ASME - JSME - KSME Fluids Engineering Division

AJKFED 2023

Program

9-13 July 2023

Osaka International Convention Center (Grand Cube Osaka)

Rihga Royal Hotel Osaka

Organized by

The Japan Society of Mechanical Engineers

Fluids Engineering Division

Supports

FEDs of ASME and KSME

Osaka Convention & Tourism Bureau

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流体解析ソフトウェア

Advance/FrontFlow/red

大規模・並列計算を低コストで実現する
カスタマイズ性の高い国産ソフトウェア

特徴

- CPU並列に依存しない価格設定のため低コストで大規模計算が実現可能です
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- 自社開発しているため細かいカスタマイズのご要望にも素早く対応します

沸騰・気泡上昇の解析事例

二相流、燃焼・化学反応、複雑形状等
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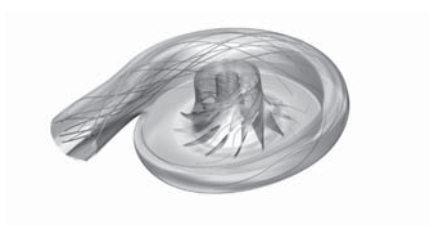
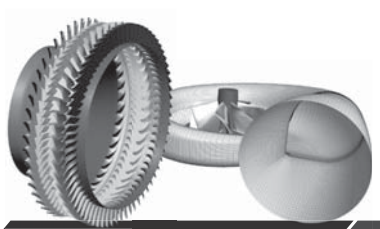
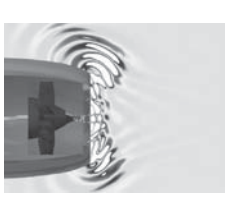
・Non-Linear Harmonic method to accelerate multistage case computation
・Covegence acceleration by CPU Booster



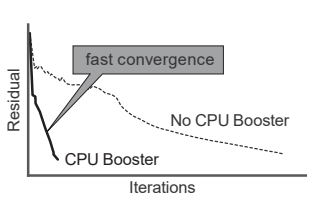


For any turbo configuration



Noise propagation analysis by NLH and FW-H

Variety of physical models



×10 acceleration by CPU Booster

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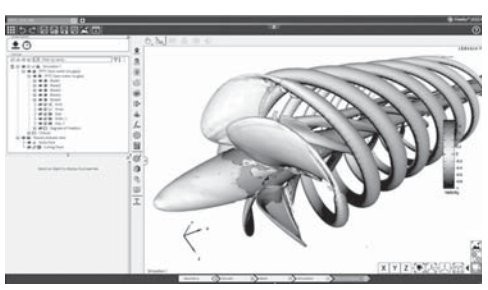
・Automatic generation of full hexa multi-block structured mesh with predefined templates and wizard



Automatic mesh generators package

Fidelity Automesh

・Generates high quality full hexa, hex-dominant and hybrid (Hexa, Prism, Pyramid, Hybrid) mesh from unclean big CAD data

Multi-fidelity solvers for structured and unstructured mesh

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3D Design Optimization Tool for Turbomachinery

Fidelity Optimization

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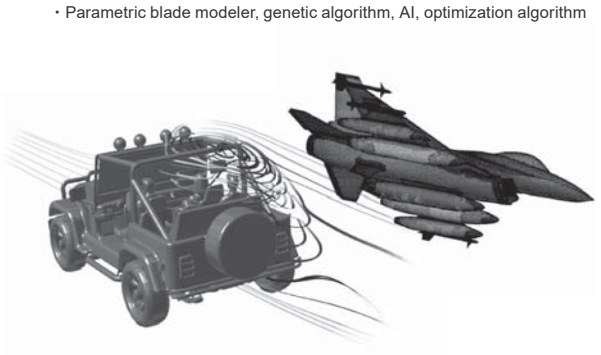

cadence

Cadence Design Systems, Japan www.cadence.com/jp

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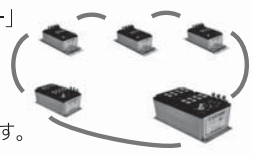

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memorandum

Conference Information

- Abstract download (snapshot: zipped PDFs)
  https://ajk2023-fed.org/download.html
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- Abstract download (individual files)
  https://ajk2023-fed.org/program.html
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- Free Wi-Fi Connection (convention center)
  SSID: ***** Password: *****
- Banquet
  Time: Tuesday (Day 2) 18:00－21:00
  Place: Rihga Royal Hotel Osaka (see below; venue opens at 17:30)
- Lunch box
  Provided at Foyer of 12th Floor (in exchange with the ticket) from 11:30 to 14:00
- Break rooms
  Conference hall (12th Floor), Rm No. 803 and 804 (8th Floor), 701 and 702 (7th Floor)
- Prayer room
  Available at 11th Floor (See page 5)
- Power outlet
  Available in all rooms

snapshot download

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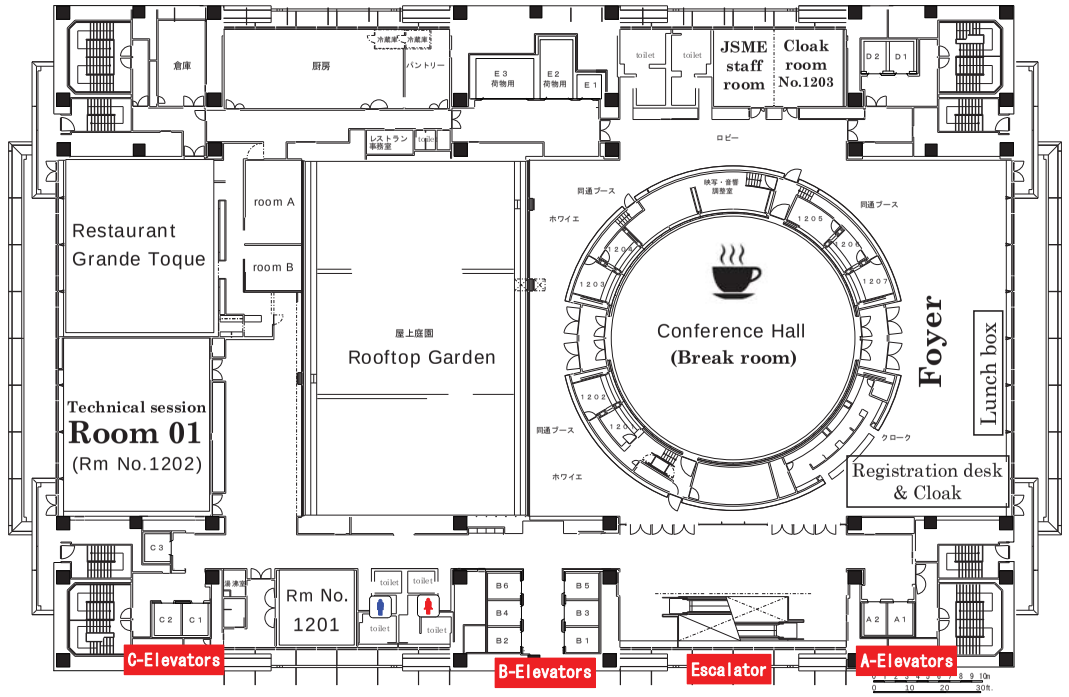
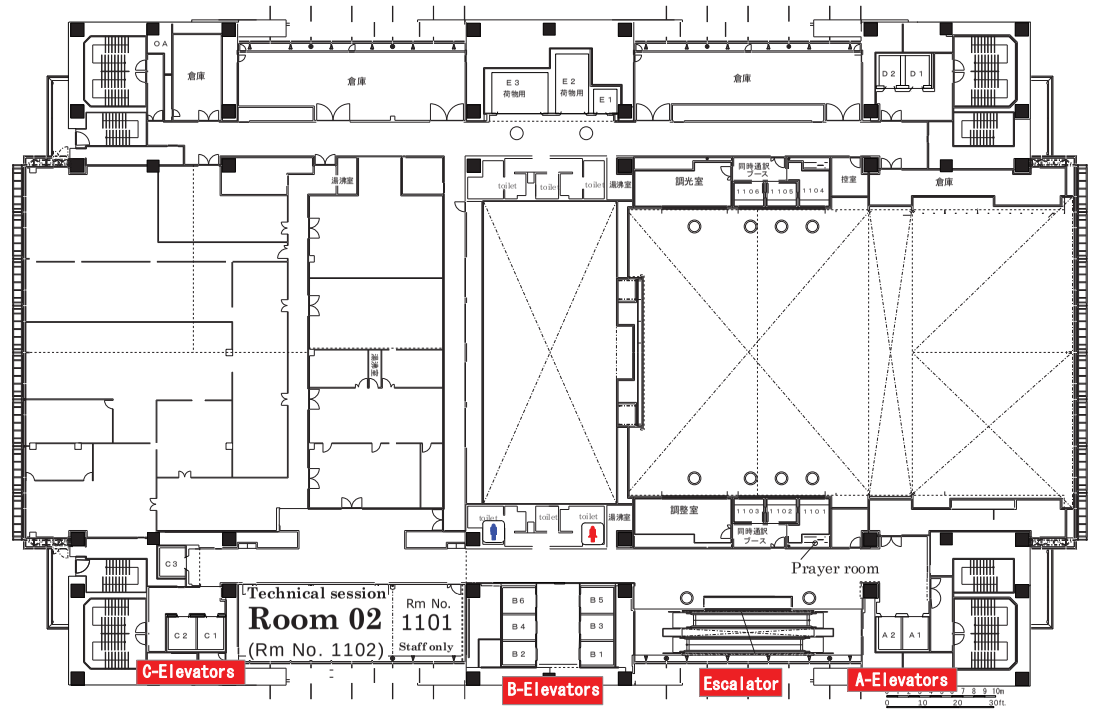
12th Floor

S=1/400



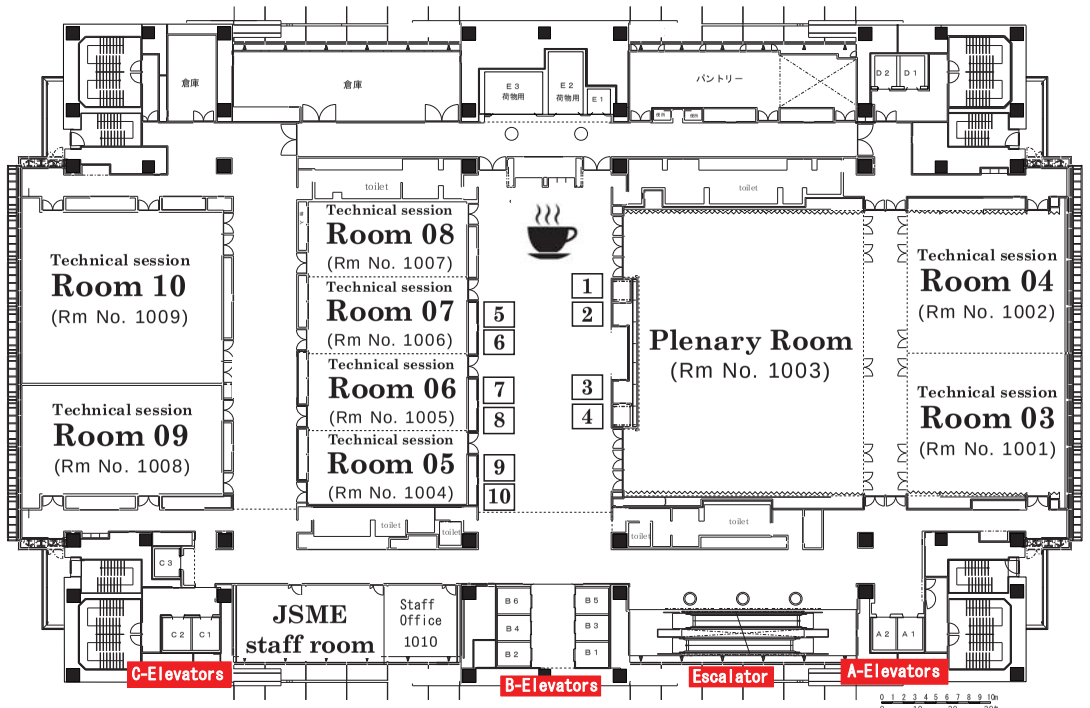
11th Floor

S=1/400



10th Floor

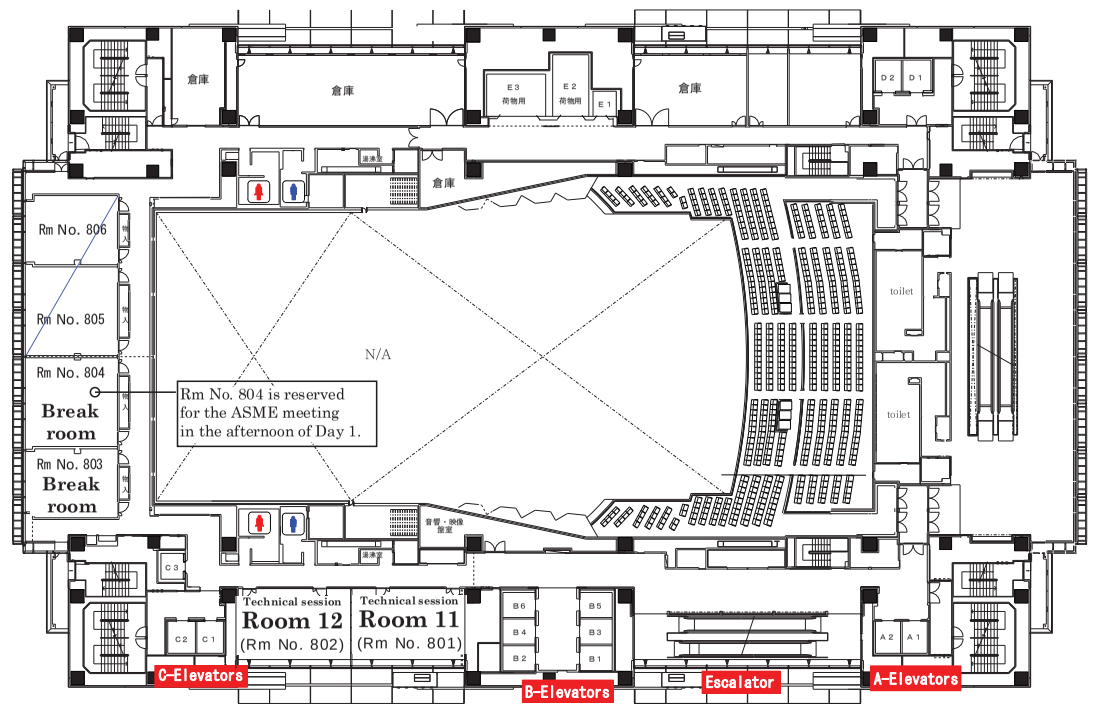
S=1/400



1～10 : Exhibition Booth

8th Floor

S=1/400



7th Floor (map not shown here)

There are two break rooms, Rm No. 701 and 702, located below Technical Session Rooms 11 and 12.

Program

Overall Time Table for Sessions and Events

All plenary and technical sessions will be held at Osaka International Convention Center.

2023/07/09 Sun											16:00-		18:00-20:00	
											Registration **Rihga Royal Hotel Osaka, 3rdF**		**Reception** **Rihga Royal Hotel Osaka, 3rdF**	
											← ← ← ← Registration desk is open until 20:00 → → → →			

2023/07/10 Mon **Day 1**	8:10-8:40		8:40-9:40	Coffee break (10,12F)	10:00-12:00	**Lunch time**	13:20-14:20	Coffee break (10,12F)	14:40-16:40		17:00-19:00	
	Opening session 10thF, Plenary room		Plenary session (page 8) 10thF, Plenary room		Technical sessions (page 12) 8th-12thF, 12 rooms		Plenary session (page 8) 10thF, Plenary room		Technical sessions (page 13) 8th-12thF, 12 rooms		Technical sessions (page 14) 8th-12thF, 12 rooms	
	Registration (Osaka International Convention Center, 12thF Foyer)											

2023/07/11 Tue **Day 2**	8:00-9:00		9:00-10:00	Coffee break (10,12F)	10:20-12:00	**Lunch time**	13:20-14:20	Coffee break (10,12F)	14:40-16:40		16:40-17:30		18:00-21:00	
	Plenary session (page 9) 10thF, Plenary room		Plenary session (page 9) 10thF, Plenary room		Technical sessions (page 15) 8th-12thF, 12 rooms	※	Plenary session (page 9) 10thF, Plenary room		Technical sessions (page 16) 8th-12thF, 12 rooms		JSME Award session Plenary room		**Banquet** **Rihga Royal Hotel Osaka, 3rdF** (Banquet venue opens at 17:30)	
	Registration (Osaka International Convention Center, 12thF Foyer)													

2023/07/12 Wed **Day 3**	8:00-9:00		9:00-10:00	Coffee break (10,12F)	10:20-12:00	**Lunch time**	13:20-14:20	Coffee break (10,12F)	14:40-16:20		16:40-18:40	
	Plenary session (page 10) 10thF, Plenary room		Plenary session (page 10) 10thF, Plenary room		Technical sessions (page 17) 8th-12thF, 12 rooms		Plenary session (page 10) 10thF, Plenary room		Technical sessions (page 18) 8th-12thF, 12 rooms		Technical sessions (page 19) 8th-12thF, 12 rooms	
	Registration (Osaka International Convention Center, 12thF Foyer)											

2023/07/13 Thu **Day 4**	8:00-9:20	Coffee break (10,12F)	9:40-11:00		11:00-12:00	**Lunch time**	13:20-15:00		15:10-15:30	
	Technical sessions (page 20) 8th-12thF, 12 rooms		Technical sessions (page 21) 8th-12thF, 12 rooms		Plenary session (page 11) 10thF, Plenary room		Technical sessions (page 22) 8th-12thF, 12 rooms		Closing session 10thF, Plenary room	
	Registration (Osaka International Convention Center, 12thF Foyer)									

Event(s): ※ **Day 2, noon-1pm : ASME town hall meeting** @ Technical session room 10 (10thF); All conference participants are welcome.
Lunch box is provided at Foyer of 12th Floor (in exchange with the ticket) from 11:30am to 2pm.

Plenary Lectures : Day 1, 10 July

1-PL-1, 8:40-9:40
Speaker: Prof. Doyoung Byun (Sungkyunkwan University)
Title: Multi-physics of electrohydrodynamic jet and application to printing technology for electronics manufacturing

Abstract: Recently, as the technology and market for printing-based devices continue to grow, the demand for high-resolution printing technology has rapidly increased. Solution-based inkjet printing fabrication processes have advantages of rapid and large-area fabrication, low cost, and easy tunability. The electrohydrodynamic (EHD) inkjet printing method is one of the advanced printing techniques that has been suggested as an alternative. The EHD jet printing uses a force balance of electrical force and fluid dynamics to control jetting phenomena. This allows for smaller droplet generation than the nozzle size and ejection of a wide range of ink viscosity. Due to these advantages, more precise and smaller patterning of different materials, such as silver or quantum dot (QD) inks in microscales, is possible. In this talk, the successful contribution of EHD inkjet technology for OLED and micro-LED display development will be introduced. Ones could fabricate the bond-pads for transferring chips and repair the electrodes of display panels. Ones also could make uniform small dots of QDs. Based on fundamental studies of EHD inkjet printing mechanism and ink materials, EHD inkjet printhead and printing system have been developed, which show high performance of high-resolution printing and high production capability. Here, the research on EHD inkjet printing is reviewed, including the basic multi-physics and wide applications in electronics and displays.

Chairperson: Prof. Han Seo Ko (Sungkyunkwan University)

1-PL-2, 13:20-14:20
Speaker: Prof. Fotis Sotiropoulos (Virginia Commonwealth University)
Title: Tackling real world fluid flow problems via numerical simulations: from aquatic swimming and heart valves to river flooding and wind energy

Abstract: Simulation-based engineering science has emerged as a powerful approach for tackling the major societal problems of our time related to human health, environmental sustainability, and renewable energy. Fluid mechanics problems frequently at the center of many of these challenges are often so complex that simulation-based research is the only viable approach for tackling them. Examples include: understanding disease promoting blood flow patterns in the human heart, developing innovative bioinspired swimming robots, assessing and mitigating the risk of extreme flooding in waterways, and optimizing systems for harnessing renewable energy from wind, currents, and waves. Accurate numerical simulation of such flows poses a formidable challenge to even the most advanced computational methods available today. In this talk I will discuss the advances we have made in my group over the last two decades to develop a powerful high-fidelity computational framework, the Virtual Flow Simulator (VFS), which can: handle arbitrarily complex geometries encountered in real-life applications; simulate fluid-structure interaction for rigid and flexible bodies; account for two-phase flows and free surface effects; and carry out large-eddy simulations (LES) of turbulent flows in arbitrarily complex domains with dynamically evolving boundaries. The ability of the method to yield striking new insights into the physics of a broad range of real-life problems will be demonstrated by discussing applications in aquatic biology, cardiovascular bioengineering, turbulence and transport processes in natural waterways, and wind and marine and hydrokinetic energy. Exciting opportunities and recent results illustrating the promise of using machine learning to augment the predictive power of LES to develop an efficient high-fidelity framework for engineering design and optimization of complex flow systems will also be presented.

