
12:10	**LUNCH**						12:10-13:10 CRF-1 - CRF-64, CRF-R1 - CRF-R3, CRF-J1, CRF-J2 *Poster Session*	**LUNCH**			
13:10	**OS17: Liaison Office Session** *Chair: A. Komiya*	**OS9: Biomedical Flow Dynamics** *Chair: A. Qiao*	**OS4: Flow Dynamics and Combustion Technology of Hybrid Rocket Propulsion, 11th Edition** New Systems *Chair: T. Morita*	**OS15: Turbulence: from Fundamentals to Applications** Turbulence application II *Chair: A. Yakeno*	**OS13: Flow Realization, Measurement and Visualization** *Chair: T. Yamagata*	**OS12: Complex Thermofluid System** Plasma Physics and Complex Flow *Chair: M. Lo*	**OS19: IFS Collaborative Research Forum (AFI-2019)**	**OS18: The 15th International Students / Young Birds Seminar on Multi-scale Flow Dynamics**	**GS1: General Session** Numerical Simulation 2 *Chair: K. Shimoyama*		
	Liaison Office VISION 2030 *M. Yamaguchi* *T. Takagi* *D. Fabregue* *H. Alfredsson* *J. Wu* *A. Vasiliev* *A. Dichiara* *N. I. Kim* *R. Aboutaha* *J. Ahn* *K. Suematsu* *P. Wetchayont* *Đào Thị Thu Hà* *T. Uchimoto* *T. Tokumasu* *M. Ohta*	13:10-13:40 OS9-6 Impulse-driven Liquid-jet Injector for Pharmaceutical Applications *A. Agrawala,* *V. Menezes* 13:40-14:00 OS9-7 Finite Element Analysis for Flows in a Tumor Microenvironment Considering a Leakage to Interstitium: Applications to Two-dimensional Problems *T. Takeda,* *S. Miyauchi,* *T. Hayase* 14:00-14:20 OS9-8 Fundamental Study of MR-Measurement-Integrated Simulation of Heart-Aorta-System: Wall Shear Stress of Ascending Aorta *Y. Hori, T. Hayase,* *S. Miyauchi, K. Inoue,* *A. Lalande,* *J.-J. Christophe*	13:40-14:10 OS4-6 Experiment on Air Intake Performance of Ejector-Jet using Wax-based Fuel Hybrid Rocket. *I. Nakagawa,* *S. Funaki, T. Kanda,* *S. Hasegawa* 14:10-14:40 OS4-7 Initial Firing Tests of Aluminum-Water Hybrid Rockets using PMMA-Oxygen Hybrid Rocket Combustion *Y. Saito, L. Kamps,* *A. Tsuji, M. Wakita,* *H. Koizumi,* *T. Nonomura, K. Asai,* *H. Nagata*	13:10-13:50 OS15-15 *Invited* Bio-Inspired Flight in Turbulence: Modeling and Data Analysis *T. Engels,* *D. Kolomenskiy,* *K. Schneider,* *M. Farge* 13:50-14:10 OS15-16 Studies on Flow Induced Vibration of Cylindrical Body Based on High Order LES and Coupled Solution of Flow and Structure *D. Biswas* 14:10-14:30 OS15-17 Numerical Investigations into Turbulence Characteristics in Wind Turbine Wakes *L. Tian, Y. Song,* *N. Zhao*	13:10-13:30 OS13-9 Investigation of Flow Instability around Stator Blades in Stall Condition *S. Shiohara,* *T. Tanaka, Y. Mori,* *S. Iio* 13:30-13:50 OS13-10 Experimental and Numerical Studies on Flow Field Around an Undershot Type Cross-Flow Water Turbine *T. Wang, H. Shikama,* *T. Yamagata,* *N. Fujisawa* 13:50-14:10 OS13-11 Influence of Liquid Flow on Evaporation during Hot Air Drying of PVA Solution *D. Suzuki, T. Ono,* *T. Yamada, N. Ono* 14:10-14:30 OS13-12 Experimental Investigation of Heat Transfer Performance in Pool under Ultrasonic Vibration *Y.-T. Su, S.-W. Chen,* *F.-C. Liu, J.-D. Lee,* *W.-K. Lin,* *J.-R. Wang, C. Shih*	13:10-13:30 OS12-25 *Invited* Plasma Modeling and It Application to Thermal and Nonthermal Plasma *S.-W. Chau* 13:30-13:50 OS12-26 *Invited* Development of a Plasma Fluid Model for Atmospheric Pressure Air Dielectric Barrier Discharges *K.-M. Lin,* *Y.-Hsun Huang,* *W.-Y. Guo,* *Y.-S. Chang* 13:50-14:05 OS12-27 Flow Characterization of an Annular Plasma Actuator *J.-L. Chen, Y.-H. Liao* 14:05-14:20 OS12-28 Thermal Characterization of an Atmospheric Pressure Helium Dielectric Barrier Discharge Reactor *S.-Y. Zhuang,* *K.-M. Lin,* *Y.-S. Chang*	13:10-14:40 CRF-65 - CRF-98, CRF-R4, CRF-J3 *Short Oral Presentation 3*	**13:00**-(14:00) OS18-68 - OS18-94 *Short Oral Presentation* (14:00-15:50) OS18-68 - OS18-94 *Poster Presentation*	13:10-13:30 GS1-18 Numerical Investigation of Transonic Moist-air Flow in Whole-annulus Compressor Blade Rows *S. Moriguchi,* *T. Endo, H. Miyazawa,* *T. Furusawa,* *S. Yamamoto* 13:30-13:50 GS1-19 Numerical Simulation of Unsteady Flows through First-stage Stator and Rotor Blade Rows in Middle Pressure Steam Turbine *H. Miyazawa,* *A. Uemura,* *T. Furusawa,* *S. Yamamoto,* *K. Yonezawa,* *S. Umezawa* 13:50-14:10 GS1-20 Numerical Analysis on Aerodynamic Characteristics of Three-dimensional Iced Rotor *Z. Wang, C. Zhu,* *N. Zhao* 14:10-14:30 GS1-21 Numerical Investigation of Octane Flows with Pyrolysis under Supercritical Pressure *S. Yatsuyanagi,* *T. Furusawa,* *S. Yamamoto,* *S. Tomioka*		
14:40	**BREAK**										

