PRTEC2024 Program Overview (ver. 5)

Note: The texts colored in green indicate changes from the program (ver.4)

Sunday, December 15, 2024

| Time/Room | 313A | 313B | 306A | 306B | 305B |
|---|---|---|---|---|---|
| 17:00-19:00 | Registration (Registration Desk, 307A) | | | | |

Monday, December 16, 2024

| Time/Room | 313A | 313B | 306A | 306B | 305B |
|---|---|---|---|---|---|
| 8:30-9:00 | Opening (313A) | | | | |
| 9:00-9:40 | Plenary lecture 1<br>PRTEC-24PL01<br>(313A) | Prof. Vish Prasad<br>University of North Texas, USA<br>SUPERCRITICAL FLUIDS: POTENTIAL AND CHALLENGES<br>*Chairperson*: Yogesh Jaluria, Rutgers, The State University of New Jersey | | | |
| 9:40-10:20 | Plenary lecture 2<br>PRTEC-24PL02<br>(313A) | Prof. Yongchan Kim<br>Korea University, Korea<br>THE FUTURE OF HEAT PUMPS: PIONEERING THE PATH TO A SUSTAINABLE TOMORROW<br>*Chairperson*: Jaeseon Lee, Ulsan National Institute of Science and Technology (UNIST) | | | |
| 10:20-10:40 | coffee break | | | | |
| 10:40-12:00 | Topic (a-1)<br>Turbulence 1 | Topic (b-1)<br>Turbulent Combustion/Engines | Topic (c-1)<br>Transport Phenomena in Nano and Molecular Scale 1 | Topic (a-5)<br>Biological Heat and Mass Transfer 1 | Topic (a-4)<br>Radiative Heat Transfer 1 |
| 12:00-13:20 | lunch break | | | | |
| 13:20-15:00 | Topic (a-1)<br>Heat Exchanger 1 | Topic (b-1)<br>Modeling/Combustion Diagnostics | Topic (c-1)<br>Transport Phenomena in Nano and Molecular Scale 2 | Topic (a-5)<br>Biological Heat and Mass Transfer 2 | Topic (a-4)<br>Radiative Heat Transfer 2 |
| 15:00-15:20 | break | | | | |
| 15:20-15:50 | KL01: PRTEC-24KL01<br>Prof. Lorenzo Cremaschi<br>Auburn University<br>NAVIGATING THE JOURNEY TO DECARBONIZATION IN REFRIGERATION SYSTEMS: FROM LOW-GWP REFRIGERANTS TO NATURAL ALTERNATIVES AND BEYOND VAPOR COMPRESSION TECHNOLOGIES<br>*Chairperson:*<br>Koji Miyazaki, Kyushu Univ. | KL02: PRTEC-24KL02<br>Prof. Shuhei Takahashi<br>Gifu University<br>LATEST ON-ORBIT SOLID COMBUSTION EXPERIMENTS ON THE ISS/KIBO: EVALUATING FIRE SAFETY IN MICROGRAVITY ENVIRONMENTS<br>*Chairperson:*<br>Hiroshi Kawanabe, Kyoto Univ. | KL03: PRTEC-24KL03<br>Prof. Jeeyoung Shin<br>Sookmyung Women's University<br>EFFECTIVE INTERFACE CONTROL IN ALL-SOLID-STATE BATTERIES TO PREVENT MIXED IONIC-ELECTRONIC CONDUCTING INTERPHASE FORMATION<br>*Chairperson:*<br>Prashanta Dutta, Washington State Univ. | KL04: PRTEC-24KL04<br>Prof. Seong Hyuk Lee<br>Chung-Ang University<br>VAPOR ACCUMULATION AND EVAPORATION CHARACTERISTICS OF MULTIPLE BINARY MIXTURE DROPLETS<br>*Chairperson:*<br>Jungchul Lee, Korea Adv. Inst. Sci.Tech. | KL05: PRTEC-24KL05<br>Prof. Masamichi Kohno<br>Kyushu University<br>HIGH-PRESSURE TORSION (HPT) PROCESSING OF Si, Ge AND SiGe COMPOSITE AND ITS THERMAL/ELECTRICAL PROPERTIES<br>*Chairperson:*<br>Hosei Nagano, Nagoya Univ. |
| 15:50-15:55 | break | | | | |
| 15:55-17:15 | Topic (a-1)<br>Jet Flows | Topic (b-1)<br>Ammonia Combustion | Topic (c-1)<br>Transport Phenomena in Nano and Molecular Scale 3 | Topic (a-3)<br>Phase Change Phenomena and Heat Transfer 1 | Topic (a-8)<br>Thermo-Physical Properties |
| 17:15-17:25 | break | | | | |
| 17:25-18:45 | Topic (a-1)<br>Convection in Closed Systems | Topic (b-2)<br>Multi-phase combustion | Topic (c-1)<br>Transport Phenomena in Nano and Molecular Scale 4 | Topic (a-3)<br>Phase Change Phenomena and Heat Transfer 2 | |

Tuesday, December 17, 2024

| Time/Room | 313A | 313B | 306A | 306B | 305B |
|---|---|---|---|---|---|
| 8:30-9:10 | Plenary lecture 3<br>PRTEC-24PL03<br>(313A) | Prof. Yong Tae Kang<br>Korea University, Korea<br>THERMAL ENERGY STORAGE FOR PLUS ENERGY BUILDING APPLICATION: SORPTION THERMAL BATTERY<br>*Chairperson*: Ji Hwan Jeong, Pusan National University | | | |
| 9:10-9:50 | Plenary lecture 4<br>PRTEC-24PL04<br>(313A) | Prof. Hirofumi Daiguji<br>The University of Tokyo, Japan<br>GAS ADSORPTION IN CONFINED NANOSPACES AND ITS APPLICATION TO HVAC TECHNOLOGY<br>*Chairperson*: Masahiko Shibahara, Osaka University | | | |
| 9:50-10:10 | coffee break | | | | |
| 10:10-11:50 | Topic (a-6)<br>Fluid and Thermal Measurement Techniques | Topic (b-4)<br>Fuel Cells 1 | Topic (b-3)<br>Heat and Mass Transfer in IC Engine | Topic (a-3)<br>Phase Change Phenomena and Heat Transfer 3 | Topic (c-2)<br>Thermal Trasnport in MEMS |
| 11:50-13:10 | lunch break | | | | |
| 13:10-14:30 | Topic (a-1)<br>Turbulence 2 | Topic (b-4)<br>Fuel Cells 2 | Topic (b-2)<br>Industrial combustion technology 1 | Topic (a-3)<br>Phase Change Phenomena and Heat Transfer 4 | Topic (a-2)<br>Computational Heat and Mass Transfer 1 |
| 14:30-14:35 | break | | | | |
| 14:35-15:05 | KL06: PRTEC-24KL06<br>Prof. Young Soo Chang<br>Kookmin University<br>OPTIMAL DESIGN OF A FIN-TUBE HEAT EXCHANGER FOR HEAT PUMP USING LOW GWP REFRIGERANTS<br>*Chairperson:*<br>Minsung Kim, Chung-Ang Univ. | KL07: PRTEC-24KL07<br>Prof. Hiroshi Iwai<br>Kyoto University<br>UNDERSTANDING AND DESIGNING MESOSCALE STRUCTURE IN SOLID OXIDE CELLS<br>*Chairperson:*<br>Takushi Saito, Institute of Science Tokyo | KL08: PRTEC-24KL08<br>Prof. Atsuki Komiya<br>Tohoku University<br>RESONANCE-DRIVEN HEAT TRANSFER ENHANCEMENT IN A NATURAL CONVECTION<br>*Chairperson:*<br>Takashi Tokumasu, Tohoku Univ. | KL09: PRTEC-24KL09<br>Prof. Nenad Miljkovic<br>University of Illinois<br>TAILORING SURFACES FOR OPTIMIZED STEAM CONDENSATION AND REFRIGERANT EVAPORATION<br>*Chairperson:*<br>Tomohide Yabuki, Kyushu Inst. Tech. | |
| 15:05-15:25 | coffee break | | | | |
| 15:25-16:45 | Topic (a-1)<br>Heat Exchanger 2 | Topic (b-4)<br>Fuel Cells 3 | Topic (b-2)<br>Industrial combustion technology 2 | Topic (a-3)<br>Phase Change Phenomena and Heat Transfer 5 | Topic (a-2)<br>Computational Heat and Mass Transfer 2 |

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| 17:30-20:30 | Conference banquet (Ocean Lawn at THE ROYAL HAWAIIAN RESORT WAIKIKI) |