Chairperson: Prof. Kamran Siddiqui (Western Ontario University)

Plenary Lectures : Day 2, 11 July

2-PL-1, 8:00-9:00
Speaker: Dr. Yayoi Misu (East Japan Railway Company)
Title: Evaluation of railway vehicles' resistance against strong crosswinds and its application for safe railway operation

Abstract: The history of railways includes not only increased transportation capacity, track length, and speed of trains but also enhanced safety in train operations. Japan has faced strong wind accidents due to meteorological conditions and narrow-gauge track structures since the dawn of railways. With recent advancements in train speed, weight reduction of vehicles, and intensification of weather phenomena, ensuring the safety of trains against strong crosswinds is a critical issue in the railway field. This talk introduces the evaluation of railway vehicles' resistance against strong crosswinds, including static or dynamic analysis of the behavior of railway vehicles against strong winds and aerodynamic force measurements using wind tunnel tests. A regulation method for safe railway operations in Japan will also be discussed, combined with the resistance evaluation and wind observations.

Chairperson: Prof. Kazuyoshi Miyagawa (Waseda University)

2-PL-2, 9:00-10:00
Speaker: Prof. Changhoon Lee (Yonsei University)
Title: Data-driven learning of turbulence

Abstract: Our understanding of turbulence has been made deeper thanks to the development of surpercomputers over the last 50 years. Based on the accumulated knowledges on turbulence, prediction of turbulence to a certain extent became possible and thus simulations using RANS or LES models have been actively carried out for various purposes in wide range of industrial applications. However, owing to the multi-scale nature and strongly nonlinear interactions between different scales of turbulence, both the reliable accuracy of prediction and reasonable speed of simulation cannot be achieved to the satisfactory level. This is obviously caused by the limitation of the PDE-based approach which attempts to resolve the solution in 4D spatio-temporal space. As a remedy to this hurdle, data-driven learning was recently proposed and have been actively applied to various turbulence problems. For the last several years, we have explored deep learning in various turbulence problems such as inflow generation, super-resolution reconstruction, prediction of turbulent heat transfer, reinforcement learning for the subgrid-scale model of LES, reinforcement of learning of turbulence for drag reduction and station data-driven weather prediction. Based on our experience with deep learning, I am going to discuss the feasibility and prospect of data-driven learning of turbulence in the talk.

Chairperson: Prof. Hyoungsoo Kim (KAIST)

2-PL-3, 13:20-14:20
Speaker: Prof. Mehrdad Zangeneh (University College London)
Title: Impact of 3D inverse design and optimization on solving challenging problems in design of rotodynamic pumps

Abstract: Pump manufacturers face many challenges such as legislative pressures to improve efficiency (e.g ECOdesign directive in EU, US DOE pump energy efficiency standards) as well as competitive pressure to reduce cost and developments times. Many of these challenges require innovative design solutions that can solve multi-point/multi-objective and multi-disciplinary problems. In this presentation we will review the impact of 3D inverse design method on solving some of the challenging problems in design of rotodynamic pumps such as control of secondary flows in centrifugal and mixed flow impellers, control of corner separation in vaned bowl diffusers and also control of cavitation. We will outline the advantages of 3D inverse design based geometry parametrization for surrogate model based optimization, which can help to solve difficult multi-point/ multi-objective problems in rotodynamic pumps. We will also show three key areas where inverse design can lead to a paradigm shift in design of rotodynamic pumps in future. One area is design of pumps with compact size but with controlled cavitation erosion, leading to reductions in costs. The second is how a surrogate model based machine learning approach can create an expert system to rapidly explore design space for trade-offs. The third key area is the ease with which the 3D inverse design can enable designers to benefit from the potential of 3D printing and additive manufacturing.

Chairperson: Dr. Marianne Francois (Los Alamos National Laboratory)

Plenary Lectures : Day 3, 12 July

3-PL-1, 8:00-9:00
Speaker: Prof. Theodore J. Heindel (Iowa State University)
Title: X-ray flow visualization: techniques and applications

Abstract: Multiphase flows, defined as a discrete phase in a continuous fluid phase, are found in many natural, industrial, and consumer flows, from rain fall and avalanches to petroleum processing and fuel combustion to cookie dough mixing and pasta making. Many of these flows have an interior that is hidden to optical flow measurements, and intrusive probes can modify the flows of interest. Noninvasive measurement techniques, like X-ray flow visualization, provide a means to visualize and quantify the flow conditions in areas obstructed to visual access. Additionally, X-rays are unlikely to modify the local flow conditions. This presentation will review various X ray flow visualization techniques, including those using X-rays from tube sources, electron guns, and synchrotron sources. X-ray fundamentals will first be reviewed, and then various techniques will be highlighted using specific applications that involve gas-liquid flows, gas-solid flows, and granular flows. Advantages and disadvantages of each technique will be highlighted and the unique flow features that can be captured with X-ray flow visualization will be detailed.

Chairperson: Prof. Ivana Milanovic (University of Hartford)

3-PL-2, 9:00-10:00
Speaker: Prof. Susumu Goto (Osaka University)
Title: Coherent structures and transport phenomena in turbulence

Abstract: Through recent numerical simulations, it is now evident that high-Reynolds-number turbulence is composed of a hierarchy of well-organized structures with various sizes. The picture of coherent structures is useful to explain the physical mechanism of some transport phenomena, such as particle clustering in turbulence and turbulence attenuation by solid particles. In this talk, I will show concrete examples of studies from this perspective.

Chairperson: Prof. Genta Kawahara (Osaka University)

3-PL-3, 13:20-14:20
Speaker: Prof. Jung-Il Choi (Yonsei University)
Title: Real-time high-fidelity simulations of urban microclimates

Abstract: We present a high-fidelity large-eddy simulation (LES) approach for analyzing urban microclimates, which is essential for urban planning, safety, and the effective operation of urban aerial mobility (UAM). Our approach utilizes the monolithic projection method with staggered time discretization, enhancing computational performance while preserving accuracy. The immersed boundary method is incorporated to resolve complex urban geometries on Cartesian grids accurately. The Synthetic Eddy method generates artificial turbulent inflow based on Weather Research and Forecasting (WRF) data, facilitating efficient simulation of turbulent flows. GPU computation addresses the speed limitations of CPU-based methods and memory constraints of single GPU-based methods. This lecture will discuss the monolithic projection method, immersed boundary method formulations, and scalability assessments with multiple GPUs. Moreover, we will demonstrate real terrain calculations, offering valuable insights and charting future research directions in high-fidelity urban microclimate simulations.

Chairperson: Prof. Han Seo Ko (Sungkyunkwan University)

Plenary Lecture : Day 4, 13 July

4-PL-1, 11:00-12:00
Speaker: Prof. Akio Tomiyama (Kobe University)
Title: On the dynamics of single bubbles

Abstract: Although an enormous number of studies on bubble dynamics have been carried out so far, many important characteristics of the bubble dynamics still remain unrevealed. Among them, some fundamental issues will be discussed, i.e., what we know and what we do not know on the drag coefficient of a single bubble in a stagnant liquid, the lift coefficient of a bubble in a simple shear flow, and the Sherwood number of a single bubble dissolving in the liquid will be summarized based on my experience. Experimental data on terminal rising velocities of single bubbles in stagnant liquid in infinite or confined domain have been utilized for developing drag models. A question, however, arises as to their applicability to a bubble in a condition other than the stagnant liquid. This problem will be discussed based on some theoretical analyses of the mechanism governing the terminal rising velocities. Our understanding on the lift coefficient is still in its infancy. Though the number of available lift coefficient data is still too small to cover a wide range of bubble diameters and fluid properties, some progress has recently been made through an international collaboration between HZDR in Germany, IMFT in France and Kobe U. in Japan. HZDR has obtained lift data in clean and contaminated air bubbles in water, whereas Kobe U. has measured lift coefficients of bubbles in viscous systems. These data have been analyzed based on physical insights suggested by IMFT that the lift force should be tightly related with the drag force and the interaction between the incoming vorticity and the vorticity generated at the bubble surface plays a key role in generation of negative lift force. The knowledge obtained so far will be summarized and challenges that should be made in the future will be remarked. Mass transfer from a bubble is of great importance in many practical systems, but again experimental data on mass transfer rates or the Sherwood number are still insufficient to develop reliable mass transfer models. Recent findings on effects of electrolyte, surfactant and chemical absorption on mass transfer will be introduced with remarks for future work.

Chairperson: Prof. Takeo kajishima (Osaka University / Shikoku Polytechnic College)

2023/07/10 Mon (Day 1) Morning

	10:00–12:00					
	10:00–	10:20–	10:40–	11:00–	11:20–	11:40–
Room 01 [Cat.4] Micro & Nano Fluid Mechanics	1-01-1-01 [Keynote address] *Alexander L. Yarin Electrohydrodynamics in additive manufacturing		1-01-1-02 *Woongchan Shim, Ryeol Park, Jaedeok Seo, Ho-Young Kim, Wonjung Kim Experimental observation of oil contaminant removal in ultrasonic fields	1-01-1-03 *Kuldeep Baghel, Zahra Zahra, Seongsu Cho, Jinkee Lee Optimization of electrohydrodynamic spray for phosphate buffer saline	1-01-1-04 *Hiroki Yamazaki, Satoyuki Kawano Fluid-structure interaction analysis of an artificial cochlear sensory epithelium immersed in a liquid environment	1-01-1-05 *Yuki YAMAHATA, Yishuai LI, Yukihiro YONEMOTO, Akimaro KAWAHARA Non-Newtonian liquid-gas two-phase flow through a sudden expansion in a microchannel
Room 02 [Cat.2] Fluid Mech. - Complex & Functional Fluids	1-02-1-01 [Keynote address] *Naoki Takeishi Numerical analysis of cellular flows spanning single red blood cell dynamics to bulk suspension rheology		1-02-1-02 *Gakuto Nakaie, Shunichi Ishida, Yusuke Asai, Takuma Kaneoka, Yohsuke Imai A computational method for 3D reconstruction of red blood cell shapes using deep learning and fluid-structure interaction analysis	1-02-1-03 *Daisuke Yoneyama, Yuta Miki, Hiroshi Yamashita, Naoto Yokoyama, Tomoaki Itano, Masako Sugihara-Seki Inertial focusing of spherical particles suspended in square tube flows of viscoelastic fluids	1-02-1-04 *Keiya Tomioka, Tomohiro Fukui Numerical analysis of non-Newtonian fluid effects on the equilibrium position of a suspended particle and relative viscosity in two dimentional parallel plate flow	1-02-1-05 *Haruki Yamamoto, Masakazu Muto, Shinji Tamano Numerical simulation for elongational flow behavior of a falling viscoelastic droplet
Room 03 [Cat.3] Multiphase Multicomponent Flows	1-03-1-01 [Keynote address] *Yuichi Murai, Takuya Wada, Yasufumi Horimoto, Hyun Jin Park, Yuji Tasaka Fluid mechanics of surface flows induced by a bubble plume		1-03-1-02 *Sangha Kim, Rhokyun Kwak Structure-driven percolation enhancement of particle-laden flow in redox flow batteries	1-03-1-03 *Joonhyeon Kim, Joonsung Park, Rhokyun Kwak Pattern metamorphing of electroconvective instability by colloidal active fluids	1-03-1-04 *Shu-San Hsiau, Shih-Hao Chou, Li-Tsung Sheng, Che-Yu Huang Influence of particle size effect on the segregation phenomena with a double-walled rotating drum	1-03-1-05 *Judith Ann Bamberger, Leonard F Pease, Richard C Daniel, Michael J Minette Scaled cloud height estimator
Room 04 [Cat.3] Multiphase Multicomponent Flows	1-04-1-01 *Itaru Eguchi, Takashi Ohira, Junnosuke Okajima, Yuka Iga Estimation of temperature in unsteady cavitating flow around triangular object	1-04-1-02 *Takeru Katagiri, Junnosuke Okajima, Yuka Iga An experimental study on thermodynamic self-suppression effect of cavitation in a single hydrofoil with slit	1-04-1-03 *Shiqi LIU, Cheng LIU, Jiahua ZHANG, Meng GUO, Qingdong YAN, Wei WEI Temperature effect on cavitation characteristics of viscous oil around a hydrofoil	1-04-1-04 David Ezekoye, *Zhi-Ying Zheng, Lu Wang, Jian Wu Numerical implementation and verification of modified Schnerr-Sauer cavitation model with the consideration of thermodynamic effect	1-04-1-05 *Linlin Geng, Desheng ZHANG Numerical simulation of unsteady cavitating flow around a twist hydrofoil with emphasis on erosion prediction	1-04-1-06 *Bin Xu, Keyang Liu, Yilin Deng, Desheng Zhang Numerical investigation on evolution of wake vortex structure around NACA0015 hydrofoil with emphasis on the thermodynamic effect
Room 05 [Cat.1] Fundamental Fluid Mechanics	1-05-1-01 [Keynote address] *Kozo Fujii Sophisticated computational fluid dynamics as a tool of fluid dynamic education		1-05-1-02 *Ivana Milanovic, Sunil Kumar, Tom A Eppes, Kalyan Goparaju Industry certification in simulation technology as a part of the lecture course	1-05-1-03 *Frederico F. Rodrigues, Kateryna O. Shvydyuk, João Nunes-Pereira, Jose C. Páscoa, Abílio P. Silva Plasma actuators based on alumina ceramics for active flow control applications	1-05-1-04 *Kotaro Watanabe, Kengo Asada, Satoshi Sekimoto, Kozo Fujii One proposal to enhance the flow control authority of a plasma actuator in a curved duct	
Room 06 [Cat.6] Fluids Eng. Applications and Systems	1-06-1-01 *Satoshi Watanabe, Bruno Schiavello, Young-Do Choi An opening speech of the 14th international symposium on pumping machinery (PMS14); the history of pms and some statistics of PMS14	1-06-1-02 [Keynote address] *Paul Uwe Thamsen Results from research in wastewater pumping define new stadards		1-06-1-03 *David Beck, Paul Uwe Thamsen Methodology for the development of a closed 2-channel impeller with low susceptibility to clogging	1-06-1-04 *Ujjwal Shrestha, Young-Do Choi Influence of water viscosity on the hydraulic and suction performance of multi-stage centrifugal pump by numerical analysis	1-06-1-05 Deli Tang, *Qian-qian Li, Yi Lu Effect of the matching relation between impeller diameter and height on the performance of regenerative flow pumps
Room 07 [Cat.6] Fluids Eng. Applications and Systems	1-07-1-01 Canceled	1-07-1-02 *Naoto Shimohara, Hiroaki Hattori Study on blade vibration response of radial turbine wheel at pulsation conditions	1-07-1-03 *Seungkyu Lee, Jeong Ik Lee Testing of supercritical carbon dioxide turbine-alternator-compressor supported by active magnetic bearing system	1-07-1-04 Kazuyoshi Miyagawa, *Takaaki Nigorikawa, Ryo Nishimura Evaluation of the effect of nozzle clearance on turbine performance in turbocharger VG turbines	1-07-1-05 Cagdas C ERGIN, Tom Verstraete, *BAYINDIR H SARACOGLU Design and optimization of a radial compressor for an additively manufactured miniature gas turbine engine	1-07-1-06 *Mario Tada, Kazutoyo Yamada, Kotaro Matsui, Wataru Sato, Ryusuke Numakura Large eddy simulation of internal flow field in a transonic centrifugal compressor
Room 08 [Cat.6] Fluids Eng. Applications and Systems	1-08-1-01 *Koichiro Shibuya, Takanori Uchida Wake asymmetry of yaw state wind turbines	1-08-1-02 *Yanting Lin, Huei Chu Weng, Pao-Hsiung Chiu, Fengjee Peter Tsai Analysis of aerodynamic noise caused by equally spaced convex structures at the leading edge of wind turbine blades	1-08-1-03 *Long Van Cao, Lian SHEN, Sung-Goon PARK Simulation of offshore wind farm by using LES-HOSM method	1-08-1-04 *Yutaka Hara, Hiroyuki Higami, Hiromitsu Ishikawa, Takeshi Ono, Shigenori Saito, Kenichiro Ichinari, Katsushi Yamamoto Improvement of over-speed control system with movable arms for butterfly wind turbine by using dampers	1-08-1-05 *Hyun Jin Park, Ryosuke Sayama, Yasufumi Horimoto, Yuji Tasaka, Yuichi Murai Stall control on a blade of Darrieus wind turbine at a low tip-speed ratio by blowing jet in a short time	1-08-1-06 *Juan-Philip Marx, Lin Ma, Derek Ingham, Jee Loong Hee, Mohamed Pourkashanian Actively deforming blade profile optimisation of a vertical axis wind turbine by application of genetic algorithm
Room 09 [Cat.7] Experimental Fluid Dynamics	1-09-1-01 *Mohammadmahdi Abdollahzadehsangroudi, Frederico Rodrigues, José Carlos Páscoa Marques Thermal and mechanical characterization of micro stair-shaped dielectric barrier discharge plasma actuators	1-09-1-02 Kichang Ko, Ryan Myungki Ko, Donghyun Min, *Sejong Chun Repeatable test of a control valve with air pressure generated by independent electric power source	1-09-1-03 Jungkyu Park, *Sejong Chun, Byung Ro Yoon, Joohyun Kim, Jae Yong Lee Comparison calibration of wet-type multi-path ultrasonic flowmeters for compatibility assessment between two national metrology institutes	1-09-1-04 *Kar-Hooi Cheong, Noriyuki Furuichi, Ryouji Doihara, Shigenori Kasai, Shouta Kamazawa, Nobuko Hosobuchi Further investigation on the measuring performance of a newly developed mass flowmeter combining a volumetric positive-displacement flowmeter and a densitometer	1-09-1-05 *Yuki Mizushima Newly developed method of fiber-optic interferometry for thickness measurement in liquid-film flow	1-09-1-06 *Takuto Nonomiya, Shinsuke Mochizuki, Monami Sasamori Development of direct wall shear stress measurement device with square measurement surface in turbulent boundary layers
Room 10 [Cat.5] Data-based Simul. Machine Learning	1-10-1-01 *Chonghyuk Cho, Haecheon Choi An inductive data-driven subgrid-scale model for large eddy simulation	1-10-1-02 *Akshay Kumar, Sandip kumaK Saha Machine learning based prediction of the pressure drop throughout the packed bed system	1-10-1-03 *Klemens Katterbauer, Abdulaziz Qasim, Abdallah Al Shehri, Ali Yousif AI-driven microbial sequencing analysis for hydrogen storage in the Maari reservoir	1-10-1-04 *Masahiro Kawasaki, Akinori Yamanaka Data assimilation for phase-field Navier-Stokes model of alloy solidification using local ensemble transform Kalman filter	1-10-1-05 Xueyi Song, Kexin Zheng, *Xianwu Luo Miniature centrifugal pump optimization using a machine learning-based algorithm	1-10-1-06 *Anna Hirahara, Aiko Yakeno, Shigeru Obayashi Data assimilation study for improving boundary conditions of the water heating plant
Room 11 [Cat.8] Computational Fluid Dynamics	1-11-1-01 *Haruka Nakayama, Kaoruko Eto Probabilistic evaluation for indoor environment with uncertainty quantification	1-11-1-03 Esperanza Moreno, *Arturo Rodriguez, Juan C. Herrera, Richard O. Adansi, Cesar Diaz, Vinod Kumar Simulating airfoils at ultra-low Reynolds numbers using panel methods	1-11-1-04 Yi Hao Xie, *Deify Law Implementation of a total variation diminishing (TVD) scheme for discontinuity-capturing of a first-order advection equation	1-11-1-05 *Yong-Ju Cho, Sun-Hong Yoon, Jae-Seung Moon, Sang-Gyu Lee, Seok-Jeong Park, Seong-Ho Jee, Dae hyung Lee Development of APR NPPs' containment pressure and temperture analysis methodology using CAP computer code	1-11-1-06 *Evan Bures, Mark Kimber Comparison of RANS turbulence models in the simulation of cylinders and jets in turbulent crossflow	
Room 12 [Cat.8] Computational Fluid Dynamics	1-12-1-01 Yu Liu, Wei Jiang, He Jia, Wei Huang, Zhi Yang, *Sijun Zhang Hypersonic nonequilibrium flow simulation of conical deceleration structure	1-12-1-02 *Kevin J. Zhang, Puxuan Li Solving mazes with computational fluid dynamics and heat transfer	1-12-1-03 *panyu Tang, Junjie Wu, Xiang Xiao, Zixiang Qin , qian Tian, zhanshan xie, weidong shi, Haizheng Cheng , Chenguang Song Investigation of near flow field characteristics of Savonius wind turbine blades based on numerical simulation	1-12-1-04 *Ernesto Casartelli, Luca Mangani, Marwan Darwish Prediction of liquid-hydrogen inducer cavitation-performance with an equation of state approach	1-12-1-06 *Guangkuan Wu, Qiyao XUE, Jianjun Feng, Guojun Zhu Investigation on the variation rule of cavitation characteristic curve and flow mechanism of Francis turbine	
	10:00–	10:20–	10:40–	11:00–	11:20–	11:40–