	EX-1	EX-2	EX-3	EX-4	CON-1	CON-2	CON-TACHIBANA	CON-SAKURA 2	CON-5	CON-SHIRAKASHI 1	CON-SHIRAKASHI 2	
14:50	**OS17: Liaison Office Session & OS20: AFI-2019 IFS Lyon Center Collaborative Research Forum**	**OS9: Biomedical Flow Dynamics** *Chairs: M. Zhang*	**OS4: Flow Dynamics and Combustion Technology of Hybrid Rocket Propulsion, 11th Edition** WAX Fuels *Chair: T. Shimada*	**OS15: Turbulence: from Fundamentals to Applications** Compressible turbulence *Chair: Y. Hattori*		**OS12: Complex Thermofluid System** Computational Fluid Dynamics *Chair: S.-W. Chau*	**OS19: IFS Collaborative Research Forum (AFI-2019)**	**OS18: The 15th International Students / Young Birds Seminar on Multi-scale Flow Dynamics**	**GS1: General Session** Flows in Machinery *Chair: J. Okajima*	**OS2:The Seventh International Symposium on Innovative Energy Research II** Plasma and Electric Field Effects on Combustion *Chair: H. G. Im*		14:50
	14:50-15:20 Liaison Office Session 15:30-16:00 OS20-8 *Invited* Multiscale Design for Composite Aircraft Wings *Y. Abe, T. Okabe, S. Date* 16:00-16:20 OS20-9 Stability and Transition to Turbulence of Taylor Vortex in a Gap between Rotating Two Cones *T. Adachi, K. Usuki, A. Komiya, D. Henry, V. Botton*	14:50-15:20 OS9-9 Three-Dimensional Numerical Analysis for an Erythrocyte Behavior near a Wall in a Fluid under an Inclined Centrifugal Force: Finite Element Analysis of an Erythrocyte Membrane *S. Miyauchi, T. Hayase, A. A. Banaei, J.-C. Loiseau, L. Brandt* 15:20-15:40 OS9-10 Numerical Analysis for the Velocity Distribution of the Outflow of a Left Ventricle *S. Kosaka, S. Miyauchi, T. Hayase* 15:40-16:00 OS9-11 Influence of Input Patch Sizes on Results of a Convolutional Neural Network to Detect Cerebral Aneurysms from MRA Images *K. Watanabe, H. Anzai, N. Juchler, S. Hirsch, P. Bijlenga, M. Ohta* 16:00-16:20 OS9-12 In-vitro cell viability studies of gold nanorods/graphene oxide nanocomposites for photothermal and drug delivery application *T. Lebepe, O. Oluwafemi, T. Kodama*	14:50-15:20 OS4-8 Wax Fuel Hybrid Rocket Basic Research On Improving Combustion Efficiency *K. Yasuda, I. Nakagawa* 15:20-15:50 OS4-9 Combustion Characteristics of Wax-based Solid Fuel for Hybrid Rocket with Adding AN *T. Kitagawa, A. Takahashi, K. Takahashi, Y. Nishiwaki, M. Kumasaki* 15:50-16:20 OS4-10 Transient Burning of Molten Wax Fuel in the Pre-combustion Chamber of Hybrid Rocket Motors *M. Hayashi, S. Sasahara, S. Kojima, T. Morita*	14:50-15:30 OS15-18 *Invited* Data Assimilation of Compressible Turbulent Jet Flow *P. Schwarz, M. Lemke, J. Sesterhenn* 15:30-15:50 OS15-19 Aerodynamic Sound Generated from Flows near the Human Vocal Folds Model *S. Kosako, T. Tsuneyoshi, Y. Tsuji* 15:50-16:10 OS15-20 Sound Radiated from Low Mach Number Turbulent Boundary-layer Flows (Turbulent Boundary Layer On a Smooth Plate and Over a Forward Facing Step) *S. Moriyama, Y. Inoue, H. Maekawa*		14:50-15:10 OS12-29 *Invited* Flow Analysis and Particle Tracking Simulation for Electrochemical Machining *S.-Y. Lin, C.-C. Chen, L.-R. Chen* 15:10-15:25 OS12-30 2D CFD Investigation into Oxygen Transport in Deoxygenated Flow via a Mini-oxygenator *S.-Y. Chou, K. C. Lin* 15:25-15:40 OS12-31 Flow Simulation of Tilted Propellers over a Wing *J.-H. Shih, S.-J. Wang, C.-Y. Chen, K.-B. Lua* 15:40-15:55 OS12-32 Thermofluids Performance of a Cryptocurrency Mining Machine *Y.-W. Chang, W.-X. Chu, Y.-Y. Hu, C.-C. Wang* 15:55-16:10 OS12-33 Simulation on Vortex Induced Vibration of Circular Cylinder *T.-J. Chang, K.-B. Lua*	14:50-16:20 CRF-65 - CRF-98, CRF-R4, CRF-J3 *Poster Session*	(**14:00**-15:50) OS18-68 - OS18-94 *Poster Presentation*	14:50-15:10 GS1-22 Investigations of the Aerodynamic Characteristics of Vertical Axis Wind Turbine with Wavy Leading Edge *J.-C. Cheng, C.-H. Wang, J.-Y. Chen* 15:10-15:30 GS1-23 Robust Optimization of a Blade Airfoil Shape for a Small Vertical Axis Wind Turbine *S. Imai, N. Ban, W. Yamazaki* 15:30-15:50 GS1-24 Investigation of Performance Coefficient of Small Propellers in Waste Water Pipes *N. P. Putri, H. Asada, Y. Ogami* 15:50-16:10 GS1-25 Effects of Leading-Edge Protuberances on Power Performance of Horizontal-axis Wind Turbine *Y.-T. Lin*	14:50-14:55 Introduction *H. G. Im* 14:55-15:40 OS2-32 *Invited keynote* Plasma Technology for Fuel Conversion *M. S. Cha* 15:40-16:00 OS2-33 *Invited* Modeling of Low Mach Number Reactive Flows Coupled with Electric Fields *L. Esclapez, J. B. Bell, M. S. Day* 16:00-16:20 OS2-34 *Invited* Modeling of Electrically Assisted Combustion *M. Belhi, B. J. Lee, M. S. Cha, H. G. Im*		
16:20	**BREAK**											16:20

