

# Final Program of AJWTF2022

27 November (Sun.)

9th Asian Joint Workshop on Thermophysics and Fluid Science (AJWTF2022)

27 – 30 November, 2022, Utsunomiya, Japan

17:00~19:00	<b>Opening of reception desk and welcome drink</b> (Room Kegon, 3rd Floor)
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28 November (Mon.)

	<b>Plenary Lecture</b> (Room A, 11th Floor) Chair: Minoru Yaga (University of the Ryukyus)		
9:00~10:20	In Memory of Professor Shen Yu Wen Yu (Beijing TaiKeJie Technology Co., Ltd., China)		
	Heat Transfer Enhancement of Phase Change Materials for Thermal Management System Han Seo Ko (Sungkyunkwan University, Korea)		
10:20~10:40	<b>Coffee Break</b>		
	<b>Fluid Dynamics 1</b> (Room B, 7th Floor) Chair: Hiroya Mamori (The University of Electro-Communications)	<b>Turbomachinery 1</b> (Room C, 7th Floor) Chair: Yutaka Ohta (Waseda University)	<b>Chemically Reacting Flows</b> (Room D, 7th Floor) Chair: Makoto Yamamoto (Tokyo University of Science)
10 : 40~12:10	Numerical Study on Impact of Thinner Strut Thickness on Blood Flow using Stent Structural Analysis Daigo Yamamoto*, Takahiro Tsukahara (Tokyo Univ. of Science), and Yusuke Fujino (Kashiwa Kosei General Hospital) 4047	Effect of Rotor-Stator Gap on Stall Inception of Subsonic Compressor Hengyi Zhu, Dengke Xu, Dakun Sun*, and Xiaofeng Sun (Beihang University) 4094	Influence of Structural Parameters of Catalyst Support on Hydrogen Production Performance of Diesel Reforming Sibo Wang, Chan Ha, Cong Wang, and Jiang Qin*(Harbin Institute of Technology) 4029
	Experimental Investigation on Self-propulsion of Leidenfrost Droplets on Narrow Ratchet Surfaces Praveen Arjunan , Abhinanth Jayakumar*(College of Engineering Trivandrum), Gireeshkumaran Thampi B.S., Tide P.S. (Cochin University of Science and Technology), Niju Mohammed K., and Ranjth S. Kumar (College of Engineering Trivandrum) 4006	Effects of Inlet Temperature Ramp on Axial Compressor Stability Benhao Gu, Dakun Sun*, Xu Dong, Yibo Fang, Fangfei Ning, Lei Wu(Beihang University), Rui Liu, Manlu Li (Beijing Power Machinery Institute), and Xiaofeng Sun (Beihang University) 4016	Gasifier for Plastic Waste using High-temperature Superheated Steam Junpei Maruo, M. M. A. Alam*, and Osamu Yamada (Osaka Sangyo University) 4045