Chairpersons

1-01-1: Sangjin Ryu (University of Nebraska-Lincoln)
1-02-1: Yohsuke Imai (Kobe University)
1-03-1: Takuya Tsuji (Osaka University)
1-04-1: Young-Deuk Kim (Hanyang University)
1-05-1: Jinkee Lee (Sungkyunkwan University)
1-06-1: Satoshi Watanabe (Kyushu University), Bruno Schiavello (ASME Life Member)
1-07-1: Kevin Dankhara (Indian Institute of Science), Ravinder Yerram (GE Gas Power)
1-08-1: Aarthi Sekaran (SUNY Polytechnic Institute), Yutaka Hara (Tottori University)
1-09-1: Taro Handa (Toyota Technological Institute)
1-10-1: Shanti Bhushan (Mississippi State University)
1-11-1: Eunseop Yeom (Pusan National University)
1-12-1: Takahiro Tsukahara (Tokyo University of Science)

Room number list of the venue

Room 01: No.1202 Room 07: No.1006
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2023/07/10 Mon (Day 1) Afternoon

	14:40–16:40					
	14:40–	15:00–	15:20–	15:40–	16:00–	16:20–
Room 01 [Cat.4] Micro & Nano Fluid Mechanics	1-01-2-01 Carson Emeigh, Brennan Harms, *Sangjin Ryu Characterization of a microfluidic cell compressor: balloon thickness vs. inflation height	1-01-2-02 *Kohei Kano, Hiroki Yamazaki, Satoyuki Kawano Frequency selectivity of an artificial cochlear sensory epithelium in a liquid measured by a full-field optical coherence microscope	1-01-2-03 *Junbeom Lim, Minchan Kim, Rhokyun Kwak Fast initiation of electroconvective instability on an ion exchange membrane by coupling zinc-iodide redox flow battery	1-01-2-04 *Ikuya Kinefuchi, Atsushi Matsushima, Takehiro Shiraishi, Yuta Yoshimoto Measurement of nonequilibrium velocity distribution of evaporating water molecules from a liquid-vapor interface	1-01-2-05 *Tatsuya Hasegawa, Katsuaki Shirai Examination of convective behavior of pressure-driven flow in a single-sided heated horizontal rectangular channel based on micro-PTV measurement	1-01-2-06 *Clint John Cortes Otic, Masazumi Arao, Masashi Matsumoto, Hideto Imai, Ikuya Kinefuchi On water condensation in polymer electrolyte membrane fuel cell cathode catalyst layer particles
Room 02 [Cat.2] Fluid Mech. - Complex & Functional Fluids	1-02-2-01 *Takashi Koshiba, Takehiro Yamamoto Elongational deformation of concentrated particle suspension using filament stretching method	1-02-2-02 *Junkyu Kim, Hyoungsoo Kim Study on extensional flow of shear-thinning viscous liquids using optimized shape cross-slot extensional rheometer (OSCER)	1-02-2-03 *Hideki Sato, Ruri Hidema, Hiroshi Suzuki Three-dimensional velocity fields of surfactant solution in a cavity measured by stereo particle tracking velocimetry	1-02-2-04 *Masakazu Muto, Ayako Muraoka, Shuichi Iwata, Masanori Nakamura, Satoko Osuka, Shinji Tamano Evaluation of viscoelastic properties of human follicular fluids by shear and extensional viscometry	1-02-2-05 *Van Lap Nguyen, Akari Misawa, Rinka Matsui, Hiromichi Obara The distribution of perfusing flow in the vascular system of a decellularized liver	1-02-2-06 *Hiromichi OBARA, Yuga Okazawa, Yuki Sato, Hiroyoshi Iwata, Tesuya Nakajo, Mizuho Ohara, Taiki Kaneko, Hiroki Bochimoto, Makito Ohashi, Xiao Kang Li, Naoto Matsuno Fluid dynamics of machine perfusion for organ transplantation
Room 03 [Cat.3] Multiphase Multicomponent Flows	1-03-2-01 *Shin Noguchi, Kizuku Kurose, Ichiro Ueno Coherent structures with hydrothermal wave of m = 1 in high-aspect-ratio liquid bridges	1-03-2-02 *Keiichiro Kato, Shogo Sensui, Shin Noguchi, Kizuku Kurose, Ichiro Ueno Formation process of coherent structures by particles in high-aspct-ratio thermocapillary liquid bridges	1-03-2-03 *Yeon-Gyu Lim, Yu-Bin Kim, Min-Gyu Ham, Jun-Ho Im, Chul-U Bak, Yong-Nam Lee, Young-Deuk Kim, Kyaw Thu Experimental and theoretical studies of a decompression fluidized bed dryer for drying manganese sulfate monohydrate	1-03-2-04 *Koichiro Ogata, Hayate Gotoh, Kai Satoh, Kazuki Tokumaru, Hdeo Kawahara, Hiroaki Sano Thermal dehydration characteristics of waste gypsum particles using a closed rotary heating drum	1-03-2-05 Zhongwei Huang, sitong Wu, *Jingbin Li, Jingru Hu Numerical simulation of ice particle preparation based on ice particle jet technology	1-03-2-06 *Taiki Iida, Tomohiro Fukui Numerical simulation of microscopic particle behavior and macroscopic relative viscosity of suspension with eccentric flow field in a two-dimensional curvilinear channel
Room 04 [Cat.3] Multiphase Multicomponent Flows	1-04-2-01 *Qi Yang, Deyou Li, Yi Zhang, Hong Chang, Xiaolong Fu, Hongjie Wang Numerical study on cavitation control of hydrofoils with different bionic structures	1-04-2-02 *Diana Sofía Puga Gallegos, Xiawu Luo Cavitation analysis around a NACA hydrofoil using k-ω SST SAS and standard k-ε turbulence models	1-04-2-03 Zhaohui Qian, Yongshun Zeng, Zhiyu Zhang, *Xianwu Luo Trigger mechanism of the singing cavitating tip vortex over a hydrofoil	1-04-2-04 *Lu Wang, Shun Wang, Zhi-Ying Zheng, Ping-An Liu Influence of shear thinning fluid on the cavitation around a NACA66 hydrofoil	1-04-2-05 *SABRI DENIZ Cavitation measurements and flow visualization on a hydrofoil with different tip gaps	1-04-2-06 Canceled
Room 05 [Cat.1] Fundamental Fluid Mechanics	1-05-2-01 *Junichi Morita, Hiroya Mamori, Takashi Miyazaki Direct numerical simulations of turbulent flow over sinusoidal superhydrophobic surfaces	1-05-2-02 *Bingfu Zhang, Sandy To Effect of wetting transition on slip length on micro-grated superhydrophobic surface in turbulent flow	1-05-2-03 *Jongyun Choi, Kiwoong Kim Fabrication of magnetically responsive flexible superhydrophobic films	1-05-2-04 *Aarthi Sekaran Flow instabilities and control mechanisms in cylindrical cavities with top bounding walls	1-05-2-05 *Akihisa Fujii, Eito Nagata, Yoshitsugu Naka Evaluation of particle deposition on flat and rectangular riblet surfaces in a turbulent channel flow	1-05-2-06 *Shinsuke Mochizuki, Hiroki Suzuki, Takatsugu Kameda Local skin-friction reduction in a turbulent channel flow with LEBU manipulation
Room 06 [Cat.6] Fluids Eng. Applications and Systems	1-06-2-01 *Sebastian Wulff, David Beck, Jean Pierre Worringer, Oskar Bastian, Morris Reich, Paul Uwe Thamsen Don't think twice – rethink mining pump workshop processes	1-06-2-02 *Wontae KANG, Donghwa LEE, Kyoungho CHOI, Young-Do CHOI Realization of digital twins technology using reduced order model of a centrifugal pump	1-06-2-03 *Wenjun Qiu, Siyue Chen, Ming Fang, Jiali Tang Operation optimization of parallel pump system in high magnetic field facility	1-06-2-04 *Xiaowen Zhang, Fangping Tang Study on the transition process of large axial flow pump system focusing on the influence of flap valve area	1-06-2-05 *Yanpi Lin, Xiaojun Li, Zuchao Zhu Energy dissipation characteristics of turbopump under harsh operating conditions	1-06-2-06 *Yandong Gu, Junjie Bian, Benqing Liu, Li Cheng, Shujian Xiong Numerical investigation on backflow orifice in fixed shaft of electric coolant pump
Room 07 [Cat.6] Fluids Eng. Applications and Systems	1-07-2-01 [Keynote address] *Hyun-Su Kang, Youn-Jea Kim Aeroelasticity design and evaluation strategy for axial compressor		1-07-2-02 Ayush Saraswat, *Joseph Katz The effect of advection and production on the distribution of turbulent kinetic energy in the rotor passage of an axial compressor near its stall point	1-07-2-03 *Hyeon-Jun Yang, Hyun-Su Kang, Youn-Jea Kim A study on the aerodynamic performance of axial compressor according to blade aspect ratio	1-07-2-04 *Andrew Hayden, John Gillespie, Cole Hefner, Todd Lowe, Alexandrina Untaroiu Wake dynamics of complex turning vanes using time-resolved PIV	1-07-2-05 *Yoshihiro Hayashi An experimental and numerical investigation of transient flow behavior at surge onset in a high-speed centrifugal compressor
Room 08 [Cat.6] Fluids Eng. Applications and Systems	1-08-2-01 Tao Zhang, *Jinwei Li, Weibin Yang, Yanyan Liu Study on the influence of guide vane – blade number matching relationship (20-9) on the phase resonance risk coefficient of pumped storage units	1-08-2-02 *Yanzhao Wu, Zilong Hu, Di Zhu, Ran Tao, Ruofu Xiao Influence of eccentricity of tubular turbine runner on draft tube vortex	1-08-2-03 *Shogo Nagayama, Koki Nakamura, Ryuto Sugeno, Toshitaka Yasuda, Hirimichi Obara Fundamental characteristics converter for ocean natural vibration (CONV) system	1-08-2-04 *Yoichi Kinoue, Wakana Tsuru, Tengen Murakami, Masaki Sakaguchi, Norimasa Shiomi, Manabu Takao Bidirectional collector and turbine system for tidal energy conversion	1-08-2-05 *Mark Anthony Recato Rotor, Hamid Hefazi Submersion depth optimization of a horizontal-axis tidal turbine (HATT) for tropical site conditions under shear flow and wave-current interaction	1-08-2-06 *Shin Tanaka, Minh Nhat Doan, Shinnosuke Obi Experimental study of the dynamic stall effect on a pair of cross-flow hydrokinetic turbines and associated torque enhancement due to flow blockage
Room 09 [Cat.7] Experimental Fluid Dynamics	1-09-2-01 *Xing Chao, Chao Sun, Yuriko Shiomi, Kazuhiro Yoshida, Takeshi Sano Optical measurements for near-surface flow field distribution	1-09-2-02 *William Kai Alexander Worby, Kento Nakamine, Yuto Yokoyama, Masakazu Muto, Yoshiyuki Tagawa Measurement of stress-optic coefficients of birefringent fluids for measuring a three-dimensional stress field	1-09-2-03 *Jieyun Mao, JinHua Si, Jiaqi Chen, Guidong Li, Xikun Wang Comparison between PIV measurements of an oblique impinging jet on a flat and a sand bed	1-09-2-04 *Daiki Shirakawa, Shunsuke Koike, Yosuke Sugioka, Taro Handa Study on the interaction of low-density region and wall-reflected shock wave induced by femtosecond laser	1-09-2-05 *Frederico F. Rodrigues, Miguel B. Moreira, Jose C. Páscoa Thermal characterization of plasma-induced flow by using a background oriented schlieren technique	
Room 10 [Cat.5] Data-based Simul. Machine Learning	1-10-2-01 *Isaac Perez-Raya Enabling physics-based artificial intelligence for applications with fluid and thermal transport phenomena	1-10-2-02 Zhaopeng Zhu, *Detao Zhou, Xianzhi Song, Gensheng Li, Mengmeng Zhou, Bin Wang, Lin Zhu Intelligent monitoring of overflow risk based on wellhead flow data analysis during oil and gas drilling	1-10-2-03 *Klemens Katterbauer, Abdulaziz Al, Abdallah Al Shehri, Ali Yousif Analyzing hydrogen flow behavior based on deep learning sensor selection optimization framework – a McKee reservoir study	1-10-2-04 Jian Xu, *longyan wang, Jianping Yuan Deep learning cost-efficient framework for static fluid-structure interaction analysis of hydrofoil	1-10-2-05 *Linqi Yu, Mustafa Z. YOUSIF, HeeChang LIM Unavailable parameters prediction based on velocity fields of turbulent flows using deep learning	1-10-2-06 *Yonosuke Ofuchi, Kie Okabayashi Deep reinforcement learning for the optimization of the sensor position of V-control
Room 11 [Cat.8] Computational Fluid Dynamics	1-11-2-01 [Keynote address] *Michael R Borghi, Seth Spiegel, Dennis Yoder, Nicholas Georgiadis, Mark Wernet Turbulent simulations of cooling jets in crossflow		1-11-2-02 Wei Jiang, Zhi Yang, Yu Liu, He Jia, Wei Huang, *Sijun Zhang Unsteady flow simulations over a weapon bay using different detached eddy simulation variants	1-11-2-03 *Jiabao XING, Tomoaki WATANABE, Koji NAGATA LES/Lagrangian-simulations of a compressible turbulent planar jet with a chemical reaction	1-11-2-04 *Masayoshi Okamoto DNS of turbulent flow through square duct with several constant curvature	1-11-2-05 *Caleb Barnes Implicit large-eddy simulations of gust mitigation using high-frequency actuation at a transitional Reynolds number
Room 12 [Cat.8] Computational Fluid Dynamics	1-12-2-01 *Hongwu Zhao, Yeon-Won Lee Numerical study on the wake vortex suppression of a cylinder using rotating mechanism or strake attachment	1-12-2-03 Wen-Ken Li, *Shih-Pin Yang Numerical simulation of the dehumidification rate in a crossflow membrane dehumidifier	1-12-2-04 Xin-ji Chen, Chen Yang, Feng-lei Wang, Jing-xian Kong, *Jin-yuan Qian Irreversible loss analysis in hybrid smooth and spirally corrugated tube with different corrugation direction	1-12-2-05 *Jun Zhang, Siamack Shirazi Solid particle erosion behavior in large diameter cushion tees and model development	1-12-2-06 *ILYOUP SOHN, Seung-Hwan Moon, Seok-Heum Baek, Sang-Youl Lee Reduced order modeling for optimal aerodynamic design and operation of the industrial air-jet ejector	
	14:40–	15:00–	15:20–	15:40–	16:00–	16:20–

Chairpersons

1-01-2: Toru Yamada (Nagoya Institute of Technology)
1-02-2: Hyoungsoo Kim (KAIST)
1-03-2: Toshitsugu Tanaka (Osaka University)
1-04-2: Yuka Iga (Tohoku University)
1-05-2: Shingo Motoki (Osaka University)
1-06-2: Byungjin An (Ebara Corporation)
1-07-2: Sambit Supriya Dash (IIT Madras), Ravinder Yerram (GE Gas Power)
1-08-2: Kevin Dankhara (Indian Institute of Science), Kotaro Tezuka (Toshiba Energy Systems & Solutions Corp.)
1-09-2: Hee Chang Lim (Pusan National University)
1-10-2: Koji Fukagata (Keio University)
1-11-2: Shanti Bhushan (Mississippi State University)
1-12-2: Shigeru Ogawa (National Inst. Tech., Kure College)

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2023/07/10 Mon (Day 1) Evening