Wednesday, December 18, 2024

| Time/Room | 313A | 313B | 306A | 306B | 305B |
|---|---|---|---|---|---|
| 8:30-9:10 | Plenary lecture 5<br>PRTEC-24PL05<br>(313A) | Prof. Kasuyoshi Fushinobu<br>Institute of Science Tokyo, Japan<br>RECENT NEW COMBINATION EXAMPLES IN OUR APPLICATION-ORIENTED HEAT AND MASS TRANSFER PROBLEMS<br>*Chairperson*: Ryo Shirakashi, The University of Tokyo | | | |
| 9:10-9:50 | Plenary lecture 6<br>PRTEC-24PL06<br>(313A) | Prof. Ankur Jain<br>University of Texas, Arlinton, USA<br>THERMAL TRANSPORT IN LITHIUM-ION CELLS AND BATTERY PACKS<br>*Chairperson*: Yong X. Tao, Cleveland State University | | | |
| 9:50-10:10 | coffee break | | | | |
| 10:10-12:10 | Topic (a-2)<br>Computational Heat and Mass Transfer 3 | Topic (b-4)<br>Water Electrolysis & Batteries | Topic (b-5)<br>Phase Change Materials | Topic (a-3)<br>Phase Change Phenomena and Heat Transfer 6 | Topic (a-7)<br>Heat Transfer in Manufacturing |
| 12:10-13:30 | lunch break | | | | |
| 13:30-17:00 | TBD | | | | |

Thursday, December 19, 2024

| Time/Room | 313A | 313B | 306A | 306B | 305B |
|---|---|---|---|---|---|
| 8:30-9:50 | Topic (a-2)<br>Computational Heat and Mass Transfer 4 | Topic (b-4)<br>Solar Systems | Topic (b-5)<br>Heat pumps and refrigeration cycles | Topic (a-3)<br>Phase Change Phenomena and Heat Transfer 7 | Topic (c-3)<br>Thermal Properties at the Micro/Nano-scale 1 |
| 9:50-9:55 | break | | | | |
| 9:55-10:25 | KL10: PRTEC-24KL10<br>Prof. Jaeseon Lee<br>Ulsan National Inst. Science and Technology<br>ELECTRICITY RECOVERY BY ELECTRIC CHARGE SEPARATION OF AIR-WATER TWO-PHASE FLOW IN CHANNELS<br>*Chairperson:*<br>Andrew Kurzawski, Sandia National Laboratories | KL11: PRTEC-24KL11<br>Prof. Saeed Moghaddam<br>University of Florida<br>OPPORTUNITIES AND CHALLENGES IN IMPLEMENTING PHASE-CHANGE COOLING FOR NEXT-GEN AI CHIPS AND ULTRA-EFFICIENT DATA CENTERS<br>*Chairperson:*<br>Jaeho Lee, University of California, Irvine | KL12: PRTEC-24KL12<br>Dr. Kashif Nawaz<br>Oak Ridge National Laboratory<br>HIGH-TEMPERATURE HEAT PUMPS AND THEIR ROLE IN THE DECARBONIZATION OF BUILDINGS AND INDUSTRY<br>*Chairperson:*<br>Vikrant C. Aute, University of Maryland | KL13: PRTEC-24KL13<br>Prof. Hiroyuki Kumano<br>Aoyama Gakuin University<br>COMPARISON OF HEAT TRANSFER PERFORMANCE OF PHASE CHANGE SLURRIES<br>*Chairperson:*<br>Kaoru Iwamoto, Tokyo University of Agriculture and Technology | KL14: PRTEC-24KL14<br>Prof. Taesung Kim<br>Sunkyunkwan University<br>THERMAL MANAGEMENT AND PROCESS ANALYSIS IN CHEMICAL MECHANICAL POLISHING<br>*Chairperson:*<br>Jeremy Cho, University of Nevada, Las Vegas |
| 10:25-10:45 | coffee break | | | | |
| 10:40-12:20 | Topic (a-2)<br>Computational Heat and Mass Transfer 5 | Topic (b-4)<br>Thermal Systems 1 | Topic (b-5)<br>Heat Exchangers | | Topic (c-3)<br>Thermal Properties at the Micro/Nano-scale 2 |
| 12:20-13:40 | lunch break | | | | |
| 13:40-15:00 | | Topic (b-4)<br>Thermal Systems 2 | Topic (b-5)<br>Frosting and refrigeration cycles | | |
| 15:00-15:20 | break | | | | |
| 15:20-15:40 | Closing remarks (313A) | | | | |

# Technical Sessions

Monday, December 16, 2024

| Time/Room | 313A | 313B | 306A | 306B | 305B |
|---|---|---|---|---|---|
| | **Topic (a-1)**<br>**Turbulence 1**<br><br>Chairperson<br>Yusuke Kuwata (Osaka Metro. Univ.) | **Topic (b-1)**<br>**Turbulent Combustion/Engines**<br><br>Chairperson<br>Tsukasa Hori (Osaka Univ.) | **Topic (c-1)**<br>**Transport Phenomena in Nano and Molecular Scale 1**<br><br>Chairperson<br>Gota Kikugawa (Tohoku Univ.) | **Topic (a-5)**<br>**Biological Heat and Mass Transfer 1**<br><br>Chairperson<br>Kosaku Kurata (Kyushu Univ.) | **Topic (a-4)**<br>**Radiative Heat Transfer 1**<br><br>Chairperson<br>Atsushi Sakurai (Niigata Univ.) |
| 10:40-11:00 | PRTEC-24032<br>**Near-Wall Velocity Measurement in a Turbulent Boundary Layer by a Two Parallel Hot-Wire Anemometer**<br>Tomoya Houra, Taiki Tagashira, Hirofumi Hattori (Nagoya Inst. Tech) | PRTEC-24200<br>**Modeling of spark ignition phenomena considering thermal plasma properties at high temperature**<br>Naohiro Yoshinaga, Tsukasa Hori, Shinya Sawada, Fumiteru Akamatsu (Osaka Univ.) | PRTEC-24006<br>**Molecular dynamics study of high-spatial-resolution diffusion properties at a nanostructured solid–liquid interface**<br>Masahiko Shibahara, Yuto Watanabe, Kunio Fujiwara (Osaka Univ.) | PRTEC-24161<br>**Modeling Skin Burn Risks Associated with Electric Radiant Heaters in Electric Vehicles**<br>Nicholas Liew, Hyunjin Lee (Kookmin Univ.) | PRTEC-24023<br>**Bioinspired Temperature-Adaptive Dual-Mode Radiative Thermal Regulation Building Module**<br>Lin Liang, Jianheng Chen, Kaixin Lin, Sai Liu, Chui Ting Kwok, Aiqiang Pan, Siru Chen, Yihao Zhu, Chi Yan Tso (City University of Hong Kong, Hong Kong) |
| 11:00-11:20 | PRTEC-24268<br>**PIV Measurement of Pulsating Pipe Flow for Evaluating Phase-Averaged Turbulence Statistics**<br>Aoba Katakai, Tomohiro Nimura, Akira Murata, Kaoru Iwamoto (Tokyo Univ. of Agriculture and Tech.) | PRTEC-24055<br>**Effects of hydrogen addition on premixed flame-flow interaction in a backward-facing-step burner**<br>Jihun Yeo, Huiman Yang, Namil Kim (KAIST) | PRTEC-24251<br>**Dynamics of individual polymers inside porous media**<br>Yusaku Abe, Naoki Tomioka, Taiki Okamura,Yu Matsuda (Waseda Univ.) | PRTEC-24069<br>**Separated Vortex Ring Enabling Long-Distance Flight of the Dandelion Pappus**<br>Soma Ikezoe, Hiroaki Hasegawa (Utsunomiya Univ.) | PRTEC-24180<br>**Radiative Cooling Paint**<br>Heon Lee, Dongwoo Chae, Hangyu Lim, Jisung Ha, Jaein Park, Seongwoo Park (Korea Univ.) |
| 11:20-11:40 | PRTEC-24116<br>**Acceleration spectrum analysis in channel turbulence of viscoelastic fluid**<br>Takumi Minami, Shumpei Hara (Doshisha Univ.) | PRTEC-24081<br>**Investigation on spray characteristics of liquid-liquid type pintle injector through cold-flow experiment**<br>Noritaka Sako, Kohji Tominaga, Kenta Goto, Junichi Nakatsuka, Taiichi Nagata (Japan Aerospace Exploration Agency) | PRTEC-24064<br>**Precursor Film Facilitates Contact Line Depinning on Nanostructured Surfaces**<br>Hideaki Teshima, Takanobu Fukunaga, Qin-Yi Li, Koji Takahashi (Kyushu Univ. | PRTEC-24072<br>**Short Wave Infrared Spectroscopy for Measuring Intracellular Water Rotational Relaxation Time during Desiccation**<br>Ryo Shirakashi, Junkai Zhang (Univ. Tokyo) | PRTEC-24048<br>**Optical design of vanadium dioxide-based thermochromic smart window**<br>Itsuki Shinohara, Hiep Huy Nguyen, Masaaki Baba, Shogo Hatayama, Yuta Saito,Noriyuki Uchida, Masatoshi Takeda (Nagoya Univ. Tech., Japan) |
| 11:40-12:00 | PRTEC-24220<br>**Non-local contributions of eddy viscosity and eddy diffusivity to the dissimilarity between turbulent momentum and heat transfer in a turbulent channel flow**<br>Tingting Fang, Zhuchen Liu, Fujihiro Hamba, Yosuke Hasegawa (Univ. Tokyo) | PRTEC-24269<br>**Extraction of unsteady characteristics for hydrogen jet flame using data-driven analysis on time-series images**<br>Takanori Mori, Nao Suzuki, Makoto Asahara, Takeshi Miyasaka (Gifu Univ., Japan).<br>Donghyuk Kang, Izuru Kambayashi (Saitama Univ. ), Tei Saburi (AIST) | | PRTEC-24127<br>**Biophysical Impacts of Microbubble Baths**<br>Hiroto Narita, Hiroaki Hasegawa (Utsunomiya Univ.)<br>Takashi Kanbayashi (Tsukuba Univ.), Sachiko Uemura (Akita Univ.) | |