	Active Wake Control of a Bluff Body Using Incompressible Numerical Simulations Ananthu J.P.*, Prasanth P. Nair, and Vinod Narayanan (Indian Institute of Technology Gandhinagar) 4009	Effect of Bowed Stator Blade on Aerodynamic Performance of Low-speed Single-stage Axial Compressor Masanao Kaneko*(Tokyo Denki University), and Hoshio Tsujita (Hosei University) 4048	Heavy Oil to Light Oil and Syngas Integrated (OSI) Process Using Integrated Fluidized Bed System Yuming Zhang*, Qing'an Xiong, Wei Zhang, Jiazhou Li, and Yuming Zhang (China University of Petroleum) 4059
	Numerical Simulation for Prediction of Secondary Droplets by Water Droplet impingement on Thin Water Film using E-MPS Method Masataka Kaneshi*, Koji Fukudome, and Makoto Yamamoto (Tokyo University of Science) 4021	Flow Fields on Development Process of Diffuser Rotating Stall in a Centrifugal Compressor with Vaned Diffuser Momoko Naito*, Yutaro Suzuki, Nobumichi Fujisawa, and Yutaka Ohta (Waseda University) 4053	Effect of Nano Iron Particles on Self-Excited Thermal-Acoustic Oscillation in Rijke Tubes Liu Xiaokang, Wang Dongbin, Fang Shen, Yang Lijun, and Li Jingxuan*(Beihang University) 4075
	Prediction of Constitutive Stress for Viscoelastic Fluid Turbulence with LSTM Masaya Tashiro*, and Takahiro Tsukahara (Tokyo University of Science) 4023	Performance and Structural Analysis of a Centrifugal Compressor Operating with Moist Air Manu Prabha Anand*, Seongweon Hong, Jaemun Lee (Daejoo Machinery Co. Ltd.), Abhilash Suryan (College of Engineering Trivandrum), and Heuy Dong Kim (Andong National University) 4055	Effects of Finite Length Wedge on the Initiation Structure of Oblique Detonation Waves at Different Flight Mach Numbers Lin Zhou*(Beijing Institute of Technology), Haopin Xie, Yining Zhang (Beijing Power Machinery Institute), and Honghui Teng (Beijing Institute of Technology) 4106
	Different Transition Processes of Taylor–Couette–Poiseuille Flow Based on Modulated Wavy Taylor Vortex Yuki Matsukawa*, and Takahiro Tsukahara (Tokyo University of Science) 4028	Optimization of Impeller Backside Cavity in a Centrifugal Compressor Using the Design of Experiment Method Manu Prabha Anand*, Seongweon Hong, Jaemun Lee (Daejoo Machinery Co. Ltd.), Abhilash Suryan (College of Engineering Trivandrum), and Heuy Dong Kim (Andong National University) 4066	Research on the Effect of Distance on Natural Oscillation of Double Diffusion Flame Xuanye Liang*, Yue Zhang, Wei Hu, Lijun Yang, and Jingxuan Li (Beihang University) 4108
12:10~13:30	<b>Lunch</b>		

	<b>Fluid Dynamics 2</b> (Room B, 7th Floor) Chair: Ranjith S. Kumar (College of Engineering Trivandrum)	<b>Turbomachinery 2</b> (Room C, 7th Floor) Chair: Abhilash Suryan (College of Engineering Trivandrum)	<b>Multi-Phase Flows 1</b> (Room D, 7th Floor) Chair: Akimaro Kawahara (Kumamoto University)
13:30~15:00	Effect of Fluidic Diode on Performance of Unidirectional Impulse Turbine Doddamani Hithaish*, Abdus Samad (Indian Institute of Technology Madras), Manabu Takao, Shinya Okuhara (National Institute of Technology, Matsue College), and M.M. Ashraful Alam (Osaka Sangyo University) 4032	Effect of Circumferential Groove Casing Treatment on Internal Flow in a Centrifugal Compressor with Vaneless Diffuser Koshiro Tokuda*, Nobumichi Fujisawa, and Yutaka Ohta (Waseda University) 4082	Effects of Salinity on Carbon Dioxide Microbubble Dissolution into Water Akimaro Kawahara* and Yukihiro Yonemoto (Kumamoto University) 4001
	Study on Effect of Magnetic Field Intensity for Ionic Wind with a Needle-to-Mesh Configuration Ji Hong Chung*, Dong Kee Sohn, and Han Seo Ko (Sungkyunkwan University) 4049	Effect of Rotating Stall Development on Surge Behavior in an Axial Compressor Yuki Nishii*, Nobumichi Fujisawa, and Yutaka Ohta (Waseda University) 4085	Research on Capture Performance of an Induction Type Microplastics Recovery Device Tengen Murakami* and Wakana Tsuru (Saga University) 4005
	CNN-based Estimation of Scalar Diffusion Source Distance under Grid-generated Turbulence Shunsuke Someya*, Takahiro Ishigami, and Takahiro Tsukahara (Tokyo University of Science) 4054	Optimization Design of a Transonic Rotor in a Multistage Axial Compressor Xiaochen Wang*, Xiaodong Ren, Xuesong Li (Tsinghua University), Hong Wu, Chunwei Gu (China United Gas Turbine Technology Co. Ltd.) 4114	Analysis of Wave Converging Phenomena inside the Shocked Two-Dimensional Cylindrical Water Column Sheng Xu, and Bing Wang* (Tsinghua University) 4007
	Theoretical and Computational Analyses of Compressible Flows in Ranque-Hilsch Vortex Tube Kannan Shaji*, Jong-Min Kim, Dong-In Lee (Daejoo Machinery Co. Ltd.), Kangki Lee (AVL List GmbH), and Heuy Dong Kimi (Andong National University) 4060	Effect of Pre-swirling Flow on Performance and Flow Fields in Semi-opened Axial Fan Norimasa Shiomi*(Saga University), Pin Liu (National Institute of Technology, Matsue College), and Yoichi Kinoue (Saga University) 4041	Experimental Study on the Stability and Breakup of a Planar Liquid Sheet under a Standing Wave Acoustic Field Bo-qi Jia*(Beijing Jiaotong University), and Qing-Fei Fu (Beihang University) 4015
	Flow Pattern of Rotating Plane Couette Flow at Low Reynolds Number with	Quasi-3D Transient Performance Simulation of Gas Turbine Engine Based on	Influence of Flow Topology on the Instability and Atomization of