16:30

EX-1	EX-2	EX-3	EX-4	CON-1	CON-2	CON-TACHIBANA	CON-SAKURA 2	CON-5	CON-SHIRAKASHI 1	CON-SHIRAKASHI 2
OS20: AFI-2019 IFS Lyon Center Collaborative Research Forum	**OS9: Biomedical Flow Dynamics** *Chair: H. Anzai*	**OS4: Flow Dynamics and Combustion Technology of Hybrid Rocket Propulsion, 11th Edition** Swirling Flow *Chair: T. Shimada*	**OS15: Turbulence: from Fundamentals to Applications** Turbulence phenomena II *Chair: H. Maekawa*		**OS12: Complex Thermofluid System** Thermal Engineering and Multiphase Flow *Chair: K.-B. Lua*	**OS19: Fluids Science Research Award Lectures (AFI-2019)**		**GS1: General Session** Jet Flow / Flow Dynamics *Chair: N. Ochiai*	**OS2:The Seventh International Symposium on Innovative Energy Research II** Plasma and Electric Field Effects on Combustion *Chair: M. S. Cha*	
16:30-16:50 OS20-10 Piping System, Risk Management Based on Wall Thinning Monitoring and Prediction *T. Takagi, P. Guy, Y. Watanabe, H. Abe, S. Ebara, T. Uchimoto, T. Aoki, M. Hashimoto, R. Urayama, H. Sun, T. Monnier, J. Antoni, B. Normand, N. Mary, R. Morita, S. Watanabe, A. Iwasaki, H. Nakamoto, C. Reboud, P. Calmon, E. Demaldent, V. Baronian, X. Artusi, S. Chatillon, A. Lhemery* 16:50-17:10 OS20-11 Coupled Computing of Fluid-Structure Interaction Problems for Multiphase Energy Systems *J. Ishimoto, E. Elguedj* 17:10-17:30 OS20-12 Back Surface Roughness Measurement Based on Attenuation of Ultrasonic Wave *H. Nakamoto, P. Guy, T. Takagi, T. Uchimoto, K. Hamaguchi*	16:30-17:00 OS9-13 *Invited* Quantitative Assessment of Aortic Tree Geometry and Flow in Healthy Adult *S. Tupin, H. Ota, M. Ohta* 17:00-17:20 OS9-14 Enhancement of Epirubicin Anticancer Activity by LDDS in Metastatic Lymph Node Mouse Model *A. Sukhbaatar, S. Mori, T. Kodama* 17:20-17:40 OS9-15 Enhancement of Transdermal Drug Delivery by Rotational Stimulation Device *Y. Kurosawa, K. Kikuchi, K. Numayama-Tsuruta, T. Ishikawa* 17:40-18:00 OS9-16 Flow Visualization and Lymphatic Vessel Characterization for Lymphatic Drug Delivery System *R. Mishra, A. Sukhbaatar, S. Shrivastava, S. Saurav, N. Yadav, K. Neetu, K. Shiga, S. Mori, T. Kodama*	16:30-17:00 OS4-11 Effect of Nozzle Throat Erosion on the Performance of a H_2O_2-PP Hybrid Rocket Motor with Swirling Injection *S.-S. Wei, M.-C. Lee, Y.-H. Chien, T.-H. Chou, J.-S. Wu* 17:00-17:30 OS4-12 Progress on Developing the 1000-kgf Class N_2O-PP Hybrid Rocket Motor Using Swirling Injection *Y.-C. Cheng, A. Lai, S.-S. Wei, T.-H. Chou, J.-S. Wu* 17:30-18:00 Wrap-up *T. Shimada*	16:30-16:50 OS15-21 LBM with Adaptive Mesh for Turbulent Flows *Y.-S. Zhou, C.-M. Wu, C.-A. Lin* 16:50-17:10 OS15-22 Effect of Polymer Additive to Skin Friction Coefficient and Scales of Turbulence in Two-Dimensional Channel Flow *Y. Endo, S. Yimprasert, T. Tsumura, M. Matsubara* 17:10-17:30 OS15-23 Direct Numerical Simulation of FENE-P Viscoelastic Fluid Flow Through a Channel *C.-Y. Lin, C.-A. Lin*		16:30-16:45 OS12-34 Simulation of Heat and Fluid Flow in a Compressor *D.-C. Jiang, G.-L. Lin, C.-Y. Chen* 16:45-17:00 OS12-35 Modeling and Analysis of Composite Material Bonding by Laser Heating *C.-T. Cheng, T.-S. Yang, C.-C. Li* 17:00-17:15 OS12-36 The Model Development for Converter with Top-bottom Blowing Process *Y.-W. Chen, H.-H. Chen, S.-Y. Hsu, C.-H. Tsai, Y.-C. Liu* 17:15-17:30 OS12-37 The Interior Structure Design of a Hybrid Sounding Rocket *C.-H. Yeh, M.-C. Li, A. Lai, S.-S. Wei, J.-S. Wu, W.-Y. Jang*	16:30-16:55 FRA-1 Quantum Turbulence *M. Tsubota* 17:00-17:25 FRA-2 Development of Flow Visualization for PVA-H Biomodel *M. Ohta* 17:30-17:55 FRA-3 Polymers based materials: between Fluids and Solids *J.-Y. Cavaillé*		16:30-16:50 GS1-26 Flow and Heat Transfer Characteristics of Wall Jets from a Row of Orifices *C. Nuntadusit, N. Puzu* 16:50-17:10 GS1-27 A General Approach to Modeling Jet-Turbulence Interaction Problems using Rapid-distortion Theory *M. Z. Afsar* 17:10-17:30 GS1-28 Experimental Investigation of Cavity-Actuated Sweeping Jet – Effect of Channel Geometry– *I. Fujimura, A. Urita, T. Handa* 17:30-17:50 GS1-29 Application of Small Supersonic Oscillatory-Jet to Supersonic Mixing Enhancement *S. Miyazaki, A. Urita, T. Handa*	16:30-17:00 OS2-35 *Invited topical* Electric Field Distribution Measurements in Plasma-Enhanced Flames *M. S. Simeni, Y. Tang, K. Orr, I. V. Adamovich* 17:00-17:20 OS2-36 *Invited* Complex flame dynamics coupling with plasmas and electric fields: diagnostics and control *S. Li* 17:20-17:40 OS2-37 *Invited* Reshaping Laser-Induced Plasmas for Non-Intrusive and Accurate Gas Property Measurements *S. Oh, S. Bae, C. D. Carter, H. Do* 17:40-18:00 OS2-38 Computational Study on Ignition Process of CH_4/air Mixture Initiated by Nanosecond Repetitively Pulsed Discharges *M. Suzuki, Y. Morii, H. Nakamura, K. Maruta*	