# Technical Sessions

Monday, December 16, 2024

| Time/Room | 313A | 313B | 306A | 306B | 305B |
|---|---|---|---|---|---|
| | **Topic (a-1)**<br>**Heat Exchanger 1**<br><br>Chairperson<br>Hie Chan Kang (Kunsan National Univ.) | **Topic (b-1)**<br>**Modeling/Combustion Diagnostics**<br><br>Chairperson<br>Seoung Kyun Im (Korea Univ.) | **Topic (c-1)**<br>**Transport Phenomena in Nano and Molecular Scale 2**<br><br>Chairperson<br>Jungwan Cho (Sungkyunkwan Univ.) | **Topic (a-5)**<br>**Biological Heat and Mass Transfer 2**<br><br>Chairperson<br>John Allen (Univ. Hawaii-Manoa) | **Topic (a-4)**<br>**Radiative Heat Transfer 2**<br><br>Chairperson<br>Hyunjin Lee (Kookmin Univ.) |
| 13:20-13:40 | PRTEC-24096 | PRTEC-24084 | PRTEC-24015 | PRTEC-24212 | PRTEC-24246 |
| | **A Study on the Heat Flow and Heat Transfer Performance of SOFC Heat Exchanger for Power Generation**<br>Sukmn Seo, Sehyeon Noh, Hau Duong Van, Loc Huynh Tan, Chanwoo Park (Jeonbuk National Univ.) | **Numerical investigation of the Soret effect on burning velocity of lean hydrogen flame**<br>Reo Kai, Yuya Tajika, Hiroaki Watanabe (Kyushu Univ.) | **Analysis of melting behavior at the interface between crystalline and amorphous portions of crystalline polymers**<br>Fumiki Takano, Masaki Hiratsuka (Kogakuin Univ.), Kazuaki Takahashi (AIST) | **Non-thermal tumor cell destruction by application of weak AC electric field: Effects of electric field direction**<br>Jin Fujimoto, Kosaku Kurata (Kyushu Univ.) | **Perovskite Thermal Photonics Power Generation System for Low Grade Waste Heat Recovery**<br>Atsushi Sakurai, Shunsuke Ito, Kota Ono, Akifumi Honna (Niigata Univ.), Koji Miyazaki (Kyushu Univ.) |
| 13:40-14:00 | PRTEC-24113 | PRTEC-24016 | PRTEC-24066 | PRTEC-24254 | PRTEC-24077 |
| | **Conjugate heat transfer analysis of heat exchange channels with step**<br>Yuma Watanabe, Shumpei Hara, Kyoji Inaoka (Doshisha Univ.) | **Structures of the flame base formed in a crossflow behind burner rim**<br>Taishi Kataoka (Kyoto Univ.), Noritaka Sako, Yu Daimon, Himeko Yamamoto (JAXA), Jun Hayashi, Hiroshi Kawanabe (Kyoto Univ,) | **Effects of nanoscale surface topography and wettability on the behavior of three-phase contact line**<br>Yuta Heima, Hideaki Teshima (Kyushu Univ.), Xuehua Zhang (University of Alberta), Qin-Yi Li, Koji Takahashi (Kyushu Univ.) | **Measuring the metabolic heat of single Paramecium using a freestanding microchannel-type biocalorimeter**<br>Ren Umeno, Yomohide Yabuki (Kyoyo Inst. Tech.) | **Optical constants retrieval of TiO2 thin films from their hemispherical reflectance at close-to-normal and oblique incidence**<br>Hao-Yu Kang, Yu-Bin Chen (NTHU) |
| 14:00-14:20 | PRTEC-24201 | PRTEC-24041 | PRTEC-24193 | PRTEC-24070 | PRTEC-24088 |
| | **Flow and pressure loss characteristics of stochastically connected microchannel network**<br>Kazuya Tatsumi (Kyoto Inst. Tech.), Yuta Sugihara, Reiko Kuriyama (Kyoto Univ.) | **Study of Global Reaction Mechanism for Syngas ($H_2$, CO, $CH_4$, $CO_2$, $N_2$)**<br>Huiman Yang, Namil Kim (KAIST) | **In-Situ Annealing of Nanoporous Silicon Thin Films with Transmission Electron Microscopy for Precise Phononic Crystals**<br>Kosuke Kokura, Qin-Yi Li, Zheyu Jin (Kyushu Univ.),Fabian Javier Medina, Qing Hao (Univ. Arizona), Koji Takahashi (Kyushu Univ.) | **Investigation about the Synchronization Mechanism of Luciola Purvula Fireflies using Video Analysis**<br>Nao Ninomiya, Kotaro Yamazaki, Masayuki Iigo (Utsunomiya Univ.) | **Two-dimensional Extensions of Radiative Properties Derivations for Porous Materials Using Renewal Theory**<br>Shima Hajimirza (Stevens Inst. Tech.) |
| 14:20-14:40 | PRTEC-24068 | PRTEC-24177 | PRTEC-24194 | PRTEC-24216 | |
| | **Optimization and experimental investigation on silicon manifold microchannel for embedded microfluidic cooling**<br>Young Jin Lee, Chul-Hyun Hwang, Hansol Lee, Ikjin Lee, Sung Jin Kim (KAIST) | **Measurement of Hydrogen Flame Temperature by Using Two-Line OH Tunable Diode Laser Absorption Spectroscopy**<br>Hyunkyu Park, Minhyeok Lee, Yuji Suzuki (Univ. Tokyo) | **3D Visualization of Liquid-Gas Structures Confined in Nanotubes**<br>Inori Koga, Qin-Yi Li, Ryota Saito, Tatsuya Ikuta, Koji Takahashi (Kyushu Univ.) | **Influencing assessment of warm water local heating on HRV for enhancing thermal comfort of drivers in winter**<br>Myeongjae Shin, Jeongho Park, Honghyun Cho (Chosun Univ.) | |
| 14:40-15:00 | PRTEC-24063 | | | | |
| | **Effective Metering and Control for Improved Efficiency of a District Energy Waste Heat Recovery System**<br>Olamide Opadokun, Yong Tao (CSU), Julian Lamb (Paragon Robotics, LLC) | | | | |