	<p>Viscoelastic Fluid Takumi Takahashi*, Tomohiro Nimura, and Takahiro Tsukahara (Tokyo University of Science) 4065</p>	<p>Volume Dynamic Model Dai Yuchen*, Jin Donghai, Song Manxiang, and Gui Xingmin (Beihang University) 4052</p>	<p>Liquid Jet Dongqi Huang, Wang Han*, Lijun Yang, and Jingxuan Li (Beijing University of Aeronautics and Astronautics) 4104</p>
	<p>Effect of Multistep and Heat Transfer Coefficient Model on Super-cooled Large Droplet Icing on NACA0012 Airfoil Youxin Lei*, Koji Fukudome, and Makoto Yamamoto (Tokyo University of Science) 4080</p>	<p>Modeling and Analysis of the Inlet Circumferential Fluctuations in Swept Blade Jiancheng Zhang*, Donghai Jin, and Xingmin Gui (Beihang University) 4079</p>	<p>The Effects of Wall on Single Droplet Dynamics in Low Weber Number Region under Cryogenic Conditions Xin Jin*, and Bing Wang (Tsinghua University) 4026</p>
15:00~15:20	<b>Coffee Break</b>		
	<p><b>Fluid Dynamics 3</b> (Room B, 7th Floor) Chair: Takahiro Tsukahara (Tokyo University of Science)</p>	<p><b>Supersonic and Transonic Flows 1</b> (Room C, 7th Floor) Chair: Hiromasa Suzuki (Tokyo Metropolitan College of Industrial Technology)</p>	<p><b>Multi-Phase Flows 2</b> (Room D, 7th Floor) Chair: Norimasa Shiomi (Saga University)</p>
15:20~16:35	<p>Numerical Investigation of Performance Enhancement for Thermo-Electric Generator System with RSM-Based Optimization of HX Fin Shape Jun-Beom Park*(Gachon University), Jae-Gwan Kim (Samsung Heavy Industries), Hyung-Eui Lee (LG Innotek), and Jae-Ho Jeong (Gachon University) 4087</p>	<p>Effect of Hot Steam Injection into the Low-Pressure Stage of Steam Turbine Samaneh Masoumi, Esmail Lakzian*, Fahime Salmani (Hakim Sabzevari University), and Heuy Dong Kim (Andong National University) 4017</p>	<p>Numerical Investigation of Cavitating Flow around a Hydrofoil Considering Advection-Diffusion and Precipitation of Dissolved Gas in Liquid Yoshihito Higa*, Ryo Iida, Shin-ichi Tsuda and Satoshi Watanabe (Kyushu University) 4046</p>
	<p>Effects of Model Shape of Hemispheric-Head Cyclone Separator on Collection Performance Shomaru Fukuzato1, Kousuke Nusu, Yuuki Tanaka, Yamada Kazuyoshi, Mizue Munekata*, Hiroyuki Yoshikawa (Kumamoto University), Kenji Ono (Kyushu University), and Takashi</p>	<p>Study on Collision Process of Opposing Unsteady Supersonic Jets and Shock Waves Sakira Uno*, Hiroshi Fukuoka, Atsushi Suda (National Institute of Technology, Nara College), and Ikurou Umezu (Konan University) 4027</p>	<p>Evolution of Cryogenic Cavitation Flows through a Butterfly Valve Weiwei Wang*, Xuan Wu (Zhejiang Sci-Tech University), Heuy-Dong Kim (Andong National University), and Guang Zhang*(Zhejiang Sci-Tech University) 4084</p>