	17:00–19:00					
	17:00–	17:20–	17:40–	18:00–	18:20–	18:40–
Room 01 [Cat.4] Micro & Nano Fluid Mechanics	1-01-3-01 Julie Melbye, *Yechun Wang Computational studies on droplet dynamics in microtubes with rough surface via spectral elements	1-01-3-02 *Kosar Khajeh, Hitoshi Washizu A hybrid approach for characterizing hydro-thermal effects of polymer additives under shear flow	1-01-3-03 *Toru Yamada, Ryuma Hasada, Yohei Morinishi Effect of time step size on computational error in normal and shear stresses in dissipative particle dynamics	1-01-3-04 Haipeng Zhang, Carson Emeigh, Udochukwu John Anuta, *Sangjin Ryu Effect of surface wettability on the liquid bridge between drops coalescing in a Hele-Shaw cell	1-01-3-05 *Sohyun Jung, Joowon Seo, Sung Jea Kim, Ho-Young Kim Hydrodynamics in multi-layered microfluidic paper-based analytical devices utilizing nano-electrokinetic preconcentration	
Room 02 [Cat.1] Fundamental Fluid Mechanics	1-02-3-01 *Shigeo Fujikawa, Toshihide Fujikawa, Ryu Egashira, Hisao Yaguchi, Hisashi Masubuchi A patching solution of creeping jet from a tube of finite length	1-02-3-02 *Khaled J. Hammad Inflow conditions and the flow behavior of submerged annular viscoplastic jets	1-02-3-04 *IIS ROHMAWATI, Yoshitsugu Naka, Rizal Mahmud, Tetsuya Aizawa Turbulent flow structures contributing to scalar transport enhancement in an impinging turbulent round jet	1-02-3-05 *Chungil Lee, Yuta Ozawa, Takayuki Nagata, Taku Nonomura Three-dimensional dynamic mode decomposition of underexpanded jets	1-02-3-06 *Koichi Hayashida, Takahiro Kiwata Effect of nozzle spacing on flow characteristics of triple rectangular free jets	
Room 03 [Cat.3] Multiphase Multicomponent Flows	1-03-3-01 *Toshitsugu Tanaka, Shu Takebe, Takumi Hashimoto, Takuya Tsuji, Kimiaki Washino Similarity model for DEM-CFD simulation of fluidized behavior of cohesive particles	1-03-3-02 *Mengmeng Zhou, Zhongwei Huang, Haizhu Wang, Shouceng Tian, Xianzhi Song, Zongjie Mu, Mao Sheng, Yiqun Zhang, Ruiyue Yang, Qinchuo Liao, Bin Wang, Xiaoguang Wu, Tianyu Wang, Zhaopeng Zhu, Shibo Kuang, Aibing Yu CFD-DEM modelling and analysis of complex solid-liquid flow during hydraulic conveying	1-03-3-03 *Zhengjing Shen, Dengxue Ma, Rennian Li, Wei Han, Weiguo Zhao, Senchun Miao Investigation of particle behavior and pump performance response inside a screw axial flow slurry pump using the CFD-DEM coupling method	1-03-3-04 *Mahmoud Ahmed El-Emam, Ling Zhou, Eman Yasser Numerical simulation of erosion wear in a multiphase flow centrifugal pump: CG DEM-CFD coupling approach	1-03-3-05 *Shiming HONG, Guangjie PENG, Hao CHANG Research on internal flow characteristics and wear mechanism of solid-liquid two-phase in centrifugal slurry pump	1-03-3-06 *Jian Kang, Zhaohui Yuan, Pengfei Yang, Jingchao Li Erosion wear characteristics and dynamic life prediction model of spool pair
Room 04 [Cat.3] Multiphase Multicomponent Flows	1-04-3-01 *Hongseok CHOI, Hyungmin PARK Cavitation bubble dynamics in a venturi channel: dependency on air concentration and impurity	1-04-3-02 *Zhengdong Wang, Linmin Li, Xiaojun Li, Zuchao Zhu Numerical erosion risk prediction of cavitating flow incorporated with Eulerian-Lagrangian method	1-04-3-03 *Xi Shen, Gang Yang, Desheng Zhang Numerical study on unsteady shedding of U-shape cavitation around Delft Twist 11 hydrofoil	1-04-3-04 *Guoshou Zhao, Ning Liang, Linlin Cao, Dazhuan Wu Experimental study on the control of cloud cavitation by leading-edge tubercles on NACA0015	1-04-3-05 *Yanyan Wang, Weiguo Zhao, Rennian Li, Wei Han Analysis of vorticity transport characteristics in rotating cascades in a non-inertia system	1-04-3-06 *Jiahua Zhang, Qingdong Yan, Cheng Liu, Wei Wei, Meng Guo Multi-objective optimization design for the blade exit angles on the cavitation characteristics in a hydrodynamic torque converter
Room 05 [Cat.1] Fundamental Fluid Mechanics	1-05-3-01 *Yusho Ishikawa, Takao Sato, Itsuro Honda Karman vortex suppression by feedback control using the pressure on cylinder surface – proportional-integral control-	1-05-3-02 *Ji Hong Chung, Dong Kee Sohn, Han Seo Ko A study on effect of magnetic field for electrohydrodynamic flow generation	1-05-3-03 *Kenta Mochizuki, Hiroshi Yokoyama, Masahito Nishikawara, Hideki Yanada Enhancement of CO2 adsorption using a monolith coated with zeolite by acoustic excitation	1-05-3-04 *Rong He, Tong Wang Modeling and experimental investigation on dynamic leakage from an orifice in pressurized system	1-05-3-05 *Robin Pham, Chung-Lung Chen Machine-learning-modulated self-agitated membranes towards air-side convective thermal efficiency	1-05-3-06 *Shingo Motoki, Tomohiro Sakai, Shuji Nishio, Genta Kawahara The ultimate heat transfer in turbulent pipe flow with porous wall
Room 06 [Cat.6] Fluids Eng. Applications and Systems	1-06-3-01 Mareen Derda, *Tobias Rinnert, David Beck, Paul Uwe Thamsen Investigation of the influence of tubercles on the operating behavior of an axial pump	1-06-3-02 *Stefan Berten, Laurent Chatagny, Daniele Cimmino, Tobias Roeseler Experimental and numerical investigations of performance curve instabilities in volute pumps	1-06-3-04 *Chaoyue Wang, Fujun Wang, Hao Wang, Benhong Wang, Zhifeng Yao, Ruofu Xiao Vortex-vortex-interaction (VVI): an intuitive propagation mechanism of rotating stall in centrifugal pump impeller	1-06-3-05 *Kexin Pu, Shangxiang Lu, Wenqi Zhang, Bin Huang, Peng Wu, Dazhuan Wu Investigation on positioning technique of energy performance in an axial pump under natural circulation condition based on entropy generation characteristics	1-06-3-06 *Takeshi Sano, Satoshi Maeda, Akiha Shibata, Kazuyoshi Miyagawa, Kota Kizu, Naoya Oba Effect of impeller's wake on unsteady loss in a vaned diffuser	
Room 07 [Cat.6] Fluids Eng. Applications and Systems	1-07-3-01 *Kotaro Nakamura, Hiroshi Koizumi, Yoshinobu Yamade, Taku Iwase, Naoyuki Sogo, Tomohiro Kawanabe, Katsumoto Isono, Akira Oyama, Kimihisa Kaneko, Chisachi Kato Design optimization of a box fan using supercomputer "Fugaku"	1-07-3-02 *Jeong Tae KIM, Jae Sung YANG, Seongho Park, June Kee MIN Numerical optimization of a centrifugal fan with splitters considering the efficiency and noise performances	1-07-3-03 Manuel Fritsche, *Philipp Epple Pressure characteristics approximation model of a low-pressure axial fan for design and off-design operating condition	1-07-3-04 *Shunya Uda, Yasumasa Suzuki, Yuya Miki, Chisachi Kato Effect of sound source predicted by les on aerodynamic sound prediction of a box fan	1-07-3-05 *Kosuke Seto, Koji Iwano, Yasumasa Ito, Yasuhiko Sakai, Sho Kosaka, Kenji Yoshida Effect of blade thickness on the characteristics of separation bubble between the sirocco fan blades	1-07-3-06 *Ryo Iijima, Koji Shimoyama Multi-objective Bayesian optimization applied to the design of a propulsion fan with regenerative air brake for electric small passenger aircraft
Room 08 [Cat.6] Fluids Eng. Applications and Systems	1-08-3-01 Nick Rovito, *Keith Walters CFD-based optimization of oscillating foil energy harvester performance	1-08-3-02 *Yeong-Wan Je, Jin Dea So, Youn-Jea Kim Effect of generator configuration on the performance of low-head micro hydroturbine	1-08-3-03 *Ruiyue Yang, Zhongwei Huang, Shouceng Tian, Huaizhong Shi, Xianzhi Song, Qinzhuo Liao, Mengmeng Zhou Numerical investigation on the structure of multi-nozzle straight-swirling jet flow field	1-08-3-04 *Yong Cho, Jong-Woong CHOI, Yoo-Seok PANG, Yong-Chae JEONG Office building heating and cooling system with a 500 RT river water source heat pump and a buffer tank	1-08-3-05 *Mariko Senga, Shinya Hasegawa Numerical calculation of a heat-driven thermoacoustic cooler in which multiple thermoacoustic cores are connected in series with the cold side of the cooler and the ambient side of the engine adjacent to each other	1-08-3-06 *Young-Su Ko, Sunmin Jang, Jeonghwan Choi, Sumin Cho, Dongwhi Choi, Choongyeop Lee Controlling droplet-based energy generation by microdroplets charge and size using superhydrophobic meshes
Room 09 [Cat.7] Experimental Fluid Dynamics	1-09-3-01 *Roy A Pillers, Theodore J Heindel 3D bubble plume void fraction using X-ray computed tomography	1-09-3-02 *Jae Wook Jeon, KI Hun Nam, Jun Sik Lee Thermal and flow visualization of magnesium combustible fire	1-09-3-03 *Sei Haishi, Masaki Fuchiwaki Vortex dynamics and dynamic fluid forces by a flapping butterfly wing	1-09-3-04 *Mizue Munekata, Maito Kanehiro, Takumi Ogawa, Koshiro Tsutsumi, Hiroyuki Yoshikawa Simultaneous measurements of pressure and temperature by frequency-domain lifetime imaging (FLIM) technique using PSP		
Room 10 [Cat.3] Multiphase Multicomponent Flows	1-10-3-01 [Keynote address] *Eunseop Yeom, Daehee Kwon, Dongkuk Kang Central liquid jet from impacting drops on superheated laser-ablated surfaces		1-10-3-02 *Byong Guk Jeon, Jae Ryong LEE, Seok KIM Validation of a three-dimensional two-phase code, CUPID, using a rod-bundle boiling test facility, SIRIUS-3D	1-10-3-03 *Judith Ann Bamberger, Leonard F Pease, Michael J Minette, Carolyn A Burns Oil-water mixture separation in process	1-10-3-04 *Changhyun Kim, Kyu Hyung Do, Taehoon Kim, Hwalong You, Minchang Kim, Byung-Il Choi A simple method of estimating boil-off gas generation in a cryogenic tank	
Room 11 [Cat.8] Computational Fluid Dynamics	1-11-3-01 Xuan Luo, Zhi Yang, *Sijun Zhang Modeling of inductively coupled plasma reactors	1-11-3-02 *Haruhi Matsuyama, Suguru Miyauchi, Shintaro Takeuchi Study of the mechanical effects of solvents acting on neuronal membranes using the permeation flux model of multicomponent electrolyte solutions	1-11-3-03 *Hay Duc Nguyen, Jae-Hoon Jung, Sung-Goon Park Numerical simulation of the SPARC facility and passive autocatalytic recombiner	1-11-3-04 *Noboru Maeda, Kazuhiro Maeda Charged air flow behaviors on the step surface with an electric potential	1-11-3-05 Canceled	1-11-3-06 *Tongtong Cui, Hiroshi Terashima, Soshi Kawai Applicability of a thickened flame model to stretched premixed flame propagation
Room 12 [Cat.8] Computational Fluid Dynamics	1-12-3-01 Yongshun Zeng, Hong Wang, Chen Geng, *Xianwu Luo Numerical investigation of the pressure fluctuation characteristics at the hump region of a pump-turbine at the pump mode	1-12-3-02 *Young-Jae Kim, Han-Sol Yoo, Youn-Jea Kim A study on combustion characteristics according to primary air input to biomass combustion with swirling flow	1-12-3-03 *Faye Jin, Yongyao Luo , Ran Tao , Di Zhu Simulation and analysis of transient flow of pump turbine under pump condition	1-12-3-04 Jerry Zhou, *Zhongquan Zheng POD and SPOD analyses of Kelvin-Helmholtz and Rayleigh-Taylor instabilities	1-12-3-05 *Suhwan LEE, Jaejin LEE, Sungji YOUN, Eunseop Yeom Spray characteristics of ammonia, ethanol, and normal decane	
	17:00–	17:20–	17:40–	18:00–	18:20–	18:40–

Chairpersons

1-01-3: Ikuya Kinefuchi (The University of Tokyo)
1-02-3: Takahiro Yasuda (The University of Shiga Prefecture)
1-03-3: Shintaro Takeuchi (Osaka University)
1-04-3: Junnosuke Okajima (Tohoku University)
1-05-3: Shinsuke Mochizuki (Yamaguchi University)
1-06-3: Kazuyoshi Miyagawa (Waseda University), Seung Jin Song (Seoul National University)
1-07-3: Sambit Supriya Dash (IIT Madras), Ravinder Yerram (GE Gas Power)
1-08-3: Yong Cho (K-Water), Yoichi Kinoue (Saga University)
1-09-3: Soroor Karimi (University of Tulsa)
1-10-3: Jae-Sung Kwon (Incheon National University)
1-11-3: Masayoshi Okamoto (Shizuoka University)
1-12-3: Wen-Ken Li (Chung Yuan Christian University)

Room number list of the venue

Room 01: No.1202 Room 07: No.1006
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Room 05: No.1004 Room 11: No. 801
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2023/07/11 Tue (Day 2) Morning

	10:20–12:20					
	10:20–	10:40–	11:00–	11:20–	11:40–	12:00–
Room 01 [Cat.4] Micro & Nano Fluid Mechanics	2-01-1-01 *Hiroki KUSUDO, Takeshi OMORI, Laurent JOLY, Yasutaka YAMAGUCHI Thermal difference in advancing and receding contact lines: insight from MD simulation	2-01-1-02 *Shin-ichi Tsuda, Satoshi Watanabe Nano-scale studies for multi-scale CFD simulation of hydrogen cavitating flow	2-01-1-03 Kotaro Ohashi, *Kazumichi Kobayashi, Hiroyuki Fujii, Masao Watanabe Mean-field kinetic theory analysis of vapor condensation induced by fast-moving liquid film	2-01-1-04 *Donatas Surblys, Tengyu Li, Haruki Oga, Yasutaka Yamaguchi, Taku Ohara Implications of complex surface morphology on estimating interfacial thermal conductance via molecular dynamics	2-01-1-05 *Kohei Sato, Daisuke Fukumitsu, Yuta Yoshimoto, Ikuya Kinefuchi Evaluation of gas solubility and diffusivity in water-containing polyvinylamine (PVAm)/polyvinyl alcohol (PVA) blend membranes	
Room 02 [Cat.2] Fluid Mech. - Complex & Functional Fluids	2-02-1-01 [Keynote address] *Hyoungsoo Kim Soft matter hydrodynamics for coating and patterning technology		2-02-1-02 *Daisuke Kita, Ruri Hidema, Hiroshi Suzuki Filament and droplet characteristics of viscoelastic fluids injected from a nozzle	2-02-1-03 *Guangzhou Yin, Ruri Hidema, Hiroshi Suzuki Numerical study on the scission of flexible polymers in multiple contraction-expansion channels	2-02-1-04 *Satoru Watanabe, Shunichi Ishida, Yuto Kawabata, Yohsuke Imai A numerical analysis of fluid propulsion using ferrofluid droplet in microchannel	
Room 03 [Cat.3] Multiphase Multicomponent Flows	2-03-1-01 *Yutaro Motoori, Susumu Goto Modulation of wall turbulence by addition of solid particles	2-03-1-02 *Bradford Durant, Frederick Ouellet, Rahul Babu Koneru Numerical simulations of high volume fraction explosively-driven particle beds	2-03-1-03 *Kento Hashimoto, Shintaro Takeuchi Heat transfer in particle-laden flow considering temperature gradient within the particles and radiative heat transfer	2-03-1-04 *Toshiaki Fukada Numerical simulation of heat exchanger for thermal energy storage with solid particles	2-03-1-05 *Taichi Tsujimoto, Yuta Nakao, Takuya Tsuji, Toshitsugu Tanaka, Kimiaki Washino Determination of permeability in the volume penalisation method with a smooth mask function	
Room 04 [Cat.3] Multiphase Multicomponent Flows	2-04-1-01 *Jingzhu Wang, Jianlin Huang, Yiwei Wang Vortex flow and jetting of a cavitation bubble between a rigid boundary and a free surface	2-04-1-02 *Tomoya Matsukura, Ryuji Yamamoto, Toshiyuki Ogasawara, Hiroyuki Takahira Influence of wall elasticity on growth and collapse of bubbles near a wall	2-04-1-03 *Takahiro Ushioku, Zihao Liu, Hiroaki Yoshimura PIV measurement of velocity field of laser-induced cloud cavitation	2-04-1-04 *WANLI YU, Jung-Il CHOI Numerical simulations of underwater explosion near a rigid dam using compressible multi-fluid models	2-04-1-05 *Hisayoshi Murasawa, Ryotaro Kameda, Toshiyuki Ogasawara, Hiroyuki Takahira Numerical simulations for drug transport by the interaction between bubbles and pressure waves near tissue boundaries	
Room 05 [Cat.1] Fundamental Fluid Mechanics	2-05-1-01 [Keynote address] *Jinhyeok Yun, Donggun Son, Jungil Lee A periodically rotating distributed forcing of turbulent flow over a sphere for reductions of mean drag and lift fluctuations with a double-helix mode		2-05-1-02 *Donggun Son, Jungil Lee A periodically rotating distributed forcing of flow over a sphere for drag reduction	2-05-1-03 *Hayato Suzuki, Yusuke Okochi, Koji Fukagata Parametric study to optimize micro-cavity array for friction drag reduction	2-05-1-04 *Hideki Kawashima, Ren Takagaki, Takamichi Hiroi, Yu Wang, Shigeyuki Miyazaki, Yoshiyuki Tsuji Experiments on fluid drag reduction by acoustic streaming device	
Room 06 [Cat.6] Fluids Eng. Applications and Systems	2-06-1-01 [Keynote address] *Seung Jin Song Blade-to-blade interaction during cavitation instabilities in turbopump inducers		2-06-1-02 *Koki Tamura, Yuto Nakura, Satoshi Kawasaki, Yuka Iga Unsteady characteristics of tip leakage vortex cavitation in the occurrence of cavitation instability in inducer	2-06-1-03 *Hironori Horiguchi, Tomoaki Watamura Response of tip leakage vortex cavitation and tip leakage flow in an oscillating hydrofoil	2-06-1-04 *zhenhua shen, Chao Wang High-speed photography experimental investigation of a high specific-speed pump for part-load cavitation instability	
Room 07 [Cat.6] Fluids Eng. Applications and Systems	2-07-1-01 *Izuru Kambayashi, Chengye Dou, Donghyuk Kang Experimental and numerical evaluations of dynamic transfer matrix for a three-dimensional centrifugal impeller based on unsteady energy conservation	2-07-1-02 *Meng FAN, Antoine DAZIN, Gérard BOIS, Francesco ROMANÒ Flow instability in a vaneless diffuser of a radial flow machine	2-07-1-03 *Dai Iwasaki, Takayuki Hiraishi, Shinichiro Ejiri, Masahiro Miyabe Numerical considerations for suppression effectiveness of diffuser rotating stall	2-07-1-05 *Junyoung Lim, Youngkuk Yoon, Seung Jin Song Impeller wake transport at mid-span, hub region, and tip region in an axial flow pump at saddle region		
Room 08 [Cat.6] Fluids Eng. Applications and Systems	2-08-1-01 *Takuji Nakashima, Gentaro Hamada, Keigo Shimizu, Yusuke Nakamura, Akira Oyama, Kohei Seo, Takenori Hiraoka, Takahide Nouzawa, Makoto Tsubokura Multi-objective aerodynamic shape optimization for an SUV car considering the properties of proportion and silhouette	2-08-1-02 *Hoseong Lee, Hanbyeol Han Analysis of hybrid operating mode for coolant source plate heat exchanger applied to electric-driven vehicle	2-08-1-03 *Matthew Drummond Comparison of lattice structures within a working fluid channel for increased heat transfer using additively manufactured cast iron	2-08-1-04 *Weishuang Lu, Guannan Zheng, Lianyi Wei, Guowei Yang Effect of cavity depth on flow noise of shear layer		
Room 09 [Cat.7] Experimental Fluid Dynamics	2-09-1-01 *Arturo Cabral, Connor F. Donlan, Ryan P. McGuire, Lane B. Carasik, Cody S. Wiggins Experimental investigation of pressure drop and flow field measurements in additively manufactured twisted-tape-inserts using positron emission particle tracking (PEPT)	2-09-1-02 *Connor Francis Donlan, Arturo Cabral, Sierra Tutwiler, Lane B Carasik, Cody S Wiggins Experimental investigation of shell side flow around twisted tubes using positron emission particle tracking for CFD validation	2-09-1-03 *Hyeonjin Lee, Donghyun Lee, Hojin Ha, Hanwook Park Experimental investigation of the role of aortic sinus in the blood flow	2-09-1-04 *Ryo Takai, Takato Okuda, Masaya Iwanaga, Sattaya Yimprasert, Kentaro Kato, Masaharu Matsubara Analysis and characterization of turbulent and non-turbulent parts in transitional channel flow		
Room 10 [Cat.5] Data-based Simul. Machine Learning	2-10-1-01 Canceled	2-10-1-02 *Daichi Igarashi, Jingzu Yee, Yoshiyuki Tagawa Three-dimensional reconstruction of fluid stress field from flow birefringence using 3D physics informed convolutional encoder-decoder (3D-PICED)	2-10-1-03 *Paraskovia Kolesova, Mustafa Z. YOUSIF, Hee-Chang LIM Deep reinforcement learning approach for active flow control on airfoil using plasma actuators	2-10-1-04 *Mustafa Z. Yousif, Meng Zhang, HeeChang Lim A transformer-based synthetic-inflow generator for spatially developing turbulent boundary layers	2-10-1-05 *Taku Sakamoto, Kie Okabayashi Speed-up of the optimization of fluid control laws by using dynamic mode decomposition in the environment of deep reinforcement learning	
Room 11 [Cat.8] Computational Fluid Dynamics	2-11-1-01 [Keynote address] *Soshi Kawai Wall-modeled LES of complex full aircraft configurations at high Reynolds numbers		2-11-1-02 *Daniel Garmann High-fidelity simulations of passive gust alleviation through micro-cavity actuation	2-11-1-03 *Yifan Sun, Wei Zhu, Yuxin Wu, Haiying Qi The validation and boundary layer transition modification of the Gao-Yong turbulence model based on OpenFOAM	2-11-1-04 Mohamed En-Nali, Seshendra Palakurthy, Anup Zope, *Shanti Bhushan, Eric Collins, Edward Luke Investigation of low-high fidelity turbulence models in scramjet engines	2-11-1-05 Masahiro Nagao, *Koji Fukudome, Makoto Yamamoto, Yoshinori Oba Numerical simulation of ground vortex behavior of aero-engine nacelle inlet
Room 12 [Cat.8] Computational Fluid Dynamics	2-12-1-01 Qi Li, Zhi Yang, Yu Liu, Wei Jiang, He Jia, Wei Huang, *Sijun Zhang CFD development of an independent adjoint solver	2-12-1-02 *Sho Wada, Reo Kai, Ryoichi Kurose Development of non-spurious pressure oscillation semi-implicit pressure-based scheme for real-gas flows	2-12-1-03 *Tatsuki Matsuda, Ryosuke Takahashi, Shoki Oogi, Shin-ichi Inage Analysis of Kalman vortices using neural networks	2-12-1-04 *Ruijie Zhao, Ao Wu, Yuanhang Zhang, Xiaojie Wang Development and verification of a CFD solver based on immersed boundary method for 3D turbulent flows	2-12-1-05 Vicente Corral, *Arturo Rodriguez, Vinod Kumar Numerical multi-fractal cascade of atmospheric turbulence	
	10:20–	10:40–	11:00–	11:20–	11:40–	12:00–