# Technical Sessions

Monday, December 16, 2024

| Time/Room | 313A | 313B | 306A | 306B | 305B |
|---|---|---|---|---|---|
| | **Topic (a-1)**<br>**Jet Flows**<br><br>Chairperson<br>Kazuya Tatsumi (Kyoto Inst. Tech.) | **Topic (b-1)**<br>**Ammonia Combustion**<br><br>Chairperson<br>Jun Hayashi （Kyoto Univ.） | **Topic (c-1)**<br>**Transport Phenomena in Nano and Molecular Scale 3**<br><br>Chairperson<br>Tsuyoshi Totani (Hokkaido Univ.) | **Topic (a-3)**<br>**Phase Change Phenomena and Heat Transfer 1**<br><br>Chairperson<br>Youngsuk Nam (Korea Adv. Inst. Sci.Tech.) | **Topic (a-8)**<br>**Thermo-Physical Properties**<br><br>Chairperson<br>Yoichi Murakami (Institute of Science Tokyo) |
| 15:55-16:15 | PRTEC-24232<br>**Study on jet array impingement cooling with effusion holes for electronics cooling**<br>Seok-Yong Lee, Seung-Su Jeong, Won-Woo Choi (Sungkyunkwan Univ.)<br>Jin Hyun Lee (Konkuk Univ.), Sung-Min Kim (Sungkyunkwan Univ.) | PRTEC-24020<br>**Direct Numerical Simulation of Turbulent Premixed Methane-ammonia-air jet flames**<br>Takumi Suwabe, Ye Wang, Sayaka Suzuki, Mamoru Tanahashi (Institute of Science Tokyo) | PRTEC-24162<br>**Molecular Analysis on Electric Field and Temperature Dependence of Electromigration in Fe-C Alloys**<br>Ryuta Onozuka (Tohoku Univ.), Patrice Chantrenne (INSA Lyon), Takashi Tokumasu (Tohoku Univ.) | PRTEC-24037<br>**CHF prediction of subcooled flow boiling on heat transfer surface with 2D saw-blade geometry**<br>Tomoya Hoshi, Yuki Yaita, Ichiro Kano (Yamagata Univ.) | PRTEC-24134<br>**Effective Thermal Conductivity of Additively Manufactured Lattice Structures at High Temperatures**<br>Todd Otanicar, Max Hewes, Koda Boldt (Boise State Univ.) |
| 16:15-16:35 | PRTEC-24123<br>**PIV measurement of merging phenomenon in two parallel plane impinging jets**<br>Daisuke Hiroshima, Shumpei Hara, Kyoji Inaoka (Doshisha Univ.) | PRTEC-24099<br>**Reduction and optimization of $NH_3$ combustion mechanism**<br>Serang Kwon, Seongkyun Im (Korea Univ.) | PRTEC-24199<br>**Heat flux structure at solid–liquid interface by non-equilibrium molecular dynamics simulation**<br>Kunio Fujiwara, Masahiko Shibahara (Osaka Univ.), Peter J. Daivis (RMIT Univ.), B. D. Todd (Swinburne Univ.Tech.) | PRTEC-24062<br>**Experimental Study of Flow Boiling Characteristics in Wavy-Shaped Mini-Channel**<br>Takeshi Mochizuki (Univ. Electro-Communications),Kosaku Nishida, Ikuro Akada (MAYEKAWA MFG. CO., LTD,), Takafumi Ouchi (Fukuoka Industrial Tech. Center), Koji Enoki (Univ. Electro-Communications) | PRTEC-24139<br>**Thermoelectric properties of a printed thermoelectric film of Cobalt antimonide**<br>Koji Miyazaki, Keito Iyo, Kosuke Watanabe, Katsuaki Hashikuni (Kyushu Univ,) |
| 16:35-16:55 | PRTEC-24224<br>**Active learning-based design optimization of direct liquid cooling modules for heterogeneously integrated semiconductor packages**<br>Hyunho Cho, Insik Lee, Seungwoo Kim, Soosik Bang (KAIST), Jaechoon Kim (Samsung Electronics Co., Ltd.), Youngsuk Nam (KAIST) | PRTEC-24198<br>**Measurements of minimum ignition energy of ammonia/methane/air mixtures**<br>Shota Yamada, Yusuke Oda, Tsukasa Hori, Shinya Sawada, Fumiteru Akamatsu (Osaka Univ.) | PRTEC-24214<br>**A molecular dynamics study of jet ejection from nanoscale meniscus of argon liquid**<br>Haruta Inukai, Hiroki Kusudo (Tohoku Univ.), Yoshiyuki Tagawa (Tokyo Univ. Agriculture and Tech.), Gota Kikugawa (Tohoku Univ.) | PRTEC-24252<br>**Experimental investigation of saturated flow boiling heat transfer in a large mini-channel heat sink**<br>Jae-Yoon Park, Jin-Young Kim (SKKU), Pil-Gyeong Choi, Dong-Hoon Kwak, Jae-Hun Heo (Hanwha Systems), Sung-Min Kim (SKKU, Korea) | PRTEC-24121<br>**Experimental Comparison of R22 Refrigerant Content Before/After Absorption using Ionic Liquids**<br>Minjung Lee, Nayoung You, Honghyun Cho (Chosun Univ.) |
| 16:55-17:15 | PRTEC-24253<br>**Scalar Source Estimation based on Concentration Measurements by a Mobile Robot in Wind Tunnel Experiment**<br>Takayuki Osawa (Univ. Tokyo), Ryo Onishi (Tokyo Univ. Science), Dominik Henzel, Xu Han, Zuchen Liu (Univ. Tokyo), Takahiro Tsukahara (Tokyo Univ. Science), Yosuke Hasegawa (Univ. Tokyo) | PRTEC-24093<br>**Study on the Ignition Characteristics of a Micro Gas Turbine with Ammonia-DME Blending**<br>Chang Zhai, Norihiko Iki, Yong Fan, Osamu Kurata (AIST) | PRTEC-24219<br>**Ab initio molecular dynamics study on energy transport property of water**<br>Kanna Yamaji, Kunio Fujiwara, Masahiko Shibahara (Osaka Univ.) | PRTEC-24266<br>**Predicting Instability of Liquid Films in Microchannel Flow Boiling**<br>Saeed Moghaddam, Adam Kriz (Unv. Florida) | PRTEC-24148<br>**He-$N_2$ mixture optimized Brayton cycle and Rankine cycle combined system with PCM thermal storage for Concentrating Solar Power**<br>Sheng Li, Peiwen Li (Univ. Arizona) |
| | | | | | PRTEC-24259<br>**Performance Evaluation of rotary compressor considering the friction and oil viscosity**<br>Sangkyung Na, Gyungmin Choi, Seongyong Eom, Dongjun Oh, Wanggu Lee (Pusan Nat. Univ.) |

# Technical Sessions

Monday, December 16, 2024

| Time/Room | 313A | 313B | 306A | 306B |
|---|---|---|---|---|
| | **Topic (a-1)**<br>**Convection in Closed Systems**<br><br>Chairperson<br>Xiangyu Li (Univ. Tennessee Knoxville) | **Topic (b-2)**<br>**Multi-phase combustion**<br><br>Chairperson<br>Yong Fan (Advanced Industrial Sci. Tech.) | **Topic (c-1)**<br>**Transport Phenomena in Nano and Molecular Scale 4**<br><br>Chairperson<br>Shima Hajimirza (Stevens Inst. Tech.) | **Topic (a-3)**<br>**Phase Change Phenomena and Heat Transfer 2**<br><br>Chairperson<br>Yutaka Yamada (Okayama Univ.) |
| 17:25-17:45 | PRTEC-24125 | PRTEC-24247 | PRTEC-24076 | PRTEC-24119 |
| | **Cluster growth inside surfactant flow-induced structure gel: Analysis by DP theory**<br>Kouya Okuno, Shumpei Hara (Doshisha Univ.) | **LES Modeling of coal gasification on an entrained flow coal gasifier with a recycled $CO_2$ injection using multi stream flamelet/progress variable (FPV) approach**<br>Sujeet Yadav, Reo Kai, Hiroaki Watanabe (Kyushu Univ.) | **Relaxation enhancement from intra- to intermolecular vibrations in water continuously excited by wavelength-selective infrared radiation**<br>Yoshitaka Tanada, Tsuyoshi Totani, Satoru Odashima, Kazumichi Kobayashi (Hokkaido Univ.), Yoshio Kondo (NGK INSULATORS, LTD.) | **On the formation of a bubble associated with boiling of a water droplet in hot cooking oil**<br>Akihito Kiyama, Shuhei Yoshida, Tomoharu Otsuka, Donghyuk Kang (Saitama Univ.), Pan Zhao (Univ. Waterloo), Som Dutta (Utah State Univ.), John Allen (Univ. Hawaii at Manoa), Tadd Truscott (King Abdullah Univ. Sci.Tech.) |
| 17:45-18:05 | PRTEC-24149 | PRTEC-24241 | PRTEC-24120 | PRTEC-24045 |
| | **Volumetric Energy Deposition Driven Rayleigh-Taylor Instability Experiments**<br>Kincade Engen, Philip Root (Los Alamos National Lab.), Ricardo Mejia (Michigan State Univ.), Brandon Wilson, Adam Wachtor (Los Alamos National Lab.) | **Study of Liquid Droplets Breakup in Solid Fuel Proplusive Chamber**<br>Ryo Amano (Univ. Wisconsin - Milwaukee) | **Highly efficient photon upconversion solid-solution crystals enabled by long distance inter-molecular energy transfer for efficient solar spectrum utilization**<br>Riku Enomoto, Yoichi Murakami (Institute of Science Tokyo) | **Numerical Analysis of Effects of Puffing on Evaporation Characteristics of Bi-component Droplet**<br>Fumiya Kidena, Kenya Kitada, Abhishek Lakshman Pillai, Ryoichi Kurose (Kyoto Univ.) |
| 18:05-18:25 | PRTEC-24097 | PRTEC-24245 | PRTEC-24179 | PRTEC-24229 |
| | **An Experimental Study on Analysis of Heat Transfer Characteristics in Immersion Liquid Cooling**<br>Thi Nhan Nguyen, Van Cong Le, Thanh Phuong Nguyen, Tan Loc Huynh, Van Hau Duong, Su Heon Ha, Sung Joo Hong, Donghwi Lee, Jae Hwan Ahn, Chan Woo Park (Jeonbuk Natoinal Univ.) | **Buring Rate Measurement of Polymer Sphere in Low-Pressure followed by The Fast Ignition using Igniter Gel**<br>Yue Zhang (Toyohashi Univ. Tech.), Takuya Yamazaki (Hirosaki Univ.), Yuji Nakamura (Toyohashi Univ.Tech.) | **Laser-induced reductive sintering of various metal oxides and their applications**<br>Huijoon Park (Hanyang Univ.), Sanghyuk Park (Kongju National Univ.), Daeho Lee (Gachon Univ.) | **Experimental evaluation of a high performance ultra-thin pulsating heat pipe**<br>Young Jong Lee, Sung Jin Kim (KAIST) |
| 18:25-18:45 | PRTEC-24143 | PRTEC-24231 | PRTEC-24242 | PRTEC-24218 |
| | **Investigations of Thermo-Buoyancy Driven Flows with Infrared Thermography**<br>Alex Ribao, John Sharer Allen (UHM) | **Study on gravity response of the buoyant-flame using partial gravity generator**<br>Haruhiko Goshu, Taichi Ogawa, Yuji Nakamura (Toyohashi Univ. Tech.) | **Thermal innovations and design for membrane technologies**<br>David Warsinger, Md Ashiqur Rahman, Hamid Fattahi Juybari, Setareh Heidari (Purdue University) | **The effects of wettability variation on dynamic droplet impact behavior on a heated surface from a heat transfer perspective**<br>Zhengqi Shi, Takaaki Ariyoshi (Kyushu Univ.), Yutaku Kita (KCL, United Kingdom), Sumitomo Hidaka (Kyushu Univ.), Yasuyuki Takata (WPI-I2CNER), Masamichi Kohno (Kyushu Univ.) |