16:30

	17:30-17:50 OS20-13 Monitoring The Damage Of The Polymers By Non-Destructive Control *L. Ollivier-Lamarque, T. Uchimoto, N. Mary , S. Marcelin, B. Ter-Ovanessian, S. Livi* 17:50-18:10 OS20-14 Modelling Materials Behavior for Advanced Electromagnetic Non Destructive Testing Techniques *B. Gupta, G. Sebald , B. Ducharne, T. Uchimoto, T. Takagi*										
18:00	**18:50 GROUP PHOTO@ SENDAI (West/South), Hotel Metropolitan Sendai** **18:50-20:50 BANQUET @ SENDAI (West/South), Hotel Metropolitan Sendai**										18:00
20:50											20:50

9:00	EX-1	EX-2	EX-3	EX-4	CON-5	CON-SHIRAKASHI 1	9:00
	OS5: Advanced Applications of Multi-functional Fluids Thermal plasma / Non-equilibrium plasma *Chair: N. Takeuchi*	**OS11: Microfluidics and Microphysiological Systems** *Chair: K. Funamoto*	**OS8: Advanced Physical Stimuli and Biological Responses** *Chair: K. Takahashi*	**OS16: Vortex Motion** Compressible Flows & Vortex Motion *Chair: M. A. Langthjem*	**GS1: General Session** Multiphase Flow *Chair: S. Miyauchi*	**OS2:The Seventh International Symposium on Innovative Energy Research II** *Chair: N. Hashimoto*	
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OS5: Advanced Applications of Multi-functional Fluids Plasma chemistry *Chair: T. Fujino*	**OS11: Microfluidics and Microphysiological Systems** *Chair: T. Fukui*	**OS8: Advanced Physical Stimuli and Biological Responses** *Chair: R. Shirakashi*	**OS16: Vortex Motion** Flow Control & Vortex Motion *Chair: Y. Hattori*	**GS1: General Session** Heat Transfer *Chair: A. Komiya*	**OS2:The Seventh International Symposium on Innovative Energy Research II** *Chair: A. Hayakawa*
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LUNCH

13:10

EX-1	EX-2	EX-3	EX-4	CON-5	CON-SHIRAKASHI 1
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BREAK

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			OS8: Advanced Physical Stimuli and Biological Responses *Chair: Y.-C. Cheng*			**OS2:The Seventh International Symposium on Innovative Energy Research II** High Performance Computing for reactive flow dynamics *Chair: Y. Abe*	
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OS18-70: **Numerical Analysis of Induced Eddy Current Distribution in the Submandibular Region by Magnetic Stimulation Using Biostructure Data Acquired by CT**
H. Mori, H. Kagaya, Y. Inamoto, S. Izumi, K. Yashima, T. Takagi

OS18-71: **Electromagnetic Field Analysis for Cavity Quantum Effect in Open Porous Metal**
T. Hirai, H. Gonome

OS18-72: **New Framework of Strain Based Beam Formulation for Rigid Body Motion**
T. Suzaki, K. Otsuka, S. Hirotani, S. Dong, K. Makihara

OS18-73: **Effect of Bubble Interfusion on Optical Properties of Scattering Medium**
M. Ono, T. Takahashi, H. Gonome

OS18-74: **The Effect of Local Degradation on Thickness Gauging Using Point-Focusing EMAT Evaluated with Experiment and Numerical Analysis**
A. Tezuka, H. Sun, R. Urayama, T. Uchimoto, T. Takagi

OS18-75: **A Reactive-Force Field Molecular Dynamics Study of Deposition Mechanism during Chemical Vapor Deposition Processes**
N. Uene, T. Mabuchi, M. Zaitsu, S. Yasuhara, T. Tokumasu

OS18-76: **Development of Numerical Method for Clear Air Turbulence by Using LIDAR Data Assimilation**
R. Yoshimura, A. Yakeno, T. Misaka, R. Kikuchi, S. Iwabuchi, S. Obayashi

OS18-77: **Quantitative Evaluation of the Influence of Membrane Structure on Protein Mass Diffusion**
R. Watanabe, S. Moriya, S. Livi, H. A. Aldaftari, A. Komiya

OS18-78: **Numerical Simulation of Concentration Field around a Growing Crystal Subjected to Gravity**
H. A. Aldaftari, R. Watanabe, A. Komiya

OS18-79: **Consolidation and Metal Alloying of Cu/Zn Mixed Powders by Warming Compression Shearing Method**
T. Takahashi, H. Miki, S. Takeda, H. Kosukegawa, T. Takagi

OS18-80: **An Automated Signal Analysis Model for Eddy Current Testing using Artificial Neural Network**
X. Zhou, R. Urayama, T. Uchimoto, T. Takagi

OS18-81: **Optimization of Mini-Channel Wavy Tube Structure of Liquid Cooling Cylindrical Battery Module Based on EGO**
Y. Sun, Y. Chen, C. Lai, B. Zhao, Z. Ling, L. Li, J. Yang

OS18-82: **Evaluation of Water Uptake in Ionic Liquid Composite Polymer Coating: Comparison between Gravimetric and Capacitance Measurements**
L. Ollivier-Lamarque, T. Uchimoto, N. Mary, S. Marcelin, B. Ter-Ovanessian, S. Livi

OS18-83: **The Influence of Hydrophobic Parts of the Peptide on the Interaction between the Peptide and the Solid Surface**
M. Hirano, R. Sato, A. Fukushima

OS18-84: **Development of Soft-magnetic DLC Sensor for Detecting Adhesive Joint Defect in Composite Materials**
Z. Diao, H. Kosukegawa, H. Miki, T. Takagi