Chairpersons
2-01-1: Gota Kikugawa (Tohoku Univ.)
2-02-1: Yohsuke Imai (Kobe University)
2-03-1: Koichiro Ogata (National Institute of Technology, Oita College)
2-04-1: Guoyi Peng (Nihon University)
2-05-1: Deify Law (California State University)
2-06-1: Motohiko Nohmi (Ebara Corporation)
2-07-1: Kevin Dankhara (Indian Institute of Science), Ravinder Yerram (GE Gas Power)
2-08-1: Aarthi Sekaran (SUNY Polytechnic Institute), Makoto Tsubokura (Kobe University)
2-09-1: Jun Chen (Purdue University)
2-10-1: Sung Goon Park (Seoul National University of Science and Technology)
2-11-1: Haecheon Choi (Seoul National University)
2-12-1: Chao-An Li (National Tsing Hua University)

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2023/07/11 Tue (Day 2) Afternoon

	14:40–16:40					
	14:40–	15:00–	15:20–	15:40–	16:00–	16:20–
Room 01 [Cat.4] Micro & Nano Fluid Mechanics	2-01-2-01 [Keynote address] *Edward Smith Molecular fluid dynamics of flow boiling		2-01-2-02 *Shukai CHENG, Donatas SURBLYS, Hiroki MATSUBARA, Taku OHARA Molecular dynamics study on properties and mechanism of heat transfer for sugar alcohols as phase change materials	2-01-2-03 *Haonan Chen, Sagar Saren, Takahiko Miyazaki, Kyaw Thu, Young-Deuk Kim Investigating the kinetics of surficial evaporation of water and argon nanodroplet by molecular dynamics simulation	2-01-2-04 *Haruta INUKAI, Gota KIKUGAWA, Sota SUZUKI, Yoshiyuki TAGAWA A molecular dynamics study of nanoscale jet ejection from meniscus of argon liquid	2-01-2-05 *Haiyi Sun, Donatas SURBLYS, Hiroki MATSUBARA, Taku OHARA Molecular dynamics study on interfacial heat transfer between triacontanol and diverse silica surfaces
Room 02 [Cat.2] Fluid Mech. - Complex & Functional Fluids	2-02-2-01 *Mahmood Norouzi, Hosna Shokri, Mohmmad Hasan Kayhani, Mirae Kim, Kyung Chun Kim Numerical analysis of miscible Saffman-Taylor instability of nonlinear viscoelastic fluids in heterogeneous porous media	2-02-2-02 *Kyoungyoun Kim Degradation of heat transfer reduction in viscoelastic turbulent channel flow of low Prandtl number fluid	2-02-2-03 *Sina Ghaemi, Lucas Warwaruk, Satyajit Singh Friction factor in turbulent pipe flows with polymer drag reduction	2-02-2-04 *Indranil Saha Dalal, Praphul Kumar, Venkata S. Sivakrishna Chain resolution dependence of configurational and rheological predictions from Brownian dynamics simulations of polymers in flow fields	2-02-2-05 *Toshiki Matsuoka, Yunosuke Kimoto, Yasunori Sato, Tsutomu Takahashi Creep compliance correlations of yield behavior on hydrogels	2-02-2-06 *Togo Hayashi, Hironori Takeda, Shunichi Ishida, Yohsuke Imai A fluid-structure interaction analysis of growth-induced fold formation of a sheet in a viscous fluid
Room 03 [Cat.3] Multiphase Multicomponent Flows	2-03-2-01 [Keynote address] *Adolfo Delgado, Wenjie Yin, Burak Ayyildiz Wear of interstage seals in electric submersible pumps: numerical modeling anchored to experimental data		2-03-2-02 *Sunil Kumar, Ravi B. Grover, P. K. Vijayan Investigation on effect of heat exchanger design on thermal stratification in a water pool	2-03-2-03 *Wilson Susanto, Anindityo Patmonoaji, Mohammad Azis Mahardika, Muhammad Nasir, Shintaro Matsushita, Tetsuya Suekane Pore-scale observation of salt precipitation of trapped brine in porous media under CO2 injection	2-03-2-04 Yasmeen Jojo-Cunningham, Xipeng Guo, Chenn Zhou, *Yun Liu Resolving the volumetric flow field inside a cylindrical gas stirred water ladle model	2-03-2-05 *ZENSAKU KAWARA, TAKEHIKO YOKOMINE, YOTA KAWASAKI A study on extension of horizontal heat transport distance in self-exited oscillating heat pipe
Room 04 [Cat.3] Multiphase Multicomponent Flows	2-04-2-01 *Eunseong Moon, Minho Song, Daegyoum Kim Liquid entrainment around a toroidal bubble crossing a liquid-liquid interface	2-04-2-02 *Abhishek Kumar Shukla, Subhra Datta Oscillating bubbles: real gas effect on the nonlinear corrections to the Minnaert frequency	2-04-2-03 *Junyeop Kim, Sangha Kim, Changwook Seol, Sangmoon Kim, Rhokyun Kwak Direct visualization of electrochemical reactions and bubble growth in a proton exchange membrane electrolyzer	2-04-2-04 *Seongjin Hong, Gihun Son Numerical investigation of acoustic focusing and bubble collapse	2-04-2-05 *Quoc Nam Nguyen, Tetsuya Kanagawa Nonlinear ultrasound propagation for different initial surface tension of shell in liquids containing multiple ultrasound contrast agents	2-04-2-06 *Ritesh Prakash, Jinseok Lee, Jinkee Lee Mechanistic insight of bulk nanobubbles in various liquid mediums
Room 05 [Cat.1] Fundamental Fluid Mechanics	2-05-2-01 *Dohyun Kim, Minhyeong Lee, Ehsan Mahravan, Daegyoum Kim Thrust generation of a circular array with coordinated oscillation	2-05-2-02 *Kazuki Shibayama, Syouta Maeda, Hiromitsu Hamakawa, Eru Kurihara, Eiichi Nishida Flow patterns and vortex shedding from in-line tube banks on acoustic resonance	2-05-2-03 Sarah Dulac, Hamed Samandari, *Banafsheh Seyed-Aghazadeh Hydrodynamic distinction of wakes caused by moving objects of different frequencies – a biomimetic approach	2-05-2-04 *Hiroki Yanai, Shinya Hasegawa, Kazuto Kuzuu Measurement of the time average flow velocity in arbitrary cross section and the outer surface temperature of the thermal buffer tube of the loop type thermoacoustic engine with branch tube	2-05-2-05 [Keynote address] *Mark F. Tachie Spatio-temporal characteristics of turbulent flow separation around rectangular prisms	
Room 06 [Cat.6] Fluids Eng. Applications and Systems	2-06-2-01 [Keynote address] *Kazuyoshi Miyagawa Flow instability due to swirling and vortex flow		2-06-2-02 *Takuji Ikeda, Motohiko Nohmi, Szu-yung Chen A study on application of highly accurate unsteady turbulence calculation for pump suction performance prediction at low flow rate	2-06-2-03 *renfang huang, chaohui qian, xianwu luo, yiwei wang, tezhuan du, xingyu kan Numerical investigation into the backflow vortex cavitation in a waterjet pump	2-06-2-04 *Akihisa Yamada, Takeshi Ino, Shin-ichi Tsuda, Satoshi Watanabe Numerical prediction of cavitation in centrifugal pump using multi-process cavitation model	2-06-2-05 *Tsuyoshi Inoue, Hayate Okawa, Hironori Horiguchi Variation of pump dynamic characteristics of a three blade inducer by two-dimensional flow analysis considering synchronous whirl and its influence on fluid-structure coupling phenomena
Room 07 [Cat.6] Fluids Eng. Applications and Systems	2-07-2-01 *DONGHYUK KANG, IZURU KAMBAYASHI, KAZUIHIKO YOKOTA Numerical evaluation of dynamic characteristics for cavitating pump in two-dimensional cascade flow using dynamic mode decomposition control	2-07-2-02 *Sota Nakayama, Shinichi Konno, Shinichiro Ejiri, Masahiro Miyabe Cavitation instabilities in low solidity inducers	2-07-2-03 *Yadong Han, Shuai Liu, Lei Tan Experimental and numerical investigation on spatial-temporal evolution of tip leakage cavitation in a mixed flow pump with tip clearance	2-07-2-04 *Meng Guo, Cheng Liu, Zhifang Ke, Qingdong Yan, Wei Wei Research on the cavitation characteristics and its characterization methods of hydraulic torque converter	2-07-2-05 *Mitsuteru Fujimori, Kazuhiro Aiba, Shouichiro Iio Influence of nozzle tip length on the characteristic of a cross-flow turbine	2-07-2-06 *NAOYA AKATANI, Eru Kurihara, Hiroki Yasui, Hiromitsu Hamakawa Numerical simulation of effect of serrations on unsteady flow past a rotating Wells turbine
Room 08 [Cat.6] Fluids Eng. Applications and Systems	2-08-2-01 *Thi Thanh Giang Le, Jihoon Kim, Minki Cho, Jaiyoung Ryu Investigating the impact of nose shapes and tail shapes/lengths on aerodynamic forces and pressure waves in hyperloop system	2-08-2-02 *Zhenxu Sun, Yeteng Wang, Dilong Guo, Guowei Yang Robust optimization of the nose shape of a high-speed train in crosswind conditions	2-08-2-03 *Guibo Li, Jian Du, Honglei Tian, Jiali Liu, Yongda Shi Drag optimization of high-speed train nose shape under partial constraints	2-08-2-04 *Kohei Kawai, Keiichi Kitamura Computational fluid analysis on multiple flat plates as small distributed aerodynamic brake for high-speed railways	2-08-2-05 *Jiali LIU, Shuanbao YAO, Dawei CHEN, Sansan DING, Mengge YU, Yu TAO Investigation of snow accumulation on the high-speed train	2-08-2-06 *Naveen Kumar Chahel, Nobuyuki Oshima, Rahul Bale, Makoto Tsubokura Optimization of air conditioning system of railway coach
Room 09 [Cat.7] Experimental Fluid Dynamics	2-09-2-01 [Keynote address] *Masahito Watanabe, Yudai Mohri, Yuta Haga, Hiroaki Yoshimura Elliptic Lagrangian coherent structures observed in perturbed Rayleigh-Bé nard convection		2-09-2-02 *Sotheavuth Sin, Shun Imai, Shintaro Matsushita, Tetsuya Suekane Study of Rayleigh-Bénard instability with convection in a 3D porous medium using X-ray computed tomography	2-09-2-03 Yijie Wang, *Jun Chen, Shyuan Cheng, Leonardo Patricio Chamorro Effects of rotating system on energy transfer mechanism of turbulence	2-09-2-04 *Arash Mohammadikarachi, Hee Chang Lim Experimental study of passive flow control of circular bluff body covered by convergent-divergent (C-D) riblets	
Room 10 [Cat.5] Data-based Simul. Machine Learning	2-10-2-01 [Keynote address] Mustafa Z. Yousif, Linqi Yu, Meng Zhang, Paraskovia Kolesova, *HeeChang Lim A deep learning framework for various problems in turbulent flow		2-10-2-02 *Hiroshi Omichi, Takeru Ishize, Koji Fukagata Data-driven improvement of particle image velocimetry without DNS data	2-10-2-03 Ahmad Shirvani, Mahdi Nili-Ahmadabadi, *Man Yeong Ha Development of a data-driven deep learning model to improve an inverse design method	2-10-2-04 Rafael Baez Ramirez, *Arturo Rodriguez, Jose Perez, Rene D. Reza, Vinod Kumar Using artificial intelligence for hypersonic re-entry transient heat transfer	2-10-2-05 *Jun Zhang, Jamie(Yijie) Li, Siamack Shirazi Predicting erosion rate and uncertainty utilizing statistical learning and machine learning algorithms with added physics through CFD simulations
Room 11 [Cat.8] Computational Fluid Dynamics	2-11-2-01 [Keynote address] *Datta V Gaitonde Synthesis of data-driven and physics-based methods for DNS/LES and time-mean basic state perturbations		2-11-2-02 Victor Coppo Leite, *Elia Merzari High fidelity simulations of turbulent jets in large enclosures	2-11-2-03 *Shigeru Ogawa, Ippei OSAWA, Tsutomu SHIMIZU Flow and temperature structure of the natural convection over an upward-facing horizontal heated plate	2-11-2-04 *Olalekan O. Shobayo, Daniel Scott Lykins, Keith Walters Statistically targeted forcing (STF) method for synthetic turbulence generation of scale-resolving simulations in wall-bounded flows	2-11-2-05 *Olalekan O. Shobayo, Fady B. W. Fayek Hybrid RANS-LES modeling of airflow in a bronchial flow simulation of a human lung
Room 12 [Cat.8] Computational Fluid Dynamics	2-12-2-01 *Young-Jin Yoon, Haecheon Choi Turbulence characteristics of a tip vortex of an isolated multirotor propeller using a proper orthogonal decomposition	2-12-2-02 *Sensyo Haba, Shuto Yatsuyanagi, Takashi Furusawa, Hironori Miyazawa, Satoru Yamamoto, Takuo Onodera, Sadatake Tomioka Large eddy simulation of supercritical n-dodecane flows in a heated rectangular channel	2-12-2-03 *Jiyong Choi, Jeongwon Lee, Ju-Hyun Im, Jung-Il Choi Numerical study of film-cooling effectiveness with various hole arrangements on profiled endwall	2-12-2-04 Wen-Ken Li, *Kai-Hsiang Chuang Numerical study of microwave vacuum drying with focus on the thickness of pineapple slice	2-12-2-05 *Ying Wang, Dazhuan Wu Investigation of the effect of flexible cantilever hydrofoil's deformation mode on the hydrodynamic performance of hydrofoil	2-12-2-06 *Wonseok Ryoo, Jaeho Jeong Elucidation of aerodynamic characteristics due to ice accretion on multi-mw wind turbine blade
	14:40–	15:00–	15:20–	15:40–	16:00–	16:20–

Chairpersons

2-01-2: Yasutaka Yamaguchi (Osaka University)
2-02-2: Hyoungsoo Kim (KAIST)
2-03-2: Judith Bamberger (Pacific Northwest National Laboratory)
2-04-2: Hiroyuki Takahira (Osaka Metropolitan University)
2-05-2: Kazuyasu Sugiyama (Osaka University)
2-06-2: Chisachi Kato (University of Tokyo), Paul Uwe Thamsen (Technische Universität Ber
2-07-2: Seung Jin Song (Seoul National University), Donghyuk Kang (Saitama University)
2-08-2: Ravinder Yerram (GE Gas Power), Aarthi Sekaran (SUNY Polytechnic Institute)
2-09-2: Tatsuro Wakimoto (Osaka Metropolitan University)
2-10-2: Shanti Bhushan (Mississippi State University)
2-11-2: Sung Goon Park (Seoul National University of Science and Technology)
2-12-2: Koji Fukudome (Kanazawa Institute of Technology)

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2023/07/12 Wed (Day 3) Morning

	10:20–12:00					
	10:20–	10:40–	11:00–	11:20–	11:40–	
Room 01 [Cat.4] Micro & Nano Fluid Mechanics	3-01-1-01 [Keynote address] *Choongyeop Lee Drop impact on superhydrophobic surfaces with micropores		3-01-1-02 *Bin Wang, Zhongwei Huang, Haizhu Wang, Shouceng Tian, Huaizhong Shi, Xianzhi Song, Zongjie Mu, Mao Sheng, Yiqun Zhang, Ruiyue Yang, Qinzhuo Liao, Mengmeng Zhou, Xiaoguang Wu, Tianyu Wang, Zhaopeng Zhu Solute transport in creeping flows within multi-scale porous media	3-01-1-03 *HIROKI IMAI, Yuta Yoshimoto, Ikuya Kinefuchi Evaluation of the effect of pore diameter on evaporative mass flux from porous membranes	3-01-1-04 *Carlos Bistafa, Donatas Surblys, Hiroki Kusudo, Yasutaka Yamaguchi Work of adhesion and wetting of water droplets on hydroxylated silica surfaces	
Room 02 [Cat.2] Fluid Mech. – Complex & Functional Fluids	3-02-1-01 [Keynote address] *Haibo Dong From hydrofoil arrays to 3D fish schools: A computational study of interactions in dense environments		3-02-1-02 *Joseph Zhu, John M Kelly, Haibo Dong, Hilary Bart-Smith Caudal fin flexibility and performance of tuna-inspired robots: an experimental and numerical study	3-02-1-03 Isaac Clapp, *Kamran Siddiqui Experimental investigation of the flow over a biomimetic fish scale array	3-02-1-04 *Alec Menzer, Yu Pan, Pan Han, George Lauder, Haibo Dong Inspiration from the natural world: hydrodynamic interactions in giant danio schooling	
Room 03 [Cat.3] Multiphase Multicomponent Flows	3-03-1-01 *Seong Keun Kim, Sung Yong Jung Effect of porous transport layer on performance in PEM water electrolysis	3-03-1-02 *Makoto Sugimoto, Masayoshi Mizutani, Naoki Takano, Masaya Shigeta Lattice Boltzmann simulation of liquid infiltration into microscale porous structure	3-03-1-03 *Anindityo Patmonoaji, Yuichiro Nagatsu Stability dynamics on the viscous fingering interaction of dual displacement fronts in porous media	3-03-1-04 *Zijing LI, Tetsuya SUEKANE, Shintaro MATSUSHITA, Chunwei ZHANG Impact of oil viscosity on the dispersion in an aqueous phase of immiscible two-phase flow in porous media – X-ray tomography study	3-03-1-05 *Kailin Wang, Masayuki OSADA, Shintaro MATSUSHITA, Tetsuya SUEKANE Description of energy dissipation for Haines jumps and meniscus reconfiguration in interacting angular capillaries	
Room 04 [Cat.3] Multiphase Multicomponent Flows	3-04-1-01 *Daeun Lee, Hyungmin Park Experimental study of the bubble curtain dynamics	3-04-1-02 *Abdullah Abbas Kendoush, Abdullah Abbas Kendoush The drag force on a growing bubble	3-04-1-03 *Jinyong Choi, Hyungmin Park Effect of wall wettability on the dynamics of the rising bubble impacting on the inclined wall	3-04-1-04 *Yasufumi Horimoto, Itsuki Mori, Yuichi Murai, Hyun Jin Park, Yuji Tasaka Bubble clustering in turbulent boundary layer on a moving wall utilizing belt-driven system		
Room 05 [Cat.1] Fundamental Fluid Mechanics	3-05-1-01 Yu Liu, Wei Jiang, He Jia, Wei Huang, Zhi Yang, Mingxing Huang, *Sijun Zhang Numerical study of a cross parachute using fluid-structure interaction method	3-05-1-02 *Joonoh Kim, Minhyung Lee, Gitaek Lee, Chankyu Son, Keunhwan Park, Hyungmin Park, Ho-Young Kim Stability control of a drag propelled tethered body	3-05-1-03 *Parvez Ahmad, Amit Gupta Numerical simulation of fluid-structure interaction employing OpenFOAM and Deal.II coupled using preCICE	3-05-1-04 *Frederick Ferguson Ferguson, Dehua Feng, Yang Gao Investigating the flow physics within a normal shock-bubble interactions		
Room 06 [Cat.6] Fluids Eng. Applications and Systems	3-06-1-01 [Keynote address] *Luis San Andres Static stability of pump/turbine seals and gas injection to increase their centering stiffness		3-06-1-02 *GIULIO ELICIO, Uday Meduri Multiphase fluid lubrication of journal bearings	3-06-1-03 Ugo Recchia, Francesco De Francesco, *Rita Brizzi, Francesco Annese Rotordynamic unbalance test campaign on BB5 inline centrifugal pump	3-06-1-04 *Pinyu Zhu, Guangsheng Yang, Shuai Yang, Dazhuan Wu A test evaluation device and method for dynamic load of centrifugal pump impeller	
Room 07 [Cat.6] Fluids Eng. Applications and Systems	3-07-1-01 *ABDALLAH SOFIANE BERROUK, Ahmed M Alatyar Machine-learning aided modelling of dry pressure drop in rotating packed bed reactors	3-07-1-02 *Ibrahim Abubakar Masud, Mizuki Sakamoto, Tomohiro Ueno, Katsuaki Shirai Effect of arm insertion angle on the complex behaviour of flow fields in a transparent non-axisymetric corotating system mounted in an enclosure	3-07-1-03 *Tomohiro Ueno, Katsuaki Shirai, Mizuki Sakamoto, Ibrahim Abubakar Masud Examination of the axial flow reconstructed from planar velocity fields measured in an enclosed flow driven by corotating disks	3-07-1-04 *Jisu Park, Junhee Kim, Changwoo Kang Effect of the hole length-to-diameter ratio on film cooling hole with an inlet groove	3-07-1-05 *Junhee Kim, Changwoo Kang Numerical investigation of film cooling hole performance with varying edge angle of inlet groove	
Room 08 [Cat.6] Fluids Eng. Applications and Systems	3-08-1-01 Wei Wei, Jinghan Tu, *Zhifang Ke, Molei Zhao, Qingkai Meng, Haitao Zhang Numerical investigate on influence of the blade angle imbalance on aerodynamic and instability characteristic of coaxilcopter	3-08-1-02 Wei Wei, MoLei Zhao, *Zhifang Ke, Qingkai Meng, Yongjie Shu, Haitao Zhang Research on aerodynamic characteristics of coaxilcopter with variable rotor spacing and the related pitch regulated control strategy	3-08-1-03 *Atsushi Kase, Mitsumasa Teramoto, Yudai Uetabira, Seiichiro Izawa Drone rotor performance with an annular guide during ascent and descent	3-08-1-04 *Kosei Kataoka, Kento Ishii, Yoshitsugu Naka Relationship between position and attitude control and turbulence characteristics of a quad-rotor drone hovering in active grid turbulence	3-08-1-05 *Sambit Surpiya Dash, Aditya Virkar, Kevin Dankhara, Jeel Mavani Flow interaction with proposed novel nose cone shapes with dimples for SLV in varying speed regimes	
Room 09 [Cat.7] Experimental Fluid Dynamics	3-09-1-01 Rose Pineda, Haipeng Zhang, *Sangjin Ryu Fabrication and characterization of agar hydrogel beads	3-09-1-02 *Takuya Katagiri, Boguang Mi, Kentaro Kato, Masaharu Matsubara Development and evaluation of a double-sided simultaneous exposure apparatus using photolithography technology to fabricate hot film sensors for anemometers	3-09-1-03 *Tatsuhiko Imai, Yasumasa Suzuki, Yuya Miki Improvement of extraction method of the fizeau fringes spacing in the oil film interferometry and measurement of wall shear stress on an airfoil surface	3-09-1-04 *Dai Nakai, Yohsuke Tanaka Holographic collision analysis of microdroplets: data augmentation with OpenFOAM	3-09-1-05 *Yohsuke Tanaka, Dai Nakai Measurement of spray droplets using phase retrieval holography with a GPU-Equipped SBC	
Room 10 [Cat.5] Data-based Simul. Machine Learning	3-10-1-01 [Keynote address] *Takahiro Tsukahara Deep learning estimation of scalar source in turbulence		3-10-1-02 *SuHwan Lee, Eunseop Yeom Evaluation of ARIMA and RNN models for life prediction in exhaust gas butterfly valve	3-10-1-03 *Yosuke Shimoda, Naoya Fukushima CNN-based mode decomposition with deterministic latent space for unsteady flows	3-10-1-04 *Mikimasa Kawaguchi, Ryoutaro Nakayama, Makoto Iwasaki, Keiya Nishida, Ryo Yamamoto, Akira Nakashima, Yoichi Ogata Analysis of curved nozzle internal flow using new method –Global POD–	
Room 11 [Cat.8] Computational Fluid Dynamics	3-11-1-01 [Keynote address] *Sung Goon Park Exploring propulsive efficiency of flexible foils flapping near the air–water interface: numerical investigation of fluid–structure interactions employing ibm and CLSVOF methods		3-11-1-02 Shukui Ding, Heng Wang, *Wenjie Qin Determination of reserved gap between obturator ring and breechblock in obturation mechanism of a large caliber gun howitzer	3-11-1-03 *Manabu Saito, Jun Nagao, Ryoichi Kurose Investigation of blade-turbulence interactions in a cycloidal rotor using large-eddy simulation	3-11-1-04 *Tsukasa Yoshinaga, Zhaoyan Zhang, Akiyoshi Iida Numerical simulation of fluid-structure-acoustic interactions in vocal folds with horizontal and vertical motions	
Room 12 [Cat.8] Computational Fluid Dynamics	3-12-1-01 *MyeongJin Seo, Seongbin Hong, JaeGwan Kim, JaeHo Jeong RANS-based CFD methodology and challenge in modeling 1/100th scale TEG system for container ship	3-12-1-02 *Pooja Thakur Numerical study on the flow of Bingham plastic fluid over the array of rough cylinders: an analysis of porous flow	3-12-1-03 *Tien-Fu Yang Research on thermal behavior of the Li-ion battery with phase change materials	3-12-1-04 *Senia Firlania Novianti, Ming-Feng Sung, Yean-Der Kuan, Chane-Yuan Yang Phan-Thien-Tanner (PTT) model applied for tire tread co-extrusion simulation	3-12-1-05 *Takashi Furusawa, Hironori Miyazawa, Satoru Yamamoto, Akira Yoko, Tadafumi Adschiri Large eddy simulation of continuous supercritical hydrothermal synthesis in a T-shaped reactor	
	10:20–	10:40–	11:00–	11:20–	11:40–	