# Technical Sessions

Tuesday, December 17, 2024

| Time/Room | 313A | 313B | 306A | 306B | 305B |
|---|---|---|---|---|---|
| | **Topic (a-6)**<br>**Fluid and Thermal Measurement Techniques**<br><br>Chairperson<br>Masayasu Shimura (AIST) | **Topic (b-4)**<br>**Fuel Cells 1**<br><br>Chairperson<br>Hiroshi Iwai (Kyoto Univ.) | **Topic (b-3)**<br>**Heat and Mass Transfer in IC Engine**<br><br>Chairperson<br>Takeshi Yokomori (Keio Univ.) | **Topic (a-3)**<br>**Phase Change Phenomena and Heat Transfer 3**<br><br>Chairperson<br>Saeed Moghaddam (Univ. Florida) | **Topic (c-2)**<br>**Thermal Trasnport in MEMS**<br><br>Chairperson<br>Masahiro Motosuke (Tokyo Univ. Science) |
| 10:10-10:30 | PRTEC-24208 | PRTEC-24145 | PRTEC-24061 | PRTEC-24025 | PRTEC-24107 |
| | **Experimental measurement of the diffusion coefficient of carbon dioxide into ionic liquids using phase-shifting interferometer**<br>Soichiro Gunji, Yuki Kanda, Shuichi Moriya, Atsuki Komiya (Tohoku University) | **Effects of surfactants on the properties of electrode slurries and the structure of porous electrodes of polymer electrolyte fuel cells**<br>Kota Endo, Takahiro Suzuki, Shohji Tsushima (Osaka University) | **Effect of Combined Rib and Riblet Structure upon Heat Transfer Suppression and Mixing Enhancement on Jet Impingement Wall**<br>Sayuri Funaki, Tomohiro Nimura, Akira Murata, Kaoru Iwamoto (Tokyo Univ. Agriculture and Tech.) | **Enhancement of Pool Boiling Heat Transfer Using 3D-printed Metal Porous Structure**<br>Noriaki Fukui, Kairi Koito, Lilian Aketch Okwiri (UEC), Takafumi Ouchi (Fukuoka Industrial tech. center), Toshihiko Saiwai, Jun Kato, Kenji Orito (Mitsubishi Materials Corp.), Koji Enoki (UEC) | **Contribution of Natural Convection to The Heat Transfer from A Micro-beam MEMS Sensor**<br>Tohru Yamashita, Hiroshi Takamatsu (Kumamoto NIT) |
| 10:30-10:50 | PRTEC-24065 | PRTEC-24181 | PRTEC-24205 | PRTEC-24090 | PRTEC-24152 |
| | **Compensation for Degraded System Efficiency by Change on Control Curve in Power Generation Gas Turbines**<br>Young Kwang Park, Tong Seop Kim (Inha University) | **A numerical simulation of the drying process of an electrode slurry droplet by two-phase lattice Boltzmann method**<br>Itsuki Nagatsuka, Takahiro Suzuki, Shohji Tsushima (Osaka Univ.) | **Knock Analysis in Super-Lean Burn Spark Ignition Engine with Water Injection using Gasoline Surrogate Fuels**<br>Tsuyoshi Nagasawa, Hidenori Kosaka (Institute of Science Tokyo) | **An Experimental Study of Pool Boiling CHF and BHT Phenomena in Heaving Conditions**<br>Dong In Yu, Do Yeon Kim (PKNU), Su Cheong Park (Dong-A Univ.), Seon Ho Choi (PKNU), Hyunjong Kim (IAE) | **Design and fabrication of a flexible loop heat pipe with micropillar evaporator for wearable devise**<br>Ryobu Nomura (Nagoya Univ.), Masaaki Hashimoto (Keio Univ.), Abdulkareem Alasli, Hosei Nagano, Ai Ueno (Nagoya Univ.) |
| 10:50-11:10 | PRTEC-24226 | PRTEC-24206 | PRTEC-24022 | PRTEC-24197 | PRTEC-24115 |
| | **A Deep Learning-Based Approach for 3D Thermal Fluid Measurements Using Multi-Camera Systems**<br>Ryutaro Miya, Kazuyoshi Fushinobu, Kawaguchi Tatsuya (Institute of Science Tokyo) | **Evaluation of Nafion Film SPR Properties and its Humidity Dependence for Analysis of Transport Phenomena in PEFC Catalyst Layers**<br>Shota Niwa, Hideto Saitou, Yusuke Aoyama, Suguru Uemura, Yutaka Tabe (Hokkaido Univ.) | **The influence of flow control on lean limit and thermal efficiency in SI engine**<br>Tatsuhiro Miwa, Sayaka Suzuki, Mamoru Tanahashi (Institute of Science Tokyo) | **Pool Boiling Enhancement of Aluminum—Powder—Brazed Surface in Acetone**<br>Junyoung Choi, Su-Yoon Doh, Jungho Lee (Ajou Univ.) | **Development of wearable thermal MEMS sensor for sweat-rate measurement**<br>Hidefumi Yoshizawa, Honoka Yasuda, Yoshiyasu Ichikawa, Takahiro Mukaimoto, Shinya Yanagita, Tatsunori Suzuki, Isao Shitanda, Masahiro Motosuke (Tokyo Univ. Science) |
| 11:10-11:30 | PRTEC-24189 | PRTEC-24222 | PRTEC-24192 | PRTEC-24079 | PRTEC-24114 |
| | **Thickness measurement of falling water film formed by spraying on a vertical glass plate**<br>Yuki Takahashi, Hiroto Mukaida, Manabu Tange (Shibaura Inst. Tech.) | **Numerical simulations of electrospray flow field with catalytic ink for polymer electrolyte fuel cells**<br>Tsukasa Hori, Shinya Sawada, Fumiteru Akamatsu (Osaka Univ.), Makoto Uchida, Kayoko Tamoto (Univ. Yamanashi), Shimao Yoneyama,Chisami Yoneyama (Meiko Co., Ltd.),Takahiro Suzuki, Shohji Tsushima (Osaka Univ.) | **Study on the Relationship Between Ion Current and Fuel Composition in a Gasoline Engine**<br>Jihoon Kim, Yudai Yamasaki (Univ. Tokyo) | **Visualization experiment of subcooled flow boiling heat transfer using micro-fins**<br>Ichiro Kano, Nagamasa Sekiduka, Soya Akaike (Yamagata Univ.) | **Highly sensitive measurement of single nanoparticle using optical interferometry**<br>Takahiro Suzuki, Yoshiyasu Ichikawa, Masahiro Motosuke (Tokyo Univ. Science) |
| 11:30-11:50 | PRTEC-24083 | PRTEC-24237 | PRTEC-24263 | PRTEC-24092 | |
| | **Experimental Study on Dissolving Behavior of Propane in Refrigeration Oil**<br>Pansang Thepsongsang, Mitsuhiro Fukuta, Masaaki Motozawa, Wannarat Rakpakdee (Shizuoka Univ.), Seheon Choi (LG) | **A visualization study of electrospray tip behaviors with high spatial and temporal resolution**<br>Shinya Sawada (Osaka Univ.), Tsukasa Hori (Osaka Univ.), Fumiteru Akamatsu (Osaka Univ.), Makoto Uchida, Kayoko Tamoto (Univ. Yamanashi), Shimao Yoneyama, Chisami Yoneyama (Meiko Co., Ltd.), Ryoya Kozai, Takahiro Suzuki, Shohji Tsushima (Osaka Univ.) | **Co-optimisation of jet fuel cetane number and pilot injection in a small-bore optical diesel engine**<br>Lingzhe Rao, Shawn Kook (Univ. New South Wales) | **Numerical and Experimental Investigation of R1233zd(E) Phase-Change Heat Transfer and Pressure Drop Performance in Shell-and-Plate Heat Exchangers**<br>Suheon Ha, Min Sung Lee, Duong Van Hau, Thanh Phuong Nguyen, Chanwoo Park (Jeonbuk National Univ.) | |