OS18-85: **Optical Diagnostics of Dissociating Nitrogen Flow in a Shock Tube**
M. Kajino, G. Yamada

OS18-86: **Efficient Aerodynamic Shape Optimization of a 3D Supersonic Transport Configuration Using Proper Orthogonal Decomposition**
N. Buyanbaatar, W. Yamazaki

OS18-87: **Hydrogen Embrittlement Evaluation Using Eddy Current Testing on Fatigued Specimens of Hydrogen Charged Austenitic Stainless Steel**
E. Tokuda, S. Takeda, T. Uchimoto, T. Takagi, H. Enoki, T. Iijima

OS18-88: **Multi-Objective Bayesian Optimization of the Power-Law Configuration for a Low-Boom Waverider**
P. Boonjaipetch, G. A. Faza, P. S. Palar, K. Shimoyama, S. Obayashi

OS18-89: **A Spectrally Selective Solar Absorber based on a Double-layered Film**
R. Igarashi, A. Sakurai

OS18-90: **Evaluation of Characteristics of Anodized-Aluminum Pressure-Sensitive Paints with Hydrophobic Coating**
K. Wada, S. Kawazoe, D. Numata

OS18-91: **Analysis of Proton Transport Properties of Hydrocarbon Ion Exchange Membrane at Low Water Contents**
K. Hara, K. Kouda, T. Tokumasu, A. Fukushima

OS18-92: **Preparation and Evaluation of Electrolytes by Spray Pyrolysis Deposition for All-Solid-State Lithium Batteries**
Y. Ouchi, N. Yoshida, K. Sato, T. Hashida

OS18-93: **Mechanical Properties of Al and Cu Thin Plates Fabricated by Warming Process with Compression Shearing Method**
Y. Koshiba, S. Nagai, H. Miki, S. Takeda, T. Miyazaki, H. Kosukegawa, T. Takagi

OS18-94: **Development of Solid Oxide Fuel Cells' Nondestructive Inspection System by Machine Learning Based on Terahertz Spectroscopy**
Y. Yabuta, K. Kumada, K. Fukui, M. Numao, K. Sato, T. Hashida

OS19: The 19th International Symposium on Advanced Fluid Information (AFI-2019)
IFS Collaborative Research Forum

CRF-1: **Aerodynamic Drag Reduction using a Coating Material in Flapping Wing**
T. Ishide, Y. Takagi, S. Otsubo, T. Kaeriyama, K. Shimoyama, S. Obayashi

CRF-2: **Chemical Interpretation of the Two-Stage Cool Flame of Diethylether**
Y. Sakai, H. Nakamura, T. Sugita, T. Tezuka

CRF-3: **Kriging with Mixed Kernel (MK) for Complex Aerospace Problems**
R. P. Liem, K. S. Oyetunde, P. S. Palar, K. Shimoyama

CRF-4: **Application of Core-based Inversion to Reconstruct Stress Field in an Underground Geoscience Laboratory**
X. Ma, Y. Mukuhira, T. Ito

CRF-5: **Validation of Fracture Permeability Estimated by Integrated Approach of Microseismic Observations and Reservoir Engineering Modeling**
M. Yang, Y. Mukuhira, J. H. Norbeck, J. L. Rubinstein

CRF-6: **Control Arraying of Cage-shaped Protein with Core and Surface Modification**
I. Yamashtia, N. Okamoto, S. Samukawa

CRF-7: **Derivative-Enhanced Surrogate Models for Aerodynamic Design**
L. R. Zuhal, K. Zakaria, P. S. Palar, K. Shimoyama

CRF-8: **Damage Assessment for Hollow Cylindrical Tether considering Oblique Collision**
M. Fujiwara, H. Tomizaki, K. Ohtani, S. Hasegawa, K. Makihara

CRF-9: **Comparison of 2D and 3D Simulation Models for Deployable Wing**
K. Otsuka, T. Suzaki, Y. Wang, K. Fujita, H. Nagai, K. Makihara

CRF-10: **Experimental Study on the Flow-induced Noise from a Flag**
R. Nishikawa, O. Terashima, Y. Konishi, T. Ito, K. Sugioka

CRF-11: **Validation of Fast-Pressure-Sensitive Paint for Measuring Small Pressure Fluctuation**
Y. Egami, Y. Yamazaki, Y. Matsuda, T. Ikami, H. Nagai

CRF-12: **Significant Reduction of Thermal Conductivity of Si Nanopillar/SiGe Composite Film Fabricated by Neutral Beam Etching Investigated by a Piezoelectric Photothermal Measurements**
T. Harada, T. Aki, D. Ohori, S. Samukawa, T. Ikari, A. Fukuyama

CRF-13: **Effects of High Concentration of CO_2 on Flame Propagation Characteristics of CH_4/CO_2/Air Laminar Premixed Flames**
A. Hayakawa, E. C. Okafor, W. Anggono

CRF-14: **Optical Properties of 1-ethyl-3-methylimidazolium Acetate before and after Carbon Dioxide Exposure**
M. Okura, R. Furukawa, H. Takana, F. Ohuchi

CRF-15: **Pressure Effects in Thin Water Film by Molecular Dynamics**
M. Gupta, S. P. Raut, A. Zou, T. Tokumasu, S. C. Maroo

CRF-16: **Experimental and Chemical Kinetics Modeling Study of Nitromethane in Shock Tubes and a Micro-Flow Reactor with a Controlled Temperature Profile**
O. Mathieu, Y. Yamamoto, C. R. Mulvihill, E. L. Petersen, T. Tezuka, H. Nakamura

CRF-17: **Large-Scale Simulation of Mass Transfer and Structural Change with Solid-Gas Reaction in Porous Media: Investigation of Diffusion Term**
Y. Numazawa, Y. Matsushita, H. Aoki, A. Komiya

CRF-18: **Aerodynamic Drag Reduction of a Heavy Truck with Efficient Global Optimization Method**
C. Lai, W. Huang, Q. Wang, Y. Zhou, S. Obayashi

CRF-19: **Understanding Tribological Behavior of hBN Nanoparticles in Trimethylolpropane trioleate (TMPTO) Based Bio-lubricants : Molecular Dynamic Simulation**
R. Ruliandini, Nasruddin, T. Tokumasu