	Watanabe (Shizuoka Plant) 4089		
	Hydrodynamics of a Partially Slipping Circular Cylinder in a Uniform Flow K. Nandakumar Chandran, Dijo George Biju, Adarsh R. Nair, and Ranjith S. Kumar*(College of Engineering Trivandrum) 4096	Very Large Eddy Simulation of Supersonic Mixing Layers and Jet to Crossflow Shaojie Shi*, and Xingsi Han (Nanjing University of Aeronautics and Astronautics) 4038	Investigation of Cavitation Evolution through a Butterfly Valve Model under Different Regulating Conditions Haodian Zhang, Zeyong Wu, Kai Wang (Zhejiang Sci-Tech University), Heuy Dong Kim (Andong National University), and Guang Zhang*(Zhejiang Sci-Tech University) 4098
	Research on Scalar Source Search by Physics-Informed Neural Network and a Robot with a Sensor Ryo Onishi*, Takahiro Tsukahara (Tokyo University of Science), Dominik Henzel, Takayuki Osawa, and Yosuke Hasegawa (The University of Tokyo) 4118	Experimental Observation of Collision Process between Converging Shock Wave and Supersonic Jet Keitaro Deyama*, Hiroshi Fukuoka, Atsushi Suda, and Shigeto Nakamura (National Institute of Technology, Nara College) 4058	Research on Collision and Rebound between Particle and Dry Moving Wall Zhe Lin*, Haoran Liu, Shengzhong Chi, and DeSheng Chen (Zhejiang Sci-Tech University) 4100
	Inter- and Extra-Polations of Source Estimation by CNN to Identify a Scalar Point Source in Turbulent Channel Flow Toshiyuki Kurihara*, Takahiro Ishigami, and Takahiro Tsukahara (Tokyo University of Science) 4119	Analysis of the Oscillatory Flows of Multiple Shock Waves in a Constant Area Duct Jintu K James* and Heuy Dong Kim (Andong National University) 4123	Study on the Characteristics of Particle Accumulation in the Groove of Particle Gas Two-Phase Flow Pipeline Zhe Lin*, Yanghao Mao, Qi Liu, and Zhenxing Liu (Zhejiang Sci-Tech University) 4101
17:30~19:00	<b>International Organizing Committee (IOC) Meeting</b> (Room Kegon, 3 <sup>rd</sup> Floor)		

## 29 November (Tue.)

	<b>Plenary Lecture</b> (Room A, 11th Floor) Chair: Makoto Yamamoto (Tokyo University of Science)
9:00~11:00	Streamwise Traveling Wave-like Control for Wall Turbulence Hiroya Mamori (The University of Electro-Communications, Japan)
	Aerospike Nozzles for Reusable Launch Vehicles: Prospects and Possibilities Abhilash Suryan (College of Engineering, Trivandrum, India)
	The Mechanism and Control of Combustion Instability in Aero-Engines Yuzhen Lin (Beihang University, China)
11:00~12:20	<b>Lunch</b>
12:20~17:40	<b>Workshop Tour to Nikko</b> 12:20 Departure from the hotel 13:40~16:40 Visit Toshogu Shrine and Kegon fall 17:40 Arrival at the hotel
18:00~20:00	<b>Banquet</b> (Room A, 11th Floor)