Chairpersons

3-01-1: Wonjung Kim (Sogang University)
3-02-1: Deify Law (California State University)
3-03-1: Kosuke Hayashi (Kobe University)
3-04-1: Jae-Sung Kwon (Incheon National University)
3-05-1: Banafsheh Seyed-Aghazadeh (University of Massachusetts, Dartmouth)
3-06-1: Tsuyoshi Inoue (Nagoya University), Giancarlo Cicatelli (Flowserve Corporation)
3-07-1: Wontae Hwang (Seoul National University), Satoshi Watanabe (Kyushu University)
3-08-1: Jooha Kim (UNIST), Xianwu Luo (Tsinghua University)
3-09-1: Theodore Heindel (Iowa State University)
3-10-1: Jinyul Hwang (Pusan National University)
3-11-1: Jung-Il Choi (Yonsei University)
3-12-1: Jae-Ho Jeong (Gachon University)

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2023/07/12 Wed (Day 3) Afternoon

	14:40–16:20				
	14:40–	15:00–	15:20–	15:40–	16:00–
Room 01 [Cat.4] Micro & Nano Fluid Mechanics	3-01-2-01 *Kotaro Fujimoto, Aima Shibata, Shuichi Torii An experimental and numerical study of turbulent heat transfer performance of graphene nanofluids produced by pulsed discharge	3-01-2-02 *Sora Lee, Hoseong Lee Investigation of electrical-thermal characteristics of battery at low temperature	3-01-2-03 *Dongho Kim, Yeonuk Yu, Sudong Park, Rhokyun Kwak Improving the energy efficiency of acid-base flow battery with leaky ion exchanger	3-01-2-04 *Gwiyeol Kim, Rhokyun Kwak Convective states during the steady-to-chaotic transition of electroconvective instability	3-01-2-05 *Sungyeong Choi, Jeonghwan Kim, Minsang Kang, Rhokyun Kwak Coupling between dendrite growth and electroconvective instability on ion selective electrodes
Room 02 [Cat.2] Fluid Mech. - Complex & Functional Fluids	3-02-2-01 Huang Shun, *Bo Yin, Guowei Yang Combined effect of traveling-wave surface and undulation on the hydrodynamic performance of a swimmer	3-02-2-02 Minh Nhat Doan, *An Quoc Nguyen, Quan Le, Duong Manh Phung Large eddy simulation of a bio-inspired robot's caudal fin	3-02-2-03 *Hikaru Aono, Kaijyu Shimizu, Shu Tsuchiya, Taku Nonomura, Yuta Ozawa, Chang-kwon Kang, Jeremy Pohly Vortex dynamics of two-dimensional robotic flapping wing motion under high-altitude condition	3-02-2-04 *Jeonghan Shin, Jungmok Park, Ginseok Song, Jooha Kim Aerodynamic effects of leading-edge tubercles in paraglider canopy.	3-02-2-05 *Kanon Shimizu, Shunichi ISHIDA, Yuto KAWABATA, Chunyue ZHU, Yohsuke IMAI The shape of the vocal tract that generates the aspirated voiceless alveolar plosive [th]
Room 03 [Cat.3] Multiphase Multicomponent Flows	3-03-2-01 *Yeshwanth Raj Rajkumar, Ronald Vieira, Siamack Shirazi, Eckhard Schleicher, Soroor Karimi Flow characterization of intermittent multiphase flows at high liquid rates through 90-degree elbows in series using a wire-mesh sensor and CFD simulations	3-03-2-02 *Ronald Vieira, Yeshwanthraj Rajkumar, Eckhard Schleicher, Siamack Shirazi Investigation of void fraction and periodic structures of churn flows at high superficial liquid velocities in vertical pipes	3-03-2-03 *Chen Chen Experimental and numerical study on the air lubrication bubbly flow	3-03-2-04 *Ryo Kurimoto, Soichiro Horita, Kosuke Hayashi, Akio Tomiyama Effects of fine particles and surfactant on bubbly flows in narrow rectangular column	3-03-2-05 *Ali Sadeghi, Byoung Jae Kim A numerical study on vertical bubbly flow using corrected two-fluid equations
Room 04 [Cat.3] Multiphase Multicomponent Flows	3-04-2-01 *Shijie Qin, Shuai Sun, Dazhuan Wu Drag reduction in turbulent flows over surfaces with air-permeable longitudinal hydrophobic grooves	3-04-2-02 *Atinder Pal Singh, Ashwani Kumar pal, Aditya Singh Suswal, Gautam Biswas An improved coupled-level-set and volume-of-fluid model to study cavity dynamics of superhydrophobic spheres entering deep liquid pool	3-04-2-03 *Daisuke Tsuneoka, Junnosuke Okajima Reynolds number dependence of liquid film thickness in two-phase flow in microchannel	3-04-2-04 *Robin Pham, Chung-Lung Chen A mutable and versatile face of electrowetting condensation	
Room 05 [Cat.1] Fundamental Fluid Mechanics	3-05-2-01 *Hisami Takeishi, Ryo Onishi, Feng Xiao, Toshiharu Kagawa Investigation of heat generation characteristic in high speed aero static spindle	3-05-2-02 *Rui Zhao, Zhengxuan Zuo Effect of lighter-gas injections on a high-enthalpy turbulent boundary layer flow	3-05-2-03 *Takeru Yano, Masashi Inaba, Haruki Yamamoto Nonlinear acoustic waves and shock waves in a two-dimensional duct	3-05-2-04 Rohit Sankaran Iyer, Dong Hyeon Kim, Tae Ho Kim, *Heuy Dong Kim Open-end correction on the compression waves emitted from the exit of a high-speed railway tunnel	3-05-2-05 *Yoshitaka Higa, Masanobu Matsunaga, Chihiro Fujio, Hideaki Ogawa, Kiyonobu Ohtani, Taro Handa Study on Reynolds-number dependence of axisymmetric shock reflection in supersonic flow
Room 06 [Cat.6] Fluids Eng. Applications and Systems	3-06-2-01 [Keynote address] *Motohiko Nohmi, Tomoki Tsuneda, Hiroaki Nakamoto, Kohichi Masuya, Taichi Nogami, Shusaku Kagawa A calibration method of cavitation erosion prediction		3-06-2-02 *Aye Sandar Kyaw, Yuka IGA Investigating the mechanism of scale effect of cavitation inception in water	3-06-2-03 *Hayato Kitamura, Yohei Ueno, Satoshi Watanabe, Yohei Tanaka, Akira Sakata, Yasushi Matsunaga Experimental study of gas-liquid two-phase flow performance of a turbopump in water with dissolved CO2	3-06-2-04 *Griffith Wagner, Arun Sriniwas Selvamani, Deify Law Computational fluid dynamics study on impeller augmentations for vertical turbine pumps operating in two-phase flow
Room 07 [Cat.6] Fluids Eng. Applications and Systems	3-07-2-01 Yongcheol Choi, Jongrak Choi, Joohyoung Park, *Nahmkeon Hur Dynamic simulation of hot blast stoves for a blast furnace	3-07-2-02 *Yong-Seok Choi, Seok Kim Experimental and numerical study of pressure drop across various rod bundle structure	3-07-2-03 Canceled	3-07-2-04 Shi-jie Lin, Liang Zhang, Fei Ling, An-qi Guan, *Jin-yuan Qian Flow rate analysis of three-way control valve for boric acid concentration regulation	3-07-2-05 *Taesoon Kim, Ilyoup Sohn, Myungil Kim Design optimization for bio-filtration system under backwashing condition via computational fluid dynamics and metamodel construction
Room 08 [Cat.6] Fluids Eng. Applications and Systems	3-08-2-01 *Kent Justine Bandal Legada, Joefreim Armada Delicano Effects of elliptical fin eccentricity on the aerodynamic performance of a sounding rocket	3-08-2-02 *Jintao Liu, Weixiang Ye, Jun Long, Nanji Yang, Xihui Geng Numerical study on cavitation characteristics of a space pump under microgravity	3-08-2-03 *Weixiang Ye, Jintao Liu, Baotang Zhuang, Qiang Bi, Xianwu Luo Flow characteristic analysis in a propellant tank with a centrifugal gas-liquid separator using VOF model	3-08-2-04 *Alexandra Nordmann, Trinity Blackman, Javid Bayandor Investigation of atmospheric interactions with an innovative tensegrity exploration module	3-08-2-05 *Kyung Heon Kim, Dong Kee Sohn, Kyun Ho Lee, Jung Won Kuk, Han Seo Ko A study on capillary type multi-emitter FEEP thruster using gallium propellant
Room 09 [Cat.7] Experimental Fluid Dynamics	3-09-2-01 [Keynote address] *Jooha Kim Pushing the boundaries of wing design with biomimetic flow control		3-09-2-02 Nicholas Dudu, *Arturo Rodriguez, Vinod Kumar Flat plate boundary-layer transition feedback loop experiment	3-09-2-03 *Martin Seydoux, Elena Vagnoni, Mario Paolone Frequency-domain analysis of start-up sequences of high-head Francis turbines	
Room 10 [Cat.1] Fundamental Fluid Mechanics	3-10-2-01 *Akinori Muramatsu, Kodai Yasufuku, Tomoha Watanuki Numerical simulation on hysteresis phenomenon of bifurcating flows formed in a round jet	3-10-2-02 *Eisei Kobayashi, Masaki Fuchiwaki, Surya Raghu Vortex structure formed by an inclined sweeping jet in cross flow	3-10-2-03 *MD MAHBUB ALAM Optimum tube spacing for maximum heat transfer in a tube bundle	3-10-2-04 *Tarek AMMAM, Laurent KEIRSBULCK, Jeremy BASLEY Active flow control of a transitional cavity wall pressure in a channel flow configuration	3-10-2-05 *Takahiro Yasuda, Daiki Yamaguchi, Hisato Minagawa, Takanori Miura, Yoshinobu Takayama, Takashi Ogawa A study on reduction and prediction of fluid-dynamic noise from air jet nozzle
Room 11 [Cat.8] Computational Fluid Dynamics	3-11-2-01 *Tiantian Xu, Jung-Il Choi Monolithic immersed boundary method for particle sedimentation problems with heat transfer	3-11-2-02 *Shuntaro Houri, Shintaro Takeuchi Numerical method for inter-particle flow with immersed pressure solution of lubrication	3-11-2-03 *Haoxiang Luo, Amit G. Avhad, Ye Chen Computational fluid-structure interaction for biological flow applications	3-11-2-05 *Yosua Heru Irawan, Yu-Hao Chiu, Ming-Jyh Chern, Tzyy-Leng Horng, Syed Ahmad Raza Passively enhancement on vortex induced vibration of side-by-side cylinders in turbulent flow	
Room 12 [Cat.8] Computational Fluid Dynamics	3-12-2-01 *Kannan Shaji, Dong-In Lee, Abhilash Suryan, Fahime Salmani, Heuy Dong Kim Optimization study of vortex tube for temperature separation	3-12-2-02 *Yong-Han Shin, Su-Bin Kim, Youn-Jea Kim Thermal-flow characteristics of nanofluids in a square cavity including a heated lower wall	3-12-2-03 Ang Li, *Jun Chen Time-domain impedance boundary conditions for combined CFD-CAA simulations	3-12-2-04 *Qidun Maulana Binu Soesanto, Tsukasa Yoshinaga, Akiyoshi Iida High-fidelity large eddy simulation of multiple wakes behind three aligned horizontal axis wind turbines	3-12-2-05 Canceled
	14:40–	15:00–	15:20–	15:40–	16:00–

Chairpersons

3-01-2: Jinsoo Park (Chonnam National University)
3-02-2: Deify Law (California State University)
3-03-2: Yuichi Murai (Hokkaido University)
3-04-2: Wonjung Kim (Sogang University)
3-05-2: Takeru Yano (Osaka University), Frederick Ferguson (North Carolina A&T State Univ
3-06-2: Yuka Iga (Tohoku University), Young-Do Choi (Mokpo National University)
3-07-2: Aarthi Sekaran (SUNY Polytechnic Institute), Ravinder Yerram (GE Gas Power)
3-08-2: Sambit Supriya Dash (IIT Madras), Atsushi Kase (University of Toyama)
3-09-2: Daegyoum Kim (KAIST)
3-10-2: Khaled J. Hammad (Central Connecticut State University)
3-11-2: Michael R Borghi (NASA Glenn Research Center)
3-12-2: Yeon-Won Lee (Pukyong National University)

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Room 05: No.1004 Room 11: No. 801
Room 06: No.1005 Room 12: No. 802