# Technical Sessions

Tuesday, December 17, 2024

| Time/Room | 313A | 313B | 306A | 306B | 305B |
|---|---|---|---|---|---|
| | **Topic (a-1)**<br>**Turbulence 2**<br><br>Chairperson<br>Tomoya Houra (Nagoya Inst. Tech.) | **Topic (b-4)**<br>**Fuel Cells 2**<br><br>Chairperson<br>Gyungmin Choi (Pusan National Univ.) | **Topic (b-2)**<br>**Industrial combustion technology 1**<br><br>Chairperson<br>Je Ir Ryu (New York University Abu Dhabi) | **Topic (a-3)**<br>**Phase Change Phenomena and Heat Transfer 4**<br><br>Chairperson<br>Sung-Min Kim (Sungkyunkwan Univ.) | **Topic (a-2)**<br>**Computational Heat and Mass Transfer 1**<br><br>Chairperson<br>Eunseop Yeom (Pusan National Univ.) |
| 13:10-13:30 | PRTEC-24044 | PRTEC-24184 | PRTEC-24036 | PRTEC-24130 | PRTEC-24073 |
| | **Data-driven prediction of turbulent heat transfer over rough surfaces**<br>Yusuke Kuwata, Yuki Adachi, Kuga Terada, Kazuhiko Suga (Osaka Metropolitan Univ.) | **A study on characterizing the structure and performance of polymer electrolyte membranes fabricated on a liquid surface for fuel cell applications**<br>Ayumi Miki, Takahiro Suzuki, Shohji Tsushima (Osaka Univ,) | **Convection effects on head-on quenching of premixed flames in a stagnation flow**<br>Hibiki Sakuma (Keio Univ.), Takuya Tomidokoro (KAUST), Takeshi Yokomori (Keio Univ.), Hong G. Im (KAUST) | **Experimental study on the performance of AGDD with non-woven material for porous medium**<br>Zhen Liu, Xuan Zhang,Ping Wang, Shiming Xu (Dalian Univ. Sci. Tech.) | **Numerical investigation of surface wettability influence on droplet impact in early stage**<br>Tianyi Wei, Kenya Kitada, Ryoichi Kurose (Kyoto Univ.) |
| 13:30-13:50 | PRTEC-24128 | PRTEC-24186 | PRTEC-24236 | PRTEC-24004 | PRTEC-24118 |
| | **Flow-induced gel formed by dosing in an open channel flow of surfactant solution**<br>Yuto Nakagawa, Yusei Yabuuchi, Shumpei Hara (Doshisha Univ.) | **X-ray Imaging and Numerical Simulation of a Polymer Electrolyte Fuel Cell with Interdigitated Gas Flow Channels Formed on a Gas Diffusion Laye**r<br>Takahiro Suzuki (Osaka Univ.), Mitsunori Nasu, Naoki Hirayama (Enomoto Co., Ltd.), Masahiro Watanabe, Makoto Uchida, Akihiro Iiyama (Univ. Yamanashi), Shohji Tsushima (Osaka Univ.) | **Effects of Swirl Flow on Emission Characteristics of a Liquid NH3 Gas Turbine Combustor**<br>Hyun Jo (AIST), Masayasu Shimura, Osamu Kurata, Norihiko Iki (AIST), Ekenechukwu Chijioke Okafor (Kyushu Univ.), Matsuda Dai, Taku Tsujimura, Yong Fan (AIST) | **Operating A Wickless Heat Pipe Using a Binary Working Fluid on the ISS**<br>Joel Plawsky (Rensselaer Polytechnic Inst.), Scott Gilley, James McClellan (TechMasters, Inc.) | **DNS Study on Turbulent Heat Transfer Phenomena of Round Impinging JET in Moderate Prandtl Number Fluid**<br>Hirofumi Hattori, Tomoya Houra (Nagoya Inst. Tech.) |
| 13:50-14:10 | PRTEC-24243 | PRTEC-24204 | PRTEC-24230 | PRTEC-24185 | PRTEC-24155 |
| | **Effect of ultrasound irradiation on suppressed heat transfer in drag reduced flow of viscoelastic fluid**<br>Tadayuki Kadowaki, Masaaki Motozawa, Mitsuhiro Fukuta, Wannarat Rakpakdee (Shizuoka Univ.), Weerachai Chaiworapuek (Kasetsart Univ.) | **Analysis of Oxygen Transport Resistances Depending on Pt Loading for High Efficiency Structure in PEFC Catalyst Layers**<br>Yoshiki Matsushiro, Yusuke Nakano, Yusuke Aoyama, Suguru Uemura, Yutaka Tabe (Hokkaido Univ.) | **Powder-assisted ultra lean combustion: applicability of "hybrid" combustion concept to burn low-calorific mixture**<br>Ryoki Okada, Daiki Matsugi (Toyohashi Univ. Tech.), Takuya Yamazaki (Hirosaki Univ.),Yuji Nakamura (Toyohashi Univ. Tech.) | **Dry-out mechanism analysis and optimization of hybrid wick evaporators with lateral liquid supply layers**<br>Duhyeon Lee, Sanghun Lee, Soosik Bang, Youngsuk Nam (KAIST) | **Numerical Analysis on Tree—Shaped Disc Heat Convection**<br>Derli Amaral (Bridgewater College) |
| 14:10-14:30 | | | | PRTEC-24153 | PRTEC-24094 |
| | | | | **Investigation of the Process for Rapid Generation of Superheated Steam Using Water-containing Porous Materials**<br>Bicheng Wang, Yutaro Umehara, Atsuro Eto, Shoji Mori (Kyushu Univ.) | **Direct numerical simulation of turbulent flow in concentric annular pipe with large-scale control using buoyancy force**<br>Yuki Oka, Hiroya Mamori, Menglei Wang, Takeshi Miyazaki (UEC) |

# Technical Sessions

Tuesday, December 17, 2024

| Time/Room | 313A | 313B | 306A | 306B | 305B |
|---|---|---|---|---|---|
| | **Topic (a-1)**<br>**Heat Exchanger 2**<br><br>Chairperson<br>Nenad Miljkovic (Univ. Illinois Urbana-Champaign) | **Topic (b-4)**<br>**Fuel Cells 3**<br><br>Chairperson<br>Yutaka Tabe (Hokkaido Univ.) | **Topic (b-2)**<br>**Industrial combustion technology 2**<br><br>Chairperson<br>Yue Zhang (Toyohashi Univ. Tech.) | **Topic (a-3)**<br>**Phase Change Phenomena and Heat Transfer 5**<br><br>Chairperson<br>Shoji Mori (Kyushu Univ.) | **Topic (a-2)**<br>**Computational Heat and Mass Transfer 2**<br><br>Chairperson<br>Ryoichi Kurose (Kyoto Univ.) |
| 15:25-15:45 | PRTEC-24151 | PRTEC-24261 | PRTEC-24089 | PRTEC-24217 | PRTEC-24030 |
| | **Effectiveness–NTU Curve for Actual Heat Exchanger with Nonuniform Flow and Temperature Distributions**<br>Young Ha Jeon, Hie Chan Kang (Kunsan National Univ.), Young Gun Kim (Daewoo Electoronic Components Co., Ltd.) | **Case Studies of Operating Mode for Improving the Performance of Hydrogen Fuel Cell Vehicles**<br>Zarina Omarova (Pusan National Univ.), Yeseul Park (Mokpo National Univ.), Seongyong Eom, Gyungmin Choi (Pusan National Univ.) | **Integrated performance analysis of gas turbine and fuel supply system under hydrogen co-firing**<br>Jin-Seo Kim, Young-Kwang Park, Tong-Seop Kim (Inha Univ.) | **Experimental study on heat transfer performance of jet array impingement boiling**<br>Won-Woo Choi, Sung-Min Kim (Sungkyunkwan Univ.) | **Wall-Modelling for Large Eddy Simulation by Machine Learning**<br>Takuma Ishino, Yusuke Kuwata, Kazuhiko Suga (Osaka Metropolitan Univ.) |
| 15:45-16:05 | PRTEC-24238 | PRTEC-24052 | PRTEC-24050 | PRTEC-24196 | PRTEC-24163 |
| | **Dissimilar Heat Transfer Enhancement in a Flow between Parallel Porous Plates with an Upstream Disturbance at Low Reynolds Numbers**<br>Fengbo Guan, Ming Liu, Yosuke Hasegawa (Univ. Tokyo) | **Application of Physics-Informed Neural Networks for Numerical Simulation of SOFC Anode**<br>Shinichi Maeda, Masashi Kishimoto, Ren Matsukawa, Yuting Guo, Hiroshi Iwai (Kyoto Univ.) | **Evaluation of NOx emission and thermal radiation from oxy-ammonia combustion for industrial furnace applications**<br>Yong Fan, Hazim Shehab, Norihiko Iki, Masayasu Shimura, Taku Tsujimura (AIST) | **Thermal Characterization of Boiling—Driven Heat Spreader Through Flow Visualization and Thermal Imaging**<br>Jung Chan Moc, Su-Yoon Doh, Jungho Lee (Ajou Univ.) | **Thermophoresis in Plasma Spray Simulations**<br>Alexander Brown (Sandia National Labs) |
| 16:05-16:25 | PRTEC-24057 | PRTEC-24053 | PRTEC-24248 | PRTEC-24202 | PRTEC-24215 |
| | **Enhanced Salt Rejection through Natural Convection using Wick-free Solar Evaporator**<br>Patrick Park (Univ. Tennessee Knoxvil), Lenan Zhang (Cornell Univ.), Haochen Li, Xiangyu Li (Univ. Tennessee Knoxvil) | **Generative Adversarial Network for Synthesizing Artificial 3D Porous Electrodes for Solid Oxide Cells Controlling Multiple Structural Properties**<br>Sojiro Yamatoko, Masashi Kishimoto, Yuting Guo, Hiroshi Iwai (Kyoto Univ.) | **Oxygen staging effects on flow development of oxy-ammonia combustion in a 50kW coaxial jet burner for industrial furnaces**<br>Hazim Hasan Ali Shehab, Yong Fan, Norihiko Iki, Masayasu Shimura, Takehiko Segawa, Taku Tsujimura (AIST) | **Vapor generation rate of water through vacuum bubbling**<br>Yong-Du Jun (Kongju National Univ.) | **Toward quantum computing of nonlinear reacting flows with Carleman linearization**<br>Takaki Akiba, Youhi Morii, Minhyeok Lee, Kaoru Maruta, Yuji Suzuki (Univ.vTokyo) |
| 16:25-16:45 | PRTEC-24265 | | | PRTEC-24067 | PRTEC-24075 |
| | **Bubble Formation and Pressure Loss Characteristics of Flow Boiling in Lattice-shaped Microchannel**<br>Kai Banno, Kazuya Tatsumi (Kyoto Inst. Tech., Kyoto Univ.), Reiko Kuriyama (Kyoto Univ.) | | | **Development of Polymer/Copper Oxide Composite Coating as Dropwise Condensation Promoting Surface**<br>Evan Philander, Takushi Saito (Institute of Science Tokyo) | **Machine learning-based prediction of flow boiling heat transfer coefficient using universal consolidated data**<br>Edgar Santiago Galicia (Saga Univ.), Andres Hernandez Matamoros (Univ. Hradec Kralove), Akio Miyara (Saga Univ.) |