## 30 November (Wed.)

	<b>Transonic and Supersonic Flows 2</b> (Room B, 7th Floor) Chair: Masashi Kashitani (National Defense Academy of Japan)	<b>Turbomachinery 3</b> (Room C, 7th Floor) Chair: Satoshi Watanabe (Kyushu University)	<b>Engine and Propulsion System</b> (Room D, 7th Floor) Chair: Minoru Yaga (University of the Ryukyus)
9:00~10:20	Study of Rectangular Underexpanded Microjets Shota Yoshimi*, Shinichiro Nakao, and Yoshiaki Miyazato (The University of Kitakyushu) 4062	Numerical Investigation of Pressure Fluctuation Due to Blade Rows Interaction in Contra-Rotating Axial Flow Pump by DDES Simulation Guitao Zeng*, Satoshi Watanabe, and Shin-ichi Tsuda (Kyushu University) 4036	Design and Performance Analysis of - Fuel Cell Internal Combustion Engine Hybrid Power System with Ammonia Bo Li*, Chan Ha, Cong Wang, and Jiang Qin (Harbin Institute of Technology) 4030
	Study of Shock Train Oscillations in Square Ducts Takato Inadomi*, Shinichiro Nakao, and Yoshiaki Miyazato (The University of Kitakyushu) 4064	Analysis of Internal Flow and Entropy Production Characteristics on a LNG Cryogenic Submerged Pump Baoling Cui, Yinchu An*(Zhejiang Sci-Tech University), Lilong Sun, and Lidong Sun (Hangzhou New-Asia Cryogenic Science & Technology Co.) 4043	Energy Efficient Drive for a Single-Phase Induction Motor on the Basis of THD Anuroopa A.*(ACE College of Engineering Thiruvananthapuram), Sujatha Therese (Noorul Islam Centre for Higher Education), and Biju K.S. (College of Engineering Trivandrum) 4121
	Development of Virtual Optical Waveguide: Effect of Flatness Ratio of Open Elliptical on High-Pressure Area by 3D Numerical Calculation Nitta Tetsuro*, Ikeyama Tetsuro, Fukuoka Hiroshi, Suda Atsushi (National Institute of Technology, Nara College), Ishijima Ayumu, and Nakagawa Keiichi (University of Tokyo) 4071	Slit Angle Effect of the Diffuser Vane on the Diffuser Rotating Stall Onset in a Centrifugal Pump Dai Iwasaki*, Sota Nakayama (Osaka Institute of Technology), Shinichi Konno, Shinichiro Ejiri (Nikkiso Co., Ltd.), and Masahiro Miyabe (Osaka Institute of Technology) 4117	Study on Three-Dimensional Rectangular Shock-Induced Thrust Vector Nozzle Utilizing a Novel Mass Flow Bypass Kexin Wu, Zhao Li (Zhejiang Sci-Tech University), Arun Kumar Rajagopal (India Institute of Technology Jodhpur), Heuy Dong Kim (Andong National University), Abhilash Suryan (College of Engineering, Trivandrum), Minoru Yaga (University of the Ryukyus), Wenjie Fang (Zhejiang Sci-Tech University), and Ruoyu Deng*(Tongji University) 4116
	A Study on Underexpanded Radial Jet Impinging on Cylindrical Inner Wall Satoshi Yamazaki*, Masaki Endo, and Yoko	Investigation on Effects of Circumferential Casing Groove on Turbine Aerodynamic Performance and Tip Leakage	Flow-Field Reconstruction in Rotating Detonation Chamber based on PINN Xutun Wang, Haocheng Wen, and Bing

	Sakakibara (Tokyo Denki University) 4081	Characteristics Weiqi Li*, Zhi Tao, Liming Song, Jun Li, and Zhenping Feng (Xi'an Jiaotong University) 4014	Wang*(Tsinghua University) 4033
	Fluctuation of Force Acting on Flat Plate by Underexpanded-Jet Impingement Kono Tatsuya*, Masaki Endo, Yoko Sakakibara (Tokyo Denki University), and Hiromasa Suzuki (Tokyo Metropolitan College of Industrial Technology) 4091	Investigation of Flow Characteristics in Axial Rim Seal for Turbine Stages Ran Ren*, Qiang Du, Guang Liu, Zeng Yan Lian, Lei Xie, and Ya Guang Xie (Chinese Academy of Sciences) 4037	On the Pressure Gain Characteristics of Rotating Detonation Engines Haocheng Wen*, and Bing Wang (Tsinghua University) 4034
	Effects of Nozzle Lip Thickness on Oscillation Phenomena of Underexpanded Impinging Jet Ryunosuke Tadokoro*, Yoko Sakakibara, Masaki Endo (Tokyo Denki University), and Hiromasa Suzuki (Tokyo Metropolitan College of Industrial Technology) 4105	Numerical Analysis on Bi-Directional Impulse Turbine and Spiral Flow Collector for Tidal Energy Conversion (Effect of Vane Skew Angle) Masaki Sakaguchi*, Yoichi Kinoue, Wakana Tsuru, Tengen Murakami, Norimasa Shiomi, Yasutaka Imai, Shuichi Nagata (Saga University), and Manabu Takao (National Institute of Technology, Matsue College) 4056	Numerical Study on the Effect of Divergent Angle of Passive Struts on the Mixing of Scramjet Combustor Prasanth P. Nair*(Indian Institute of Technology Gandhinagar), Abhilash Suryan (2College of Engineering Trivandrum), and Vinod Narayanan (Indian Institute of Technology Gandhinagar) 4008
10:20~10:40	<b>Coffee Break</b>		
	<b>Transonic and Supersonic Flows 3</b> (Room B, 7th Floor) Chair: Hiroshi Fukuoka (National Institute of Technology, Nara College)	<b>Turbomachinery 4</b> (Room C, 7th Floor) Chair: Makoto Yamamoto (Tokyo University of Science)	<b>Measurement 1</b> (Room D, 7th Floor) Chair: Shumpei Hara (Doshisha University)
	A Study on Interaction Process between Shock Wave and Inclined Block Ryohei Shimada*, Yoko Sakakibara, and Masaki Endo (Tokyo Denki University) 4107	Experimental Study of Counter-rotating Impulse Turbine for Wave Energy Conversion -Effect of Middle Vane on the Performance- Koichiro Suto*, Toi Ogawa, Manabu Takao (National Institute of Technology, Matsue College), Ashraful Alam (Osaka Sangyo	Visualization of Entropy Waves in the Rijke Tube Using Highspeed Schlieren Jiangge Deng*, Ting Li, Jinkui Wang, and Chicheng Gao (Beihang University) 4012