CRF-20: **Oxygen Transport Analysis in Catalyst Layer of Polymer Electrolyte Fuel Cell**
M. Nakauchi, T. Mabuchi, Y. Yoshimoto, T. Kaneko, I. Kinefuchi, H. Takeuchi, T. Tokumasu

CRF-21: **Solid Oxide Fuel Cells Replacement of a Traditional Catalytic Converter**
T. S. Welles, J. Ahn, H. Nakamura

CRF-22: **Electric Field Measurements in Atmospheric Pressure Discharges by Electric Field Induced Second Harmonic (E-FISH) Generation**
M. S. Simeni, Y. Tang, K. Orr, I. V. Adamovich, H. Takana, H. Nishiyama

CRF-23: **Effect of Droplet Diameter on Thermal Barrier Performance against Thermal Radiation from Fire**
H. Gonome, T. Nagao, T. Kogawa, S. Moriya, J. Okajima

CRF-24: **Clarification of the Transient Mechanism of Cavitation Instabilities**
D. Kang, P. Fu, Y. Iga

CRF-25: **Experiment of Light-driven Micromotor with Epicyclic Motion**
N. Yamada, V. V. Thai, H. Sato, J. Okajima, A. Komiya

CRF-26: **Study on the Function of Me-DLC Nano-composite Coatings Acting as Thermo-sensor in the Sliding Interface**
M. Goto, T. Takagi, K. Ito, H. Miki, H. Kosukegawa

CRF-27: **Influence of Fatigue Damage on NDE of Plastic Strain in RAFM Steel using Electromagnetic NDE Methods**
Z. Chen, M. He, H-E. Chen, S. Xie, T. Uchimoto, T. Takagi

CRF-28: **Numerical Investigation of Rarefied Gas Flow in Microchannel by the DSMC Method**
P. Vashchenkov, Y. Bondar, S. Yonemura

CRF-29: **The Effects of Heat Loss on the Dynamics of Hydrogen-Air Premixed Flames**
S. Kadowaki, Y. Kusano, T. Katsumi, H. Kobayashi

CRF-30: **Double-gate Single-electron Transistor Formed by Fe Nanodot Array**
T. Gyakushi, Y. Asai, A. Tsurumaki-Fukuchi, M. Arita, Y. Takahashi, S. Samukawa

CRF-31: **Fuel Sensitivity on End-gas Autoignition Behavior during Knocking Combustion**
H. Terashima, H. Nakamura

CRF-32: **Fully Automated Optimum Design under an External Computer Environment**
T. Hatta, M. Sawahara, K. Chiba, S. Obayashi

CRF-33: **Structure and Properties of Diamond Like Carbon-Magnetic Metal Nano-composite Films**
Y. Zhang, H. Kosukegawa, D. Zhuo, H. Miki, T. Takagi

CRF-34: **Analysis of Oxygen Ion Conduction in Dual-phase Electrolyte Membrane**
H. Nagashima, R. Falkenstein-Smith, J. Ahn, T. Tokumasu

CRF-35: **Simulation of Thermoelectric Properties for SiNW-$SiGe_{0.3}$ Composite Using Landauer Approach**
M.-Y. Lee, Y. Li, M.-H. Chuang, D. Ohori, S. Samukawa

CRF-36: **Numerical and Experimental Investigation of Centreline Shock Reflection in Ring-Shaped Supersonic Intake Geometries**
H. Ogawa, S. Brahmachary, C. Fujio, T. Watanabe, K. Ohtani

CRF-37: **Development of Numerical Modeling on Enhancement of CO_2 Absorption by Ionic Liquid Electrospray**
H. Takana, K. Kawatani, T. Fujino

CRF-38: **High-Speed Imaging of Primary Breakup in Electrosprays**
N. Kawaharada, H. Takana, F. Dinkelacker

CRF-39: **Numerical Simulation of Dynamic Derivatives for Mars Airplane Balloon Experiment-2 (MABE-2)**
M. Kanazaki, H. Kittaka, A. Oyama, K. Fujita, H. Nagai

CRF-40: **Spectroscopy of Shocked High-Speed Flows for Re-entry Flight**
G. Yamada, M. Kajino, F. Kikuchi, K. Ohtani

CRF-41: **Tensile Strength and Fracture Behavior of Single Abaca Fiber**
Z. Fuadi, S. Sabri, S. Rizal, H. Homma, T. Takagi, H. Kosukegawa, H. Miki

CRF-42: **Simulation of Reverse Piezoelectricity in Ferroelectric Polymers by Finsler Geometry Model**
V. Egorov, H. Koibuchi, O. Maksimova, C. Bernard, J. Chenal, L. Oliver, G. Diguet, G. Sebald, J. Y. Cavaille, T. Takagi

CRF-43: **Analysis and Modeling of the Transport Properties of the Contact Line Based on the Molecular Dynamics Simulation**
A. Fukushima, T. Tokumasu

CRF-44: **Internal Defect of Plastic-fabricated Carbon Fiber Reinforced Thermo Plastics**
Y. Kodaira, T. Takagi, H. Miki, H. Kosukegawa, N. Nakayama

CRF-45: **In-plane Relation Between Magnesium Oxide Thin Film and Silicon Substrate**
S. Kaneko, R. Sudo, S. Yasuhara, T. Endo, M. Yasui, M. Kurouchi, M. Can, S. Shawuti, Y. Nakamaru, C. Kokubun, K. Konda, T. Tokumasu

CRF-46: **Experimental and Numerical Study on Unsteady Aerodynamic Characteristics**
D. Sasaki, T. Akasaka, M. Okamoto, K. Ouchi, Y. Shikada, Y. Yamaguchi, S. Fukatsu, A. Shirakawa, H. Oshima, S. Obayashi, K. Shimoyama

CRF-47: **A Study of Eigen-Vortical-Axis Line in Hierarchical Flow Scales in Turbulence**
K. Nakayama, H. Hori, Y. Hattori

CRF-48: **Electron Blocking Layer Based Interfacial Engineering for Improving Triboelectric Performance**
W. Kim, J. Yu, H. J. Hwang, T. Okada, S. Samukawa, D. Choi