# Technical Sessions

Wednesday, December 18, 2024

| Time/Room | 313A | 313B | 306A | 306B | 305B |
|---|---|---|---|---|---|
| | **Topic (a-2)**<br>**Computational Heat and Mass Transfer 3**<br><br>Chairperson<br>Yosuke Hasegawa (Univ. Tokyo) | **Topic (b-4)**<br>**Water Electrolysis & Batteries**<br><br>Chairperson<br>Takahiro Suzuki (Osaka Univ.) | **Topic (b-5)**<br>**Phase Change Materials**<br><br>Chairperson<br>Honghyun Cho (Chosun Univ.) | **Topic (a-3)**<br>**Phase Change Phenomena and Heat Transfer 6**<br><br>Chairperson<br>Ichiro Kano (Yamagata Univ.) | **Topic (a-7)**<br>**Heat Transfer in Manufacturing**<br><br>Chairperson<br>Navid Goudarzi (Cleveland State Univ.) |
| 10:10-10:30 | PRTEC-24105 | PRTEC-24182 | PRTEC-24085 | PRTEC-24106 | PRTEC-24159 |
| | **Enhancement of Cooling Performance of Outer Rotor Motors through Geometric Optimization of Outer Holes**<br>Duckjong Kim (Gyeongsang National Univ.) | **Study on Relationship Between Hydrogen-Release Hole Pattern of Honeycomb Electrode and Water Electrolysis Performance Based on Gas Bubble Detachment Behavior**<br>Xuesong Wei, Yutaro Umehara, Hironori Nakajima, Kohei Ito, Atsuroh Etoh, Shoji Mori (Kyushu Univ.) | **Experimental analysis of a PCM-based low-scale portable refrigeration system**<br>Luigi Mongibello, Adriano Macaluso (ENEA) | **New heat storage composite using sugar alcohol impregnated in covalent organic frameworks and the thermal properties**<br>Yoichi Murakami, Shoma Mitsui, Shiori Nakagawa, Xiaohan Wang, Hiroki Fujisawa, Meguya Ryu, Junko Morikawa (Institute of Science Tokyo) | **Atomistic Investigation of Thermally Driven Reduction and Reaction Mechanisms of Porous Graphene in Laser Manufacturing**<br>Haoran Cui, an Wang (Univ. Nevada ) |
| 10:30-10:50 | PRTEC-24225 | PRTEC-24260 | PRTEC-24213 | PRTEC-24046 | PRTEC-24018 |
| | **Topology optimization for enhancing conjugate heat transfer in pin fin heat exchanger**<br>Di Chen, Yosuke Hasegawa (Univ. Tokyo) | **Effects of operating conditions and oxygen removal chamber geometry on oxygen removal performance in water electrolysis system**<br>Seongyong Eom, Gyungmin Choi (Pusan National Univ.) | **Effect of Solute Concentration and Pipe Geometry on Flow Characteristics of Ice Slurry**<br>Yuta Komiya, Takumi Ishigaki, Takashi Morimoto (Aoyama Gakuin Univ.), Toshie Koyama (Tokyo Denki Univ.), Masayuki Tanino (Takasago Thermal Engineering Co., Ltd.), Hiroyuki Kumano (Aoyama Gakuin Univ.) | **Temperature leveling technology using copper/vanadium dioxide composites**<br>Kazuma Otsuki, Ryohei Oshima, Masato Suzuki, Masaaki Baba (Nagaoka Univ. Tech.), Yoshiaki Kinemuchi (AIST), Masatoshi Takeda (Nagaoka Univ. Tech.) | **Simulation of Temperature Cooling and Droplet Evaporation for Inkjet Printing**<br>Masami Kadonaga, Kouhei Suzuki, Achmad Rofi Irsyad, Kazuyoshi Fushinobu (Institute of Science Tokyo) |
| 10:50-11:10 | PRTEC-24049 | PRTEC-24173 | PRTEC-24187 | PRTEC-24078 | PRTEC-24174 |
| | **Effect of back-flow induced from drain hole of centrifugal fan module on the temperature distribution around evaporator of refrigerator**<br>Eunseop Yeom (Pusan National Univ.) | **Effect of Molding Pressure on the Thermal Diffusivity of All-Solid-State Battery Electrolytes**<br>Hayoung Lee, Manabu Kodama, Shuichiro Hirai (Institute of Science Tokyo) | **Study on the Development of Condenser Cooling System for Improving Ice Maker Performance**<br>Jongsoo Kim, Junseok Kim (Ajou Univ.), Dongchan Lee (Univ. Seoul), Yongseok Jeon (Ajou Univ.) | **Influence of Salinity on Gas Hydrate Formation**<br>Yasuharu Nakajima, Joji Yamamoto, Satoru Takano, Marcio Yamamoto, Tomo Fujiwara, Masao Ono (National Maritime Research Inst.) | **Analytical Solution for Temperature Distribution in Induction Heating**<br>Amir Komeili Birjandi, Prashanta Dutta (Washington State Univ.) |
| 11:10-11:30 | PRTEC-24056 | PRTEC-24223 | PRTEC-24211 | PRTEC-24164 | PRTEC-24017 |
| | **Numerical study on the carryover effect in a shell-tube type evaporator with various flow guide shapes**<br>Kwang Il Seo, Yeong Ha Man, June Kee Min (Pusan National Univ.), Heung Ju Lee, Cheol Min Kim (LG Electronics) | **Thermal management analysis using immersion cooling in high-current discharge of lithium-ion batteries for electric vehicles**<br>Nayoung You, Seongmin Choi, Honghyun Cho (Chosun Univ.) | **Effects of formation conditions on the $CO_2$ capture capacity of TBAB-$CO_2$ hydrates**<br>Daichi Takahashi, Kazuki Takamura, Takashi Morimoto, Hiroyuki Kumano (Aoyama Gakuin Univ.) | **Interrogating Heat Transport from Lightning Contributing to Ignition**<br>Alexander Brown, Catherine Thomas, Julia N Tilles, Matthew M Hopkins (Sandia National Labs) | **Effect of Wetting and Pore Size of Polyimide Sheet on Multicomponent Droplet Penetration Dynamics**<br>Achmad Rofi Irsyad, Masami Kadonaga, Kazuyoshi Fushinobu (Institute of Science Tokyo) |
| 11:30-11:50 | PRTEC-24142 | PRTEC-24203 | PRTEC-24250 | PRTEC-24209 | PRTEC-24029 |
| | **Numerical Study of Flow Mixing Produced by a Two-stage EHD Gas Pump with Partially Offset Electrodes**<br>S. C. Lin, S. H. Liou (National Taiwan Univ. Sci. Tech.), Feng C. Lai (Univ. Oklahoma) | **Evaluation method of redox flow battery performance integrating various parameters and its experimental validation in the high-power range**<br>Hirokazu Munakata, Yusuke Aoyama, Suguru Uemura, Yutaka Tabe (Hokkaido Univ.) | **Study on the Refrigerant Charge Reduction Methods for Heat Pumps using Flammable Refrigerants**<br>Minkyu Jung, Jiwon Song, Soyeon Kim, Donik Ku, Minsung Kim (Chung-Ang Univ.) | **Advanced Psychrometric Chart for Analyzing Complex Gaseous Mixtures with VOCs, and Non-Condensable Gases**<br>Mohammed A. Elhashimi-Khalifa (Energy Recovery Inc.), Bahman Abbasi (Oregon State Univ.) | **Optimization of Thin Film Fabrication by Chemical Vapor Deposition**<br>Yogesh Jaluria (Rutgers Univ.) |
| 11:50-12:10 | PRTEC-24240 | | | PRTEC-24058 | PRTEC-24195 |
| | **Use of Interconnecting Slots in a Two-Pass Channel for Improved Electronics Cooling**<br>Zia Ud Din Taj, Kohei Fukuda, Majed Etemadi, K. Lakshmi Varaha Iyer, Ram Balachandar, Ronald Barron (Univ. Windsor) | | | **Leveraging Multiscale Directional Channels for Compact Multicyclic High-performance Atmospheric Water Harvester for Arid Environments**<br>Xiangyu Li (Univ. Tennessee Knoxvil), Bachir El Fil (Georgia Tech.), Buxuan Li (MIT), Gustav Graeber (Humboldt-Universität zu Berlin), Adela Li, Yang Zhong, Cody Jacobucci (MIT) | **Analysis of Flow Path Complexity and Heat Transfer in Randomly Packed Structures with Application to Scrap Preheating in Electric Arc Furnaces**<br>Haruto Fujizoe, Manabu Tange (Shibaura Inst. Tech.), Yasuo Kishimoto, Arihiro Matsunaga, Yoshihiro Miwa, Koichi Tsutsumi (JFE Steel Corp.) |