		University), Shinya Okuhara (National Institute of Technology, Matsue College), Yoichi Kinoue, and Toshiaki Setoguchi (Saga University) 4069	
	Relation between Cellular Structure of Underexpanded Radial Jet and Curvature Effect of Slit Nozzle Tatsuya Ohkawa*, Yoko Sakakibara, Masaki Endo (Tokyo Denki University), and Hiromasa Suzuki (Tokyo Metropolitan College of Industrial Technology) 4109	Proposal of Design Method for Large Tidal Current Turbine Incorporating Cavitation Occurrence Wakana Tsuru*, Masaki Sakaguchi, Tengen Murakami, Norimasa Shiomi, and Yoichi Kinoue (Saga University) 4072	Application of Pressure-Sensitive Paint Measurement Technology in Pressure Measurement of Cascade Blade surface Lei Xiangfu*, Gao Limin, Chang Longrui, Yang Guanhua, and Mao Xiaochen (Northwestern Polytechnical University) 4035
10:40~12:10	Study of Elliptic Underexpanded Sonic Jets Tatsuya Nagata*, Shinichiro Nakao, and Yoshiaki Miyazato (The University of Kitakyushu) 4061	Sail Wing Turbine for Wave Energy Conversion -Effect of Guide Vane Solidity- Yuki Ito*, Hiroki Iitsuka, Manabu Takao, Shinya Okuhara (National Institute of Technology, Matsue College), Hayato Taniguchi, and Shinichiro Matsuura (Taniguchi Shokai Co., Ltd.) 4067	Measurement of Fluid Friction Acting on Flat Plate Takamitsu Fujino*, Masaki Endo (Tokyo Denki University), Hiromasa Suzuki (Tokyo Metropolitan College of Industrial Technology), and Yoko Sakakibara (Tokyo Denki University) 4078
	FSI Analysis of the Shock Wave Impinging on a Solid Body in a Simple Shock Tube Jayabal Rajasekar, and Heuy Dong Kim*(Andong National University) 4019	Wind Tunnel Experiments on Interaction between Three Vertical-Axis Wind Turbines Arranged in Tandem Yoshifumi Jodai*(National Institute of Technology, Kagawa College), and Yutaka Hara (Tottori University) 4051	Experimental and Computational Investigations of Flow and Fuel/Air Mixing in a Heavy Gas Turbine DLN Combustor Yuan Feng*, Xuesong Li, Xiaodong Ren, Chunwei Gu (Tsinghua University), Xuan Lv, Shanshan Li, and Ziye Wang (China United Gas Turbine Technology) 4083
	Effect of Multi-layered Piezo Ceramic Actuator on Transonic Flow Toshiki Kimura*(University of the Ryukyus), Sanjeev Kumar Mall (Mayekawa Mfg. Co. Ltd.), and Minoru Yaga (University of the Ryukyus) 4120	Simulation of High-Speed Rotating Annulus and Fuel Slinger Zhixun Wang*, Feng Gao (Beihang University), Kehui Liu (Beijing Power Machinery Institute), and Xiaofeng Sun (Beihang University) 4073	Preliminary Study for Flow Field Diagnostics Using a Light Field Camera Masashi Kashitani*, Masato Taguchi, Kohei Tuji (NDA), Shinichiro Nakao, and Yoshiaki Miyazato (The University of Kitakyushu) 4097