2023/07/12 Wed (Day 3) Evening

	16:40–18:40					
	16:40–	17:00–	17:20–	17:40–	18:00–	18:20–
Room 01 [Cat.4] Micro & Nano Fluid Mechanics	3-01-3-01 *Jeongu Ko, Jinsoo Park Microscale heat transfer enhancement based on acoustic streaming flow	3-01-3-02 *Yoonah Lee, Hoseong Lee Multi-objective optimization of a U-shaped water jacket using a guide vane for thermal performance improvement in 25-kW in-wheel motor	3-01-3-03 *Subrata Bera, Priyanka Koner, Hiroyuki Ohshima Influence of heat transfer characteristics of oscillating electroosmotic flow of viscoelastic fluid through a soft nanochannel	3-01-3-04 *Min-Gyu Ham, Se-Hoon OH, Young-Deuk KIM Design and performance investigation of a membrane-based absorptive dehumidification module using potassium formate desiccant solution	3-01-3-05 *Kohei Yamagata, Shoto Sekiguchi, Hiroya Watanabe, Yuto Yokoyama, Yoshiyuki Tagawa High-speed focused jet for the development of impact-induced needle-free injector	3-01-3-06 *Bei Fan Fan Enhanced electrokinetic flow over novel slippery surfaces
Room 02 [Cat.1] Fundamental Fluid Mechanics	3-02-3-01 *Eiichi Sasaki, Genta Kawahara, Javier Jimenez Creation of spanwise vortices in the unstable periodic orbit describing LES Couette turbulence	3-02-3-02 *Saikishan Suryanarayanan, Anthony Settlemier, David B. Goldstein The interaction of turbulent spots with low speed streaks	3-02-3-03 *Te-Yao Chiu, Yi-Ju Chou Analyzing vortex forces of coherent structures on airfoils using spectral proper orthogonal decomposition	3-02-3-04 *Koki Matsui, Izumi Watanabe, Tomoya Kikugawa, Kentaro Kato, Masaharu Matsubara Extracting secondary instability of streaks from turbulent boundary layer using linear response	3-02-3-05 *Noriyuki Furuichi, Marie Ono, Yoshiyuki Tsuji On the mean velocity and turbulence intensity profiles in pipe flows at high Reynolds number	
Room 03 [Cat.3] Multiphase Multicomponent Flows	3-03-3-01 Zhong Xiang, *Xi Chen, Theodore J. Heindel Study of the three-dimensional characteristics of jets in a spout-fluidized bed based on XCT	3-03-3-02 *Hiroya Watanabe, Hiroaki Kusuno, Kohei Yamagata, Yuto Yokoyama, Yoshiyuki Tagawa Effects of vessel geometry on the behavior of impact-induced focused liquid jets	3-03-3-03 *Guoyi PENG, Ryouichiro KOIKE, Yasuyuki OGUMA Flow structure and unsteady behavior of high-speed air-ventilated submerged water jet	3-03-3-04 *Ryunosuke Hasegawa, Shinya Hasegawa Electricity generator driven by wet-walled thermoacoustic engine using a loudspeaker as a generator	3-03-3-05 *Esmail Lakzian, Mohammad Ghodrati, Seyed Ali Hosseini, Heuy Dong KIM Control of the condensing flows in steam turbine blade using a suction technique	3-03-3-06 *Kwonyeong Lee, Hyunjun Sun, Seongwon Seo, Hyukjun Ha Experimental study of two-phase closed thermosyphon with superhydrophilic and superhydrophobic surfaces
Room 04 [Cat.3] Multiphase Multicomponent Flows	3-04-3-01 *Seongsu Cho, Ryungeun Song, Jinkee Lee Effect of non-equal sized droplet pair on electrocoalescence	3-04-3-02 *Donghoon Lee, Dohyung Kim, Ildoo Kim, Jinkee Lee Emulsion formation by surfactant-laden droplet impacting a viscous oil layer on water	3-04-3-03 *Jingzu Yee, Daichi Igarashi, Shun Miyatake, Akinori Yamanaka, Yoshiyuki Tagawa Critical morphological features of a splashing drop extracted through video classification using an explainable feedforward neural network (FNN)	3-04-3-04 *Hao Chen, Yan Long, Haisheng Fang Numerical study on the impacting behavior of micro-droplets under a vertical electric field	3-04-3-05 Masahiro Muraoka, *Katsuya Iijima Coalescence of droplets rising in a quiescent fluid confined in a vertical circular tube	3-04-3-06 *Jongsu Jeong, Kyungchun Kim, Seungho Kim Bouncing of water droplets on hydrophilic surfaces via the supply of alcohol vapor
Room 05 [Cat.1] Fundamental Fluid Mechanics	3-05-3-01 *Koki ITO, Hiromasa SUZUKI, Masaki ENDO, Yoko Sakakibara Study on periodic behavior of vortices moving around supersonic jets	3-05-3-02 *Ch Narendra Kumar, Singeetham Pranaykumar, Rajesh Kumar, K P Sinhamahapatra Numerical investigation of parallel twin jet with equal and unequal nozzle pressure ratios	3-05-3-03 *Yuki Wakamatsu Impact of wall heat flux conditions on the aerodynamic sound generated by vortical motion near a wall	3-05-3-04 Insaf MEHREZ, Houda HACHEM, Ramla GHEITH, *Fethi ALOUI Numerical CFD investigation of a nanofluid flow using lattice Boltzmann method for the cooling of a Stirling engine circuit	3-05-3-05 *Sedem Kumahor, Mark F. Tachie Effects of wake proximity on the separated shear layer dynamics	3-05-3-06 *Xiaoyun QU, Tong Wang, Rong He Vortex identification method based on topological analysis and velocity gradient invariance
Room 06 [Cat.6] Fluids Eng. Applications and Systems	3-06-3-01 *jincheng ye, Linwei Tan, Weidong Shi, Cheng Chen, Egbo Munachi Francis Numerical simulation of axial-flow pump cavitation based on variable frequency speed regulation	3-06-3-02 Duc-Anh Nguyen, Sung Kim, *Jin-Hyuk Kim Design of the axial-flow pump impeller and diffuser vane based on the optimization technique	3-06-3-03 *Rong Lu, Jieyun Mao, Harald Roclawski, Martin Böhle Optimization of splitter blade for a high-specific speed centrifugal pump	3-06-3-04 *Hui Ding, Chengjie Wang, Gabriel DAVILA, Baoning ZHANG Centrifugal pump design optimization based on CFD simulations and Bayesian inference	3-06-3-05 *Szuyung Chen, Lingjia Zhao, Hidenobu Okamoto, Hiroyoshi Watanabe, Akira Goto, Mehrdad Zangeneh A surrogate model and multi-objective optimization approach to pump hydraulic design for mass customization	
Room 07 [Cat.6] Fluids Eng. Applications and Systems	3-07-3-01 *Xiaolong FU, Deyou LI, Hongjie WANG, Xianzhu WEI Hydraulic instability induced by unsteady cavitation flow in a pump-turbine after pump power-trip	3-07-3-02 *Ujjwal Shrestha, Young-Do Choi Numerical analysis of unstable flow phenomenon of a pump turbine model in "S"-curve region by impeller blade angle	3-07-3-03 In-Sik MOON, Jong-Woong CHOI, Tai-Young CHO, *Yong Cho Field efficiency measurement of a bulb type hydraulic turbine with wide inlet using current-meter method and CFD simulation	3-07-3-04 *Takero Mukai, Masahiko Nakazono, Kotaro Tezuka Study of frequency band in von Karman excitation of Francis turbine	3-07-3-05 *Tatsuya Irie, Kazuyoshi Miyagawa Discriminations and transition model validation of laminar-turbulent transition on a Clark Y hydrofoil	3-07-3-06 *Rong Guo, Qiannian Wang Decomposition and recombination of vortex in the flow field of pump jet based on DMD method
Room 08 [Cat.6] Fluids Eng. Applications and Systems	3-08-3-01 *Elia Puccinelli, Angelo Pasini Steady 1D non-adiabatic viscous flow model for design and assessment of nuclear fuel element coolant channels with variable geometry	3-08-3-02 *Hiroki Tanaka, Yohsuke Tanaka, Yoshitaka Isoda Influence of pitching airfoil aspect ratio and phase difference on lift-drag force in periodic flow	3-08-3-03 *Yoshitaka Isoda, Yohsuke Tanaka Scaling laws of thrust and lift coefficients generated by pitching foil rotating at the leading edge in periodic freestream	3-08-3-04 *Ning LIANG, Guoshou ZHAO, Linlin CAO, Dazhuan WU Numerical study on unsteady cavitation-induced vibration characteristics of waterjet propulsion	3-08-3-05 Xutao Zhao, *Desheng Zhang, Xi Shen, B.P.M. van Esch Investigation on hydrodynamic performance and cavitation effects of a pre-swirl stator pump-jet propulsor by CFD method	
Room 09 [Cat.3] Multiphase Multicomponent Flows	3-09-3-01 *WEICEN WANG, YINGXUE HU, Tetsuya Suekane, Shintaro Matsushita The effect of generated gas by chemical oxidation on DNAPL remediation in 3D porous media	3-09-3-02 *Ryosuke Watanabe, Miyu Yoshida, Yuya Haraguchi, Hiroko Aruga Katori, Daisuke Yoshino Plasma reactive flow changes crystallization process of sugar alcohol along with liquid atomization	3-09-3-03 *Hui Hu, Harsha Sista, Haiyang Hu An experimental study of dynamic ice accretion process on a wind turbine blade model	3-09-3-04 *Kyle Teather, Kamran Siddiqui Thermo-fluid behavior during unconstrained melting of a phase change material	3-09-3-05 *Kenya Kitada, Abhishek L Pillai, Ryoichi Kurose Influence of aerodynamic Weber number on evaporation of atomizing liquid fuel jets in crossflow: a numerical study	3-09-3-06 *Chengshuai Li, Qianli Ma, Haisheng Fang Effects of the gas flow rates on the CVD process for large-sized silica glass synthesis
Room 10 [Cat.1] Fundamental Fluid Mechanics	3-10-3-01 *Hiroto Yamaguchi, Hiroki Suzuki, Kento Tanaka, Toshinori Kouchi Wind tunnel experiment on spatial evolution of multi-scale generated grid turbulence	3-10-3-02 *Makoto Chitose, Hiroki Suzuki, Kento Tanaka, Toshinori Kouchi LES analysis of steady isotropic turbulence in response to inviscid energy conservation properties based on external forcing	3-10-3-03 *Ryusuke Takahashi, Hiroaki Hasegawa Wake flow structure produced by gaps of dandelion pappus	3-10-3-04 *Emin Issakhanian, Jarret Furuta Flight and wake dynamics of a rotating baseball in flight	3-10-3-05 *Ayumu Inagaki, Keisuke Minami Vortex tracking of wire mesh wake using AI visual inspection technology	3-10-3-06 *Aki Nakata, Takahiro Yasuda, Kazuki Doi, Hisato Minagawa A study of fluid dynamic force acting on heaving wing with leading edge protuberance
Room 11 [Cat.8] Computational Fluid Dynamics	3-11-3-01 *Mingyu Yang, Geunwoo Oh, Jung-Il Choi A multi-GPU-based real-time large-eddy simulation for urban wind environment	3-11-3-02 Manuel Fritsche, *Philipp Epple Analysis of the parallel scalability for the engineering application of a low-pressure axial fan	3-11-3-03 *haifeng jiao, songshan chen Research on the influence of blade tip clearance size of shaft tubular flow pump on the performance of small flow condition	3-11-3-04 *Chao-An Lin, Fong-Ken Lee Lattice Boltzmann simulations of turbulent flows with periodic obstacles	3-11-3-05 *Pratyush Kumar Singh, Sandip K. Saha, Atul Sharma Modeling of heat transfer including radiation of binary backed bed using CFD-DEM	
Room 12 [Cat.8] Computational Fluid Dynamics	3-12-3-01 Longyue Sun, *Desheng Zhang, Qiang Pan, B.P.M. van Esch Numerical investigation of the typical flow in the bulb tubular pump based on energy analysis methods and vortex dynamics	3-12-3-02 *Gang Yang, Xi Shen, Desheng Zhang Numerical investigations on the effect of guide vane openings on the stall characteristics in a pump-turbine	3-12-3-03 *Jae-Hyeong Seo, Woo-Geun Kim, Choong-Won Cho Numerical study on heat recovery characteristics of counter flow air-to-air heat exchanger for energy recovery ventilator with various air flow rates	3-12-3-04 *Lev Chernyshev, Natalia Kabaliuk, Mark Jermy, Simon Corkery, Daniel Bernasconi Determining the physical components of resistance acting on a hydrofoil	3-12-3-05 *Youchang Na, Gihun Son Numerical study on thermal characteristics of line start permanent magnet and induction motors	3-12-3-06 *Youngsim Choi Study on momentum loss on Cartesian grid systems in casting flow simulation
	16:40–	17:00–	17:20–	17:40–	18:00–	18:20–

Chairpersons

3-01-3: Rhokyun Kwak (Hanyang University)
3-02-3: Hiroya Mamori (The University of Electro-Communications)
3-03-3: Shigeo Fujikawa (Institute of Physical Fluid Dynamics)
3-04-3: Toshiyuki Sanada (Shizuoka University)
3-05-3: Aarthi Sekaran (SUNY Polytechnic Institute)
3-06-3: Hiroyoshi Watanabe (Ebara Corporation), Young-Seok Choi (KAIST)
3-07-3: Taesoon Kim (KISTI), Kazuyoshi Miyagawa (Waseda University)
3-08-3: Sambit Supriya Dash (IIT Madras), Ravinder Yerram (GE Gas Power)
3-09-3: Shin-ichi Tsuda (Kyushu Univ.)
3-10-3: Akinori Muramatsu (Nihon University)
3-11-3: Hirofumi Hattori (Nagoya Institute of Technology)
3-12-3: Takashi Furusawa (Tohoku University)

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2023/07/13 Thu (Day 4) Morning-1

	8:00-9:20					
	8:00-	8:20-	8:40-	9:00-		
Room 01 [Cat.4] Micro & Nano Fluid Mechanics		4-01-1-02 *Takehiro Shiraishi, Hiroki Imai, Yuta Yoshimoto, Shu Takagi, Ikuya Kinefuchi Variance reduction with deviational particle method for DSMC simulations of polyatomic gases	4-01-1-03 Yuuki Hatta, Reiko Kuriyama, Kazuyoshi Nakabe, *Kazuya Tatsumi Deterministic and stochastic modeling of clogging effects on flow in lattice-shaped microchannel	4-01-1-04 *Bifeng Yin, Sheng Xu, Fei Dong, Shengfang Shi Lattice Boltzmann modeling of multiphase reactive transport with heat transfer in gas diffusion layer of proton exchange membrane fuel cells		
Room 02						
Room 03 [Cat.3] Multiphase Multicomponent Flows	4-03-1-01 *Tatsuhiko Tsumai, Toshinori Kouchi, Hiroyasu Niitsuma, Kanae Nishio, Takayuki Matsunaga VOF simulations of submerged entry nozzle and mold in continuous casting process	4-03-1-02 *Duy Tai Vu, Sung-Goon Park Numerical simulation of two-phase flow using coupled level-set and volume-of-fluid method	4-03-1-03 *Hak Jun Lee, Sung-Min Kim Numerical study on two-phase flow pattern and thermal concentration in a LN2-lubricated cryogenic ball bearing	4-03-1-04 *Benjamin Bizjan, Marko Hočevar, Marko Blagojević, Sabina Kolbl Repinc, Gašper Rak Modelling of open channel confluence flows with high Reynolds and Froude numbers		
Room 04 [Cat.3] Multiphase Multicomponent Flows	4-04-1-01 *Sangwon Kim, Junya Onishi, Rahul Bale, Makoto Tsubokura Droplet dispersion simulation for evaluating the risk of airborne virus infection in an outdoor sport stadium environment	4-04-1-02 *Reza Alidoost Dafsari, Milad Khaleghi Kasbi, Ali Charanandeh, Seunghwa Yu, Yong Choi, Jeekeun Lee On the spray structure and break up of air induction nozzle	4-04-1-03 *Woohyuk Kim, Jinsoo Park Acoustofluidic production of picoliter droplets with controlled chemical concentration	4-04-1-04 *Daiki Watanabe, Susumu Goto The onset of convection cells in a partially filled cylinder rotating about a horizontal axis		
Room 05 [Cat.1] Fundamental Fluid Mechanics	4-05-1-01 *Koichi Uchida, Shun Shibata, Toru Yamada, Yohei Morinishi The effect of small rotation on turbulence structure in oscillating grid turbulence	4-05-1-02 *oaki iida, yuya matsumoto, koga matsunodaira DNS of laminarization of turbulent channel flow under stable density stratification	4-05-1-03 Kate Reza, Rene Daniel Reza, *Arturo Rodriguez, Vinod Kumar Deblurring of optical images due to atmospheric turbulence effects using image processing	4-05-1-04 *Shinya Okino, Hideshi Hanazaki The buoyancy-ratio dependence of decaying turbulence in a thermohaline stratified fluid		
Room 06 [Cat.6] Fluids Eng. Applications and Systems	4-06-1-01 *Ujjwal Shrestha, Young-Do Choi Numerical analysis of evaluation of hydraulic and suction performance of mixed flow pump with semi-open type casing	4-06-1-02 *Hao Wang, Fujun Wang, Chaoyue Wang, Wenhao Chen, Zhifeng Yao, Ruofu Xiao Application and evaluation of dynamic Bradshaw coefficient in SST k-ω turbulence model for hydro-energy machinery	4-06-1-03 *Marius Christian Banica, Elliot Regev, Philippe Dupont A study of the impact of shroud mounted expeller vanes in a low specific speed centrifugal pump	4-06-1-04 *Satoshi Maeda, Takeshi Sano, Kazuyoshi Miyagawa, Kento Sakai Reduction of disk friction loss by applying a fin to the back of a centrifugal impeller		
Room 07 [Cat.6] Fluids Eng. Applications and Systems	4-07-1-01 *Ljing Liu L Calculation method of leak-rate of nonmetallic gaskets considering roughness	4-07-1-02 Jia-xiang Xu, Li Fang, Jia-xi Nie, Yi-xiang Xu, *Jin-yuan Qian Transient analysis on fluid dynamics of high parameter steam spring-loaded safety valve	4-07-1-03 Jia-xi Nie, Wen-bin Zhu, Yun-fei Long, Jia-xiang Xu, *Jin-yuan Qian Circulation volume and flow resistance analysis of butterfly valve	4-07-1-04 Yu-xuan Luo, Qiang Ru, Wei-ping Chen, Jia-xiang Xu, *Jin-yuan Qian Flow rate analysis of sleeve control valve: double layer valve core with two degrees of freedom		
Room 08						
Room 09 [Cat.7] Experimental Fluid Dynamics	4-09-1-01 *Shun Miyatake, Jingzu Yee, Yoshiyuki Tagawa Automation of drop impact experiment	4-09-1-02 *Keldon Anderson, Soroor Karimi, Siamack Shirazi Experimental investigation of water droplet erosion in wind turbines	4-09-1-03 *Fahime Salmani Salmani, Amir Bak Khoshnevis, Heuy Dong KIM Experimental study of turbulent wake flows produced in an airfoil	4-09-1-04 Lamia GAIED, Emna BERRICH, *Fethi ALOUI Experimental study of flow instabilities in a turbulent Taylor-Couette flow with a wavy inner cylinder surface		
Room 10						
Room 11 [Cat.8] Computational Fluid Dynamics	4-11-1-01 *Tzyy-Leng Horng Numerical investigation of freely falling objects using direct-forcing immersed boundary method	4-11-1-02 *Yan Jin Study on the fluid-structure coupling characteristics of adjustable guide vane of bidirectional submersible tubular pump	4-11-1-03 *SangJin Ji, SeHwan Lim, SungGoon Park Drag reduction of circular cylinder using reinforcement learning control of flexible splitter	4-11-1-04 *HEEGOO LEE, Yeongmin Jo Analysis of aerodynamic interactions between an eVTOL vehicle and building		
Room 12						
	8:00-	8:20-	8:40-	9:00-		

Chairpersons

4-01-1: Shin-ichi Tsuda (Kyushu University)
4-02-1:
4-03-1: Yoshiyuki Tagawa (Tokyo University of Agriculture and Technolog)
4-04-1: Takeru Yano (Osaka University)
4-05-1: Hiroki Suzuki (Okayama University)
4-06-1: Takahide Nagahara (Hitachi Industrial Products, Ltd.), Christian Brix Jacobsen (Grundfos Holding A/S)
4-07-1: Wontae Hwang (Seoul National University), Shouichiro Iio (Shinshu University)
4-08-1:
4-09-1: Masaharu Matsubara (Shinshu University)
4-10-1:
4-11-1: Shanti Bhushan (Mississippi State University)

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2023/07/13 Thu (Day 4) Morning-2