CRF-49: **Numerical Prediction of Flow Characteristics around Moving Objects in Multiphase Flow**
S. Takahashi, Y. Mizuno, T. Nagata, Y. Kawamoto, K. Fukuda, S. Obayashi

CRF-50: **Application of Two-phase Thermo-fluid Simulation for Accurate Design of Oscillating Heat Pipe**
K. Takemura, Y. Kawamoto, S. Takahashi, H. Nagashima, T. Adachi, H. Nagai

CRF-51: **Quantitative Density Measurement of Unsteady Flow around Projectile by Colored-Grid Background Oriented Schlieren**
Y. Hirose, T. Nagashima, Y. Yahagi, M. Ota, S. Udagawa, T. Inage, K. Fujita, H. Kiritani, K. Fujita, K. Ohtani, H. Nagai

CRF-52: **Evaluation of Prediction Method for IR Camera's Sensitivity**
T. Kogawa, J. Okajima, A. Komiya, S. Maruyama

CRF-53: **Triple-phase Contact Line Dynamics of Sticky and Slippery Surfaces**
R. Gulfam, P. Zhang, H. Nagai

CRF-54: **Study of Coaxial Inversion Rotor Aimed at Realizing Mars Helicopter**
H. Nagai, K. Fujita, A. Oyama, K.Yonezawa

CRF-55: **Alignment of Cellulose Nanofibrils and Carbon Nanotubes in a Flow Focusing System Assisted by Electric Field**
H. Wise, H. Takana, A. Dichiara

CRF-56: **Investigation of LSI Architecture and Analog Memory Devices for Brain-like Systems**
K. Yamashita, M. Harada, T. Morie, A. Tsurumaki-Fukuchi, M. Arita, Y. Takahashi, S. Samukawa

CRF-57: **Optimization of Airfoil for Mars Exploration Aircraft Propeller**
K. Park, S. Jeong, H. Nagai

CRF-58: **Establishment of High-accuracy Analysis Method of Spacecraft Thermal System using Data Assimilation**
H. Nagai, H. Tanaka, T. Misaka

CRF-59: **Transition to Turbulence in Side-wall Intracranial Aneurysm: A Comparative PIV and LES Study**
S. Tupin, K. M. Saqr, M. Ohta

CRF-60: **The Role of Signal-anchor Region of Type II Transmembrane Protein in Subcellular Localization**
Y. Mukai, T. Kikegawa, Y. Suda, Y. Kobayashi, M. Ohta, M. Doi, K. Etchuya

CRF-61: **Mechanical Analysis of a Novel Biodegradable Zinc Alloy Stent Based on a Degradation Model**
K. Peng, X. Cui, S. Liu, A. Qiao, H. Anzai, M. Ohta

CRF-62: **Large-scale Numerical Analysis of Discharge Active Species Behavior at Plasma-biological Interface**
S. Uchida, K. Toda, A. Kokubu, S. Yamauchi, K. Abe, T. Sato

CRF-63: **Investigation of Bioheat Transfer Characteristics of Skin Tumor during Non-invasive Measurement of Thermal Conductivity**
T. Okabe, T. Fujimura, J. Okajima, S. Maruyama

CRF-64: **Numerical Simulations as Evaluation and Planning Method for Cellular Biofluidic Experiments**
N. K. Putra, Z. Wang, M. S. S. Hashuro, H. Wang, Suprijanto, M. Ohta, H. Anzai

CRF-R1: **Micro-combustion of n-Butane for Power Generation Applications**
B. B. Skabelund, H. Nakamura, K. Maruta, J. Ahn, R. J. Milcarek

CRF-R2: **Microchannel Burners for Energy Production on the Basis of Microcombustion**
S. Minaev, K. Maruta, R. Fursenko, A. Kirdyashkin, V. Gubernov

CRF-R3: **Link Between Tracer and Microseismic Analysis to Comprehensive Understanding of Hydraulic Feature of Fractured Geothermal Reservoir**
A. Suzuki, Y. Mukuhira, R. N. Horne, A. Abe, A. J. Howkins, T. Ishibashi, P. K. Kang

CRF-J1: **Progress in the Research of Fundamentals and Utilizations of Carbon Free Energy Carriers**
H. Kobayashi

CRF-J2: **Multiphase Flow and Interfacial Transport Phenomena at Phase and Material Boundaries**
S. Obayashi, S. Samukawa, T. Takagi, H. Wada, T. Okada, Y. Watanabe, M. Hashimoto, T. Iijima, P. Guy, L. Udpa, Y. Hattori, H. Nagai, K. Shimoyama, M. Hirota, A. Yakeno, G. Kikugawa, A. Komiya, S. Takeda, J. Ishimoto, T. Uchimoto, H. Kosukegawa

CRF-65: **Characteristics of Jetting from Micro Cavitation Bubbles Under Multiple Pressure Waves**
S. Uehara, T. Akimura, T. Nakajima, K. Ohtani, O. Supponen, M. Farhat, T. Sato

CRF-66: **Measurement of Electrical Charge in Fine Bubbles Generated by Plasma in Water**
T. Sato, R. Kumagai, S. Uehara, T. Nakajima, K. Ohtani, T. Miyahara, T. Nakatani

CRF-67: **Development of Pressure Measurement Method in a Laser-Induced Cavitation Bubble**
S. Uehara, S. Kamata, T. Nakajima, Y. Iga, S. Kanazawa, T. Sato

CRF-68: **Effect on Wing Grid for the Aerodynamic Design**
S. Morizawa, S. Obayashi

CRF-69: **Numerical Analysis of Morphing Flaps on High-lift Devices with Pneumatic Controls**
Y. Kamiyama, E. Dzieminska, S. Hanada, A. Yakeno, S. Obayashi, Y. Abe

CRF-70: **Influence of Electric Potential Induced by Atmospheric Pressure Plasma on Cell**
T. Okumura, C.-H. Chang, T. Sato

CRF-71: **Influence of Vanadium on Thermoelectric Properties of $Fe_2Ti_{1-x}V_xSn$ Heusler Alloys**
V. Khovaylo, A. Taranova, A. Novitskii, A. Voronin, E. Ashim, S. Taskaev, H. Miki, T. Takagi