	Characteristics of Oblique Detonation Waves in a Confined Space Induced by Inflow Mach Number Variation Shuzhen Niu*(Beijing Institute of Technology), Pengfei Yang (Peking University), Kuanliang Wang, and Honghui Teng (Beijing Institute of Technology) 4024		Measurement of Velocity Field around Irreversible Flow-Induced Structure Gel Formed by Jet Hole with Mesh Shin Hirota*, and Shumpei Hara (Doshisha University) 4110
12:10~13:30	<b>Lunch</b>		

	<b>Aerodynamics</b> (Room B, 7th Floor) Chair: Ashraful Alam (Osaka Sangyo University)	<b>Heat and Mass Transfer 1</b> (Room C, 7th Floor) Chair: Koji Fukudome (Tokyo University of Science)	<b>Measurement 2 and Renewable Energy</b> (Room D, 7th Floor) Chair: Mitsumasa Iino (Ashikaga University)
13:30~15:00	Numerical Analysis of High-speed Flow around a Double-delta Wing Yosuke Shiromoto, M. M. A. Alam*(Osaka Sangyo University), and Manabu Takao (National Institute of Technology, Matsue College) 4042	Effect of Groundwater Flow on Horizontal Ground Heat Exchanger Koutaro Tsubaki*, and Retsu Harada (Saga University) 4122	Reconstruction of the 3D Temperature Field of Flame under Different Equivalence Ratio by Background Oriented Schlieren Tomography Yue Zhang, Xuanye Liang, Wei Hu, Lijun Yang, and Jingxuan Li*(Beihang University) 4113
	Molecular Dynamics Study on Accommodation Coefficients for Rarefied Gas and Rough Surface Zhan Gao*, Weitao Sun, and Bing Wang (Tsinghua University) 4044	Natural Convection Melting in a Rectangular Heat Storage Tank of Carbon Nanotube Dispersed Latent Heat Storage Material Shin-ichi Morita*, Toshihiro Haniu, Kazunori Takai (Kitami Institute of Technology), Yasutaka Hayamizu (National Institute of Technology, Yonago College), and Naoto Haruki (Okayama Prefectural University) 4002	Pressure Pulse Wave Morphology for Continuous Blood Pressure Estimation Agnes Jinu, and Biju K.S.*(College of Engineering Trivandrum) 4115
	A Novel Multi-Fidelity Surrogate for Turbomachinery Cascade Optimization Qineng Wang, Zhendong Guo, Liming Song*, Jun Li, and Zhenping Feng (Xi'an Jiaotong University) 4074	Comparison of Diffusiophoretic and Diffusioosmotic Dynamics between Constant and Variable Zeta Potential Models Saebom Lee*, Jinkee Lee (Sungkyunkwan University), and Jesse T. Ault (Brown University) 4003	Application of the Compressed Sensing (CS) Method on Endwall Pressure Virtual Measurements of a Linear Turbine Cascade Yi Yang*, and Hongwei Ma (Beihang University) 4102
	GAN and DNN Based Deep Learning Technology Development to Predict Vortical Flow Fields and Aerodynamic Performance for Wind Turbine Blade Airfoils	Analysis of Parabolic Trough Collector Performance Enhancement Using Nanofluids Pradeep Arjunan*, Joselin Herbert G.M.	Numerical Modelling of Double Slit Caisson Breakwater Integrated Oscillating Water Column Wave Energy Converter with Modal Superposition Method