	9:40-11:00					
	9:40-	10:00-	10:20-	10:40-		
Room 01 [Cat.4] Micro & Nano Fluid Mechanics	4-01-2-01 *Qinzhuo Liao, Zhongwei Huang, Shouceng Tian, Huaizhong Shi, Xianzhi Song, Haizhu Wang, Zongjie Mu, Mao Sheng, Yiqun Zhang, Ruiyue Yang, Mengmeng Zhou, Xiaoguang Wu, Bin Wang, Tianyu Wang, Zhaodong Zhu Quick estimation of equivalent permeability in digital rocks	4-01-2-02 *Beomseok Cha, Jinsoo Park Investigation of microscale acoustic streaming flow-induced mixing and biomedical application	4-01-2-04 *Jae-Sung Kwon, Mansha Jayan, Han-Sheng Chuang Rapid immunosensing of biomarkers by magnetic and optoelectrokinetic manipulations			
Room 02 [Cat.2] Fluid Mech. - Complex & Functional Fluids	4-02-2-01 *Zhenglun Alan Wei Wei, Carter Allen Estimation of hepatic flow for assessing hemodynamics in total cavopulmonary connections	4-02-2-02 *Kyung Eun Lee, Donghyun Shin Numerical simulations of blood flows in a porous vascular scaffold	4-02-2-04 *Meng Jian, Kexin Zheng, Mingkui Zhang, Jianbing Huang, Xianwu Luo Numerical simulation and analysis of blood dynamics in ECMO oxygenators by micro-continuum approach			
Room 03 [Cat.3] Multiphase Multicomponent Flows	4-03-2-01 *Ji Yeon Kim, Mehdi Mortazavi, Sung Yong Jung Acoustic wave superposition for reducing channel flooding and improving PEMFC performance	4-03-2-02 *Ching-Sen Wu On the propagation of gravity currents over an array of densified obstacles	4-03-2-03 *Zurwa Khan, Hamza Ghauri, Ahmed Mahfouz, Reza Tafreshi, Shameel Abdulla, MD Wahid, Albertus Retnanto Prediction of oil, gas, and liquid flowrates for intelligent wells using machine learning algorithms			
Room 04 [Cat.3] Multiphase Multicomponent Flows	4-04-2-01 *Hideki Murakawa, Yudai Kubo, Sana Maeda, Katsumi Sugimoto Development of measurement method of bubble behavior using high-speed ultrasonic tomography	4-04-2-02 *Alief Avicenna Luthfie, So Segawa, Yosephus Ardean Kurnianto Prayitno, Noritaka Saito, Masahiro Takei Crystallization rates of molten salt by CFD-electrical simulation and comparison with electrical impedance spectroscopy (EIS)	4-04-2-03 *Esmail Lakzian, Ahmad Jahani RAHVARD, Abdolamir Bak KHOSHNEVIS, Heuy Dong KIM Study on supersonic dehydration process of natural gas using a TOPSIS	4-04-2-04 *Ibrahim Alsafadi, Afshin Goharzadeh, Mahmoud Meribout, Mohamed Alshehhi, Lyes Khezzar Experimental study of interface stability in a two-phase swirl flow		
Room 05 [Cat.1] Fundamental Fluid Mechanics	4-05-2-01 *Xiang Yang, Wen Zhang, Junlin Yuan, Robert Kunz In search of a universal rough wall model	4-05-2-02 *Tomohiro Nimura, Takuya Kawata, Takahiro Tsukahara Vortex modulation and instability due to viscoelasticity in wall-bounded shear flow	4-05-2-03 *Masako Jige, Masashi Ichimiya Analysis of unsteady random data of turbulent chaotic motion using information entropy	4-05-2-04 *Tatsuya Inagaki, Tomoaki Watanabe, Koji Nagata Direct numerical simulation of the interaction of temporally evolving supersonic jets		
Room 06 [Cat.6] Fluids Eng. Applications and Systems	4-06-2-01 *Qiaorui Si, Yongsheng GUO, Peng WANG, Hu XU, Shouqi YUAN Effect of impeller parameters on the energy loss characteristic of multi-stage centrifugal pump using entropy generation method	4-06-2-02 QIFAN DENG, *Ji Pei, Wenjie Wang Hydraulic loss analysis in a high power double-suction centrifugal pump with the emphasis on vortex	4-06-2-03 *Dongtao Ji, Weigang Lu Study of energy characteristics of shaft tubular pump device based on entropy production method	4-06-2-04 *Yong-Jin Son, Young-Seok choi, Yong-In Kim, Hyeon-Mo Yang, Kyoung-Yong Lee, Joonyong Yoon A numerical study on performance characteristics with various flow angles of an axial flow pump		
Room 07 [Cat.6] Fluids Eng. Applications and Systems	4-07-2-01 *Zhipeng Ren, Deyou Li, Hongjie Wang, Jintao Liu, Yong Li Gaseous and vapor cavitations effects on gas-liquid mass transfer behaviors in an on-orbit refuelling micropump	4-07-2-02 *Rong He, Jiaqi Song, Tong Wang Study on the dynamic gas flow characteristics in the small volute of a compression system	4-07-2-03 *Cheng Yang, Takahiko Miyazaki, Kyaw THU, Young-Deuk KIM Study of the vapor compression heat pump-based decompression fluidized bed dryer for EV battery recycling process	4-07-2-04 *Tim Nitzsche, Paul Uwe Thamsen Design of a test rig for the experimental investigation of sedimentation at an ascending inverted siphon branch		
Room 08 [Cat.6] Fluids Eng. Applications and Systems	4-08-2-01 *Xiaoguang Wu, Zhongwei Huang, Gensheng Li, Hai Qu The effect of brittleness on acoustic emission and failure characteristics of shales under AWJ impingement	4-08-2-02 *Masaya Shigeta Numerical study of axial magnetic effects on silicon nanopowder cloud around an argon thermal-plasma-jet-induced turbulent flow field	4-08-2-03 *Jiaxuan Wang, Robert Kunz An additively manufactured small footprint wind tunnel for wall jet and particle scavenging studies	4-08-2-04 Euntaek Lee, Joonsu Kim, Gia Ginelle Carandang, *Kyoungjin Kim Analysis of helium/argon purge gas flows in industrial scale glass fiber drawing system		
Room 09 [Cat.7] Experimental Fluid Dynamics	4-09-2-01 *Xinrui Guo, Jiangbo Wu, Xiaoze Du, Feng Ma, Shujun Liu Study on heat and mass transfer enhancement of air gap membrane distillation	4-09-2-02 *Hyunjun An, Jae-gwan Kim, Jae-ho Jeong, Jun-beom Park Feasibility study on thermal-hydraulic test facility for TEG system with AMESIM	4-09-2-03 *Tatsuya Funaki Study on measurement of transient air flows utilizing isothermal chamber			
Room 10 [Cat.5] Data-based Simul. Machine Learning	4-10-2-01 *Adhika Satyadharma, Ming-Jyh Chern, Heng-Chuan Kan A parametric study of data assimilation PINN on a 2 dimensional lid-driven cavity flow	4-10-2-02 *Klemens Katterbauer, Abdulaziz Al Qasim, Abdallah Al Shehri, Ali Yousif Hydrogen production flow optimization via physics-driven deep learning framework	4-10-2-03 *Joshua L Bowman, Shanti Bhushan, Greg Burgreen, Ian Dettwiller A machine learned actuator line model for hydrokinetic turbines	4-10-2-04 *Meng Zhang, Mustafa Z. YOUSIF, HeeChang LIM Physics-guided deep reinforcement learning for denoising of flow fields		
Room 11 [Cat.8] Computational Fluid Dynamics	4-11-2-01 *KiHoon Hong, Sung Goon Park Heat transfer enhancement by actuating flexible vortex generator in a channel flow	4-11-2-03 Seshendra Palakurthy, Anup Zope, Eric Collins, *Shanti Bhushan Effect of resolved turbulence on the panel flutter	4-11-2-04 *Abhishek Thakur, Atul Sharma, Sandip Kumar Saha Proximity-induced oscillation of a non-axisymmetric equilateral triangular prism with a detached splitter-plate			
Room 12 [Cat.8] Computational Fluid Dynamics	4-12-2-01 Annan Antony d'Silva, *Amith K. Biju, Akhil K.R, Henil Emmanuel, Jithin P. N, Rahul Sathyanath Numerical study on aerodynamic characteristics of aerofoil profile sail with biomimetric tubercles with CFD	4-12-2-02 *Siwanart Khumhaeng, Thitapa Suksa, Nutcha Laohalertchai, Benyapa Chaiprasit, Prasert Prapamonthon, Bo Yin Numerical investigation of effects of damaged and repaired surfaces on flow behaviour of gas-turbine trailing edge	4-12-2-03 *Govind Maurya, Pratyush Kumar, Suneet Singh Multiple steady state solutions in bottom heated enclosure cavity having porous media using OpenFOAM	4-12-2-04 *Breken Wallar, Mark Kimber Numerical analysis of wall effects for Re = 3900 with various blockage ratios		
	9:40-	10:00-	10:20-	10:40-		

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2023/07/13 Thu (Day 4) Afternoon

	13:20–15:00				
	13:20–	13:40–	14:00–	14:20–	14:40–
Room 01 [Cat.4] Micro & Nano Fluid Mechanics	4-01-3-01 *Moeto Nagai, Satoshi Soga, Keita Kato, Shunya Okamoto, Tuhin Subhra Santra, Takayuki Shibata Reliability of bidirectional electroosmotic pump through micronozzle array for parallel manipulation of single cells	4-01-3-02 *Yogesh M. Patel, Ritanksha Joshi, Ritu Kulshreshtha, Kedar Khare, Supreet Singh Bahga Label-free classification of breast cancer cells using microfluidic holographic flow cytometry	4-01-3-03 *Song Ha Lee, Jinsoo Park Acoustofluidic separation of bioparticles (protein & bacteria) using SAW-induced ARF	4-01-3-04 *Junil Ryu, Anqi Chen, Tina Huang, David Weitz, Hyoungsoo Kim Dewetting instability in the formation of lipid vesicles from double emulsions	4-01-3-05 Canceled
Room 02 [Cat.3] Multiphase Multicomponent Flows	4-02-3-01 *Yakun Huang, Takehiko Yokomine, Zensaku Kawara Experimental investigation of flash evaporation of liquid jet with suspended fine particles	4-02-3-02 *Sun Youb Lee, Cong-Tu Ha, Jae Hwa Lee Single bubble condensation in subcooled liquid flow under wall effects	4-02-3-03 *Triem T Hoang Analysis of dynamical system behaviors of loop heat pipes	4-02-3-04 *Faraz Aziz, Ji-Hwan Park, Daeseong Jo A study on the influence of rolling motion on critical heat flux using pressure fluctuations	
Room 03 [Cat.3] Multiphase Multicomponent Flows	4-03-3-01 Xin Chen, Senhao Zhang, Wenshan Qin, Jie Ni, *Fei Dong Experimental and numerical study on the droplet transport and dynamic behavior in flow channel with micro-protrusions of proton exchange membrane fuel cells	4-03-3-02 *Tara Chand Kumar Maurya, Sushanta Dutta Introducing a cavity in the microfluidic T-channel to modulate the generation of the droplets in the dripping and jetting regime	4-03-3-03 *Youngjik Youn, Jae Joon Choi, Sae Byul Kang, Hyun Hee Lee Liquid film behaviors of unsteady slug flows in a microtube	4-03-3-04 *Shinsuke Watanabe, Yuki Mizushima, Toshiyuki Sanada Thin liquid film thickness measurement method using a fiber-optic probe with a stepped distribution of emitted laser intensity	4-03-3-05 *Jihoon Jeon, Jae Hwa Lee, Chang-Jin "CJ" Kim Stability of a plastron in laminar boundary layer flow over a superhydrophobic surface
Room 04 [Cat.3] Multiphase Multicomponent Flows	4-04-3-01 *Mendi Chen, Guosheng Xia, Lei Tan Effect of particle sizes on the solid-liquid multiphase flow in the centrifugal pump	4-04-3-03 *Lei Han, Chuanliang Guo, Hongjie Wang Investigation on the influence of sediment characteristics on the erosion of Pelton turbine	4-04-3-04 *Pengfei Yang, Zhaohui Yuan, Jian Kang Erosion wear life prediction method in servo valve nozzles	4-04-3-05 *HAOZHI NAN, WEI HAN, RENNIAN LI Investigation of the coupling mechanism of cavitation and erosion hydraulic machinery surfaces using dynamic boundary approach	
Room 05 [Cat.1] Fundamental Fluid Mechanics	4-05-3-01 *Sedem Kumahor, Mark K. Israel, Mark F. Tachie Turbulent flow around trapezoidal and rectangular prisms	4-05-3-02 *Fati Bio Abdul-Salam, Mark Francis Tachie Effects of Reynolds number on turbulent flow around a rectangular cylinder	4-05-3-03 *Fati Bio Abdul-Salam, Mark Francis Tachie Effects of blockage ratio on turbulent flow around a rectangular cylinder	4-05-3-04 *Haoru Zhao, Baoshan Zhu, Wenwu Zhang Investigation on energy conversion characteristics of Pelton turbine generator set	4-05-3-05 Canceled
Room 06 [Cat.6] Fluids Eng. Applications and Systems	4-06-3-02 *Toru Shigemitsu, Yusuke Araki, Yuki Yoshioka, Sota Kishiue Internal flow measurement of mini centrifugal pumps having different blade outlet angle by PIV	4-06-3-03 *Hongzhong Lu, Qiang Zhu, Bin Wang, Maosheng Niu PIV experiment and numerical simulation of three-dimensional flow field in impeller of low specific speed centrifugal pump	4-06-3-04 Hyun jun Jang, Junho Kim, *Sangyoon Kim, Junho Seo Numerical study on the flow characteristics of impeller inlet diameter for the double suction pump	4-06-3-05 *LING ZHOU, Yong Han, Ling Bai, Weidong Shi Numerical investigation of a three-stage electrical submersible pump with different tip clearance	
Room 07 [Cat.6] Fluids Eng. Applications and Systems	4-07-3-01 *Jihyun Kim, Hyungmin Park Numerical analysis of the flow in scroll compressor	4-07-3-02 *Hikaru Aono, Wataru Obayashi, Tomoaki Tatsukawa, Kozo Fujii, Koichi Takeda, Kazutoshi Takemi, Naoya M[illegible] Computational study of flow structures and generated noise of a sirocco fan	4-07-3-03 *Itsuki Ishihara, Ryo Yamada, Toru Yamada, Yohei Morinishi Effects of skirt structure on the tornado-like swirling flow generated with local remote suction device	4-07-3-04 *Yoichi Ando, Shoki Shimada Effect of blade setting angle on the performance of a twin rotor cross flow wind turbine	
Room 08 [Cat.6] Fluids Eng. Applications and Systems	4-08-3-01 *Rahul Bale, Haruhiro Yamamoto, Alicia Muruga, Chung-Gang Li, Makoto Tsubokura Investigating the efficacy of displacement ventilation in removing indoor air contaminants: the role of ventilation flow rate and inlet-outlet arrangement	4-08-3-02 *Yi-Jiun Peter LIN, Chien-Chih LIN A study on the flow patterns of mechanical extraction ventilation in two parallel-connected rooms	4-08-3-03 *Sadato Sugiyama, Reiko Takashima, Hidekazu Ishii, Rikuma Shijo, Shunichi Ikesue Examples of wind disaster countermeasures using typhoon damage simulation		
Room 09					
Room 10 [Cat.3] Multiphase Multicomponent Flows	4-10-3-01 *Golnaz Zarabian Ghaeini, Mohammad Parsa Ghofrani Maab, SayedMehrdad Bathaei, Javad Abolfazli Esfahani, Kyung Chun Kim Investigation of combustion characteristics of ammonia/hydrogen in co-flow diffusion flames	4-10-3-02 *Ye Wang, Masayasu Shimura, Mamoru Tanahashi Study of near-wall turbulent flame structure and flame-wall interaction of V-shape flame in the turbulent channel flow	4-10-3-03 *Shan Jiang, Masayasu Shimura, Mamoru Tanahashi PSR and LES study on combustion characteristics in steam-diluted hydrogen-oxygen multi-cluster burner		
Room 11 [Cat.8] Computational Fluid Dynamics	4-11-3-01 *Rajasekar Jayabal, Rohit Sankaran Iyer, Heuy Dong Kim Numerical investigation of shock wave propagation and mitigation effects near the air-water interface	4-11-3-02 *Arun Chand, Nishab Ali, Andallib Tariq Effect of latticework on flow development and heat transfer characteristics across a sharp 180o bend	4-11-3-03 *Sungji Youn, Eunseop Yeom Numerical analysis of heat transfer characteristics of impinging jets on a concave surface with varying effusion hole arrangements	4-11-3-04 *Seongbin Hong, Jae-Ho Jeong In-depth large eddy simulation and elucidation of unsteady vortical flow phenomena in centrifugal compressor	4-11-3-05 *Sunghoon Kim, Yeonuk Yu, Van Sang Pham, Rhokyun Kwak Three-dimensional electroconvection in confined geometries: a numerical investigation of flow patterns and wall effects
Room 12 [Cat.8] Computational Fluid Dynamics	4-12-3-01 Hirofumi Hattori, *Tetsushi Ikeda, Tomoya Houra, Masato Tagawa DNS study on structures and characteristics of turbulent heat transfer in wall plane jet	4-12-3-02 *Teng Zhang, Jinghua Li, Yingwen Yan, Yuxin Fan LES of a turbulent polydispersed spray flow: a comparative study of subgrid scale models and droplet injection models	4-12-3-03 *Arturo Rodriguez, Kate Reza, Vinod Kumar Hypersonic CFD solutions for boundary-layer transition sled test track experiment	4-12-3-04 *Ziyuan Zhang Parameter study of 2-scalar flamelet approach applied to turbulent combustion flow of Sandia Flame D	4-12-3-05 *Kenji Miki, Mark Turner, Thomas Wey, Jeffrey Moder LES simulation of cooling airflow of high-pressure turbine using the source term approach
	13:20–	13:40–	14:00–	14:20–	14:40–

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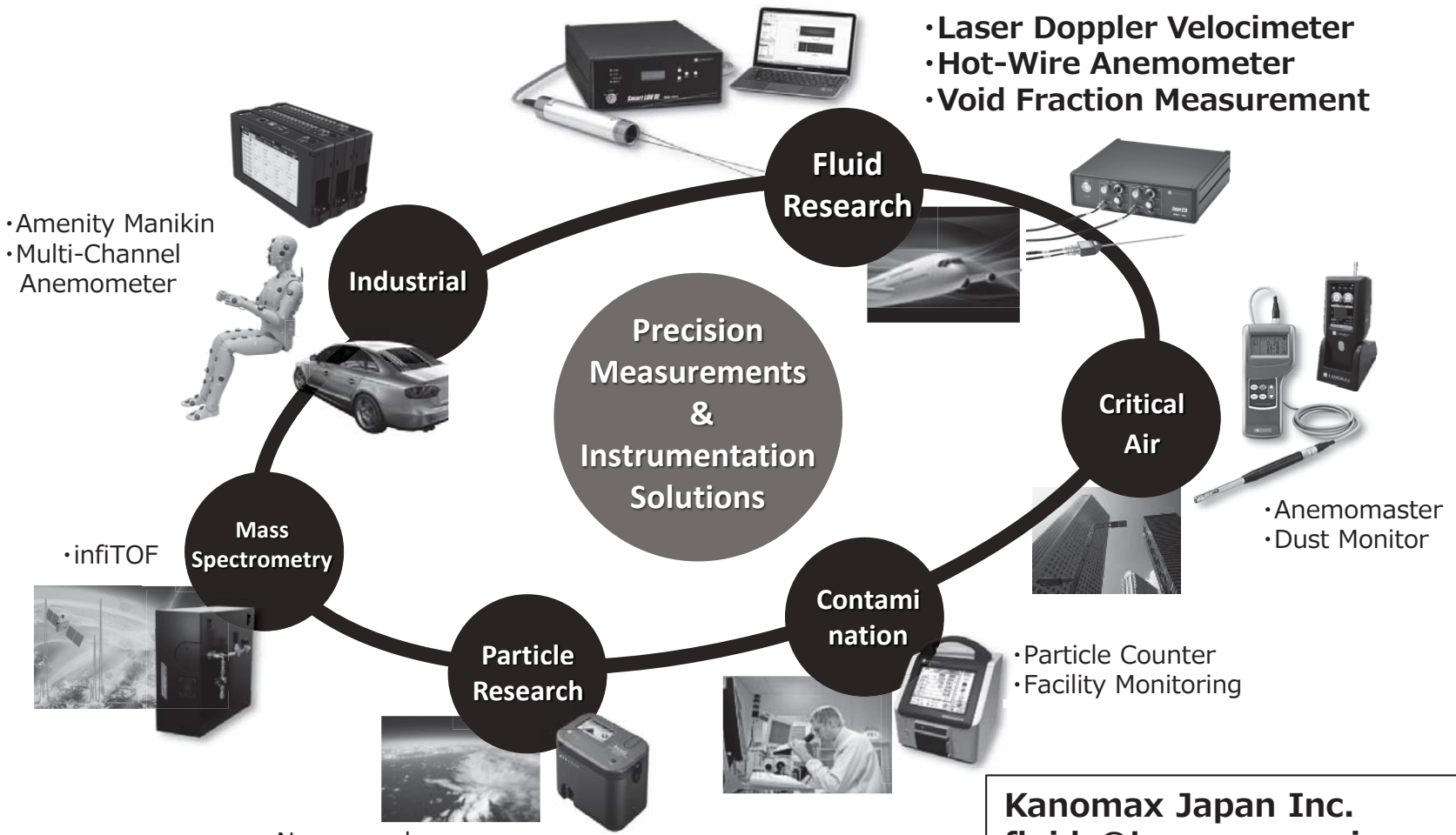

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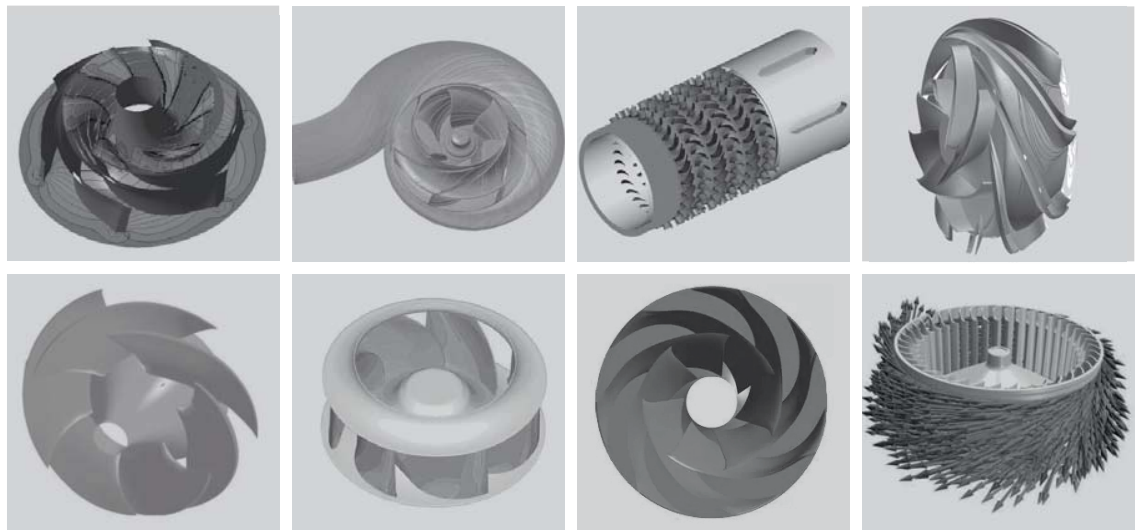

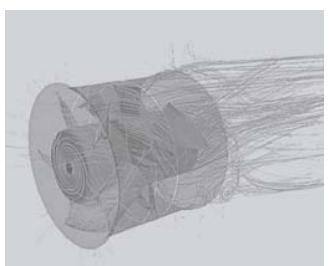

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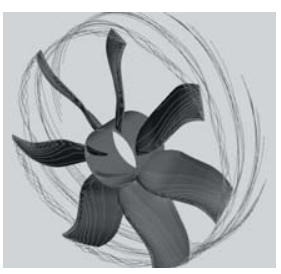

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