CRF-72: **Experimental Study for Identifying the Singular Point in Airfoil Wakes Dominated by the Global Instability**
S. Takagi, Y. Konishi, H. Okuizumi, A. Inasawa, S. Obayashi

CRF-73: **Rarefied Gas Simulations Using Quasiparticle Pairs and Exact Solution**
V. Saveliev, S. Yonemura, O. John

CRF-74: **On a Rotating Hollow Cylinder in Flight**
Y. Naito, H. Tanigawa, J. Ishimoto, M. Nakano, T. Noguchi, K. Hirata

CRF-75: **Numerical Study on Air-jet Instruments Compared with Edge Tone**
S. Iwagami, R. Tabata, T. Kobayashi, K. Takahashi, Y. Hattori

CRF-76: **Fluid Flow Analysis of an Atmospheric-pressure Microplasma Ejected from a Narrow Nozzle**
H. Yoshiki, K. Otosaka, T. Sato, T. Nakajima, S. Uehara

CRF-77: **Measurement of Particle Concentration Profiles of a Dilute Suspension in Different Reynolds Number Conditions**
M. Kawaguchi, T. Fukui, K. Funamoto, M. Tanaka, S. Murata, S. Miyauchi, T. Hayase

CRF-78: **Investigation of a Time Response of cntTSP Sensor for a Dynamic Visualization of the Laminar-to-turbulent Boundary Layer Transition**
D. Yorita, J. Lemarechal, C. Klein, K. Fujita, T. Ikami, H. Nagai

CRF-79: **The Stall Characteristics of Ski Jumping Suit Fabric with Different Air Permeability**
T. Takahashi, Y. Kataoka, H. Hasegawa, K. Seo, S. Obayashi

CRF-80: **Development of Sugar Type Distribution by Glycosylation Based on Protein Subcellular Localization**
K. Etchuya, M. Ohta, Y. Mukai

CRF-81: **An Effect of Pressure Rise Time on Shock-Turbulence Interaction**
T. Ukai, H. Nakagawa, K. Ohtani, A. Yakeno

CRF-82: **A Study on Nano-scale Interfacial Phenomena of Surface-modified Nanoparticle Suspension**
E. Shoji, M. Kubo, T. Tsukada, A. Komiya, G. Kikugawa

CRF-83: **Flow Characteristics of Wall Elasticity in a Full-Scale Patient-Specific Middle Cerebral Aneurysm**
G. Tanaka, N. S. Shafii, G. Takizawa, T. Yamazaki, S. Tupin, H. Anzai, K. Osman, R. Yamaguchi, M. Ohta

CRF-84: **Aerodynamics of a Badminton Shuttlecock with Spin**
M. Kobayashi, K. Nakagawa, H. Hasegawa, H. Nagai

CRF-85: **Development of Spinning Device Using Filmwise Pumping-up Mechanism with Induction Heating and Rotating Cone**
S. Omi, T. Adachi, J. Kanamori, J. Okajima

CRF-86: **Instability and Wave Interactions in Helical Vortices**
Y. Hattori, I. Delbende, M. Rossi

CRF-87: **Active Control of High-speed Boundary Layer Flows**
A. Sescu, M. Z. Afsar, S. Bhushan, Y. Hattori, M. Hirota

CRF-88: **Non-scale Up Flow Behavior Visualization Using in Vivo And in Vitro in the Middle Cerebral Artery Aneurysm "Normotensive, Hypertension and Anti-coagulant Effect to Mca Aneurysm Rupture"**
N. S. B. Shafii, R. Yamaguchi, M. R. A. Kadir, A. Z. M. Khudzari, G. Tanaka, S. Tupin, A. Saitoh, M. Ohta, K. Osman

CRF-89: **Quantum Molecular Dynamics Analysis on Bubble Nucleation in Liquid Hydrogen**
R. Takahashi, H. Nagashima, T. Tokumasu, S. Watanabe, S. Tsuda

CRF-90: **Flight Attitude Stabilizing by Side-jet Generated by Detached Shock Pulsation**
T. Mizukaki, A. Kouno, Y. Yoshitomi, F. Iwasaki, K. Ohtani

CRF-91: **Numerical Simulation of Flowfields Over Mars Entry Capsules**
M. Furudate, B. J. Lee, N. Masayuki, H. Nagai

CRF-92: **Comparison of Data Assimilation Methods in Fluid Problems**
T. Misaka, S. Obayashi

CRF-93: **Time-Resolved Pressure Measurement on the Surface of a Supersonic Spherical Projectiles by Using a Bi-Luminophore PSP**
D. Numata, K. Ohtani

CRF-94: **Fluid Dynamics and Energy/scalar Transport in Coexisting Flows of Turbulence and Non-turbulence: Cases of Dual-wakes, Grid-turbulence and Complex Jet**
Y. Sakai, Y. Ito, K. Iwano, T. Hayase, Y. Zhou, J. Yu, P. A. Kadu

CRF-95: **Experimental Feasibility Study on a V/STOL Aircraft with Upper Surface Blowing**
T. Okumura, M. Inoue, K. Sakamoto, H. Kawazoe, S. Obayashi

CRF-96: **Molecular Dynamics Analysis of Surfactant Effect on Water-gas Interface**
T. Hori, G. Kikugawa, I. Ueno, Y. Matsumoto

CRF-97: **Study on Washing Effect for Textile using the Underwater Explosion**
K. Kitagawa, K. Ohtani, Y. Konishi

CRF-98: **Surface Pressure Measurements using Two-Color PSP over a Free Flight Object in a Ballistic Range Facility**
D. Kurihara, S. Claucherty, J. Gonzales, H. Sakaue, H. Kiritani, K. Fujita, H. Nagai

CRF-R4: **High-performance Implementation of Inlet Turbulence Generation for GPU-based Parallel Computation**
Y. Abe, F. D. Witherden, G. Giangaspero, B. C. Vermeire, A. S. Iyer, P. E. Vincent

CRF-J3: **Science of Ultrafine Drop and High Speed Impact**
T. Sato, M. Watanabe, T. Yano, Y. Iga, K. Kobayashi, T. Hayase, J. Ishimoto, M. Ohta, A. Komiya, H. Takana, K. Ohtani, J. Okajima, S. Uehara, S. Miyauchi, H. Anzai