	Han-Seop Song*, and Jae-Ho Jeong (Gachon University) 4086	(College of Engineering Trivandrum), and Praveen Arjunan (Cochin University of Science and Technology) 4013	Mitsumasa Iino*, and Hisashi Endo (Ashikaga University) 4022
	On the Performance Enhancement of Fibrous Filter for Removal of Oil Mist Droplets Feng Chen*, Qixin Ba, Wenchao Lu, Wenhan Yu, and Zhongli Ji (China University of Petroleum) 4111	A New Method for Unsteady Heat Conduction Forward and Inverse Problems by Deep Operator Network (DeepONet) Jing Liu*(Chinese Academy of Sciences), Shi Liu (North China Electric Power University), and Guoqiang Liu (Chinese Academy of Sciences) 4018	Comparative Study of the Reanalysis and Instrument Data for Wind Energy Potential Assessment of Southwest Region in India Suresh Lal S.R.*, and Joselin Herbert G.M. (Noorul Islam Center for Higher Education) 4010
		Micro T-mixer with Baffles: Effect of Baffle Height and Setting Angle on Mixing Taichi Hirano*, Yasutaka Hayamizu (National Institute of Technology, Yonago College), M.M.A. Alam (Osaka Sangyo University), Takuya Masuda, Tatsuki Hamada (National Institute of Technology, Yonago College), Shinichi Morita (Kitami Institute of Technology), and Manabu Takao (National Institute of Technology, Matsue College) 4040	Integrated Load Analysis of 20MW Super- capacity Wind Turbine Generator System SeongChul Park*(Gachon Univeristy), RaeHyoung Yuck (University of Ulsan), Kwangtae Ha (Samsung Heavy Industries), and JaeHo Jeong (Gachon University) 4011
15:00~15:20	<b>Coffee Break</b>		
	<b>Unsteady Flows</b> (Room B, 7th Floor) Chair: Naoya Fukushima (Tokai University)	<b>Heat and Mass Transfer 2 and Flow Control</b> (Room C, 7th Floor) Chair: Hiroya Mamori (The University of Electro-Communications)	<b>Acoustics</b> (Room D, 7th Floor) Chair: Hiromasa Suzuki (Tokyo Metropolitan College of Industrial Technology)
	Low-dimensional Dynamic Representation of Unsteady Flow Using Convolutional Neural Network Yosuke Shimoda* and Naoya Fukushima (Tokai University) 4124	Thermal In-Orbit Performance and Evaluation of Multi-Staged Passive Radiant Cooler with Sun-Shield Configuration Variation Sankalp Vishnoi*(Indian Institute of Space	Effect of Heat Source Distribution on Thermoacoustic Instability Using Percolation Theory Bosheng Pang*, Jiale Liu, Lijun Yang, and Jingxuan Li (Beihang University) 4099

		Science and Technology), Subramanya (UR Rao Satellite Centre), and Pradeep Kumar (Indian Institute of Space Science and Technology) 4057	
15:20~16:50	Very Large Eddy Simulation of Unsteady Flow around Undersea Vehicle at Large Angle of Attack Xuan Liu*, and Xingsi Han (Nanjing University of Aeronautics and Astronautics) 4039	Investigation of Electrohydrodynamic Droplet Generation for Application In Cryo-EM Sample Deposition Zahra*, Seongsu Cho, Kuldeep Baghel, and Jinkee Lee (Sungkyunkwan University) 4063	Effect of Disturbance Velocity on Impingement Tone Kosuke Sasaki*, Masaki Endo, Yoko Sakakibara (Tokyo Denki University), and Hiromasa Suzuki (Tokyo Metropolitan College of Industrial Technology) 4077
	Study on Unsteady Flow and Heat Transfer Characteristics of Two Parallel Flat Plates Junyu Tao, Zhe Lin* and Dongrui Wang (Zhejiang Sci-Tech University) 4103	Numerical Simulation on the Heat Transfer inside CO2 Methanation Reactor and Micro Fluidized-Bed Reactor Wei Zhang*, YuMing Zhang, JiaZhou Li (China University of Petroleum-Beijing), and Koyo Norinaga (Nagoya University) 4088	Reduction of Aerodynamic Noise radiated from Multicopter Natuki Iishida*, Hiroki Harada, Hiromitsu Hamakawa, and Eru Kurihara (Oita University) 4070
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	Power Characteristics and Flow Visualization in Reciprocating Agitator in the Turbulence of a Viscoelastic Fluid Shu Sato* and Shumpei Hara (Doshisha University) 4112	Control Effect of Porous Layer of Foam Metal on Cavitating Flow around a Hemisphere Cylinder Feipeng Yu*, Yigan Zhang, Ziyu, Qi, and Huaping Liu (Huazhong University of Science and Technology) 4031	The inhibition Effect of Dispersed Particles on Thermo-Acoustic Combustion Instabilities in Solid Rocket Motors Wenqi Fan*(Tsinghua University), Shixiang Ji (China North Industries Group Corporation), Bing Wang, and Jiachen Wei (Tsinghua University) 4050
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