# Thursday, December 19, 2024

Technical Sessions

Thursday, December 19, 2024

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|---|---|---|---|---|---|
| | **Topic (a-2)**<br>**Computational Heat and Mass Transfer 4**<br><br>Chairperson<br>Alexander Brown (Sandia National Labs) | **Topic (b-4)**<br>**Solar Systems**<br><br>Chairperson<br>Bong Jae Lee (Korea Adv. Inst. Sci.Tech.) | **Topic (b-5)**<br>**Heat pumps and refrigeration cycles**<br><br>Chairperson<br>Yongseok Jeon (Ajou Univ.) | **Topic (a-3)**<br>**Phase Change Phenomena and Heat Transfer 7**<br><br>Chairperson<br>Dong In Yu (Pukyong National Univ.) | **Topic (c-3)**<br>**Thermal Properties at the Micro/Nano-scale 1**<br><br>Chairperson<br>Masamichi Kohno (Kyushu Univ.) |
| 8:30-8:50 | PRTEC-24239<br>**Shape optimization for compressible flows based on volume penalization method and adjoint method**<br>Ming Liu, Yosuke Hasegawa (Univ. Tokyo) | PRTEC-24033<br>**Flat Plate Beam Splitting Photovoltaic Thermal System**<br>Seongheon Kim, Seonggon Kim (Korea University, Korea), Yong Tae Kang (Korea Univ.) | PRTEC-24110<br>**Performance Improvement of LiBr/H2O Absorption Refrigeration Systems by Addition of Various Nanoparticles in the Working Pair**<br>Tsogtbilegt Boldoo, Honghyun Cho, Zakir Hussain (Chosun Univ.) | PRTEC-24256<br>**Hierarchical Porous Copper Surfaces for Capillary-Driven Thin-film Condensation**<br>Yajing Zhao, Kyle L. Wilke, Samuel S. Cruz, Amena Khatun, Stephanie M. Khaguli, Kemi Y. Chung, Anna M. Simmons, Lenan Zhang (Massachusetts Inst. Tech.) | PRTEC-24249<br>**Thermal Isolation for Electronic Thermal Management**<br>Zixin Xiong, Yingru Song, Tiwei Wei, Xiulin Ruan, Amy Marconnet (Purdue Univ.) |
| 8:50-9:10 | PRTEC-24060<br>**The exploitation of NiTi-alloys as solid-state refrigerants of an elastocaloric system**<br>Assunta Borzacchiello (IPCB-CNR),Adriana Greco (UNINA) | PRTEC-24122<br>**Photothermal Conversion Efficiency of Hybrid Nanofluids for Solar Energy Absorption in the Solar Wavelength Spectrum**<br>Hyemin Kim, Myeongjae Shin, Honghyuun Cho (Chosun Univ.) | PRTEC-24150<br>**Experimental and Analytical Study on a Diffusion Absorption Refrigerator Cycle**<br>Hayato Maeda, Noriyuki Watanabe, Hosei Nagano (Nagoya Univ) | PRTEC-24135<br>**Novel Method for Comparative Analysis of Numerical and Experimental Melt Front Images**<br>Casey Josh Troxler, Sandra Kathleen Sparr Boetcher (Embry-Riddle Aeronautical Univ.) | PRTEC-24082<br>**Influence of ambient pressures on 3ω measurement for thermal conductivity of Au microwire**<br>Yuki Sekimoto (AIST), Masakazu Nakamura, Hiroaki Benten (NAIST), Hirotaka Kojima (National Inst.Tech. Maizuru College) |
| 9:10-9:30 | PRTEC-24137<br>**Characterizing heat transfer from venting Li-ion batteries undergoing thermal runaway with inverse techniques**<br>Andrew Kurzawski, Alex Bates, Loraine Torres-Castro, Timothy Walsh, John Hewson (Sandia National Labs) | PRTEC-24111<br>**A Thermal Radiation Regulation Strategy for PV Glazing to Mitigate Negative Impacts on Buildings**<br>Chuyao Wang, Wenqi Wang, Chi Yan Tso (City Univ. Hong Kong) | PRTEC-24051<br>**The effects of heat transfer tube and distributor design parameters on the heat transfer characteristics of R-1336mzz(Z) in a falling film evaporator**<br>Byeongwoo Kim, Sewon Lee (Korea Univ.), Changhyun Baek (The Cyber Univ. of Korea), Yongchan Kim (Korea Univ.) | PRTEC-24172<br>**Freezing behavior of a water liquid bridge formed between hydrophilic surfaces**<br>Yutaka Yamada, Kazuma Isobe, Akihiko Horibe (Okayama Univ.) | PRTEC-24026<br>**The Preparation of Carbon Dots with High Photothermal Conversion Efficiency for NIR-Responsive Photothermal Bactericidal Agent**<br>Jongsung Kim (Gachon Univ.) |
| 9:30-9:50 | PRTEC-24031<br>**Effect of wave-machine-like traveling wave on heat transfer in backward-facing step turbulent flow**<br>Junichi Morita (UEC), Hiroya Mamori (UEC), Menglei Wang (UEC), Takeshi Miyazaki (UEC) | | | PRTEC-24171<br>**Transpiration cooling technology for thermal protection of re-entry space vehicles**<br>Jukyoung Shin, Junhyeon Bae (Seoul National Univ. Sci. Tech.), Sung Jin Kim (Korea Advanced Inst. Sci. Tech.), Tae Young Kim (Seoul National Univ. Sci. and Tech.) | |

# Technical Sessions

Thursday, December 19, 2024

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|---|---|---|---|---|---|
| | **Topic (a-2)**<br>**Computational Heat and Mass Transfer 5**<br><br>Chairperson<br>Hiroya Mamori (Univ. Electro-Commun.) | **Topic (b-4)**<br>**Thermal Systems 1**<br><br>Chairperson<br>Todd Otanica (Boise State Univ.) | **Topic (b-5)**<br>**Heat Exchangers**<br><br>Chairperson<br>Taesung Kim (Sungkyunkwan Univ.) | | **Topic (c-3)**<br>**Thermal Properties at the Micro/Nano-scale 2**<br><br>Chairperson<br>Yuki Sekimoto (Advanced Industrial Sci. Tech.) |
| 10:45-11:05 | PRTEC-24207<br>**Reconstruction of the scalar source based on limited noisy measurements by Wasserstein generative adversarial network priors**<br>Linghui Yang, Yosuke Hasegawa (Univ. Tokyo) | PRTEC-24019<br>**Elucidation of the Heat Transfer Mechanism through the Analysis of Fin Vortex Structure of a Heat Exchanger Using CFD**<br>Je Hyeong Park (Gachon Univ.), Jun Beom Park (Gachon Univ.), Ki Kon Kwak (Samsung Heavy Industries Co., Ltd.), Jae Ho Jeong (Gachon Univ.) | PRTEC-24027<br>**Comparison of classical and coupled ϵ-NTU methods to estimate effectiveness in crossflow energy exchangers**<br>Siddhartha Gollamudi, Melanie Fauchoux, Albin Jospeh, Carey Simonson (Univ. Saskatchewan) | | PRTEC-24100<br>**Thermal analysis of intense pulsed light soldering for advanced electronics packaging**<br>Jiajian Luo (Univ. California, Irvine), Sinyeob Lee (Samsung Electronics),Jaeho Lee (Univ. California) |
| 11:05-11:25 | PRTEC-24109<br>**Confinement effects on direct numerical simulation of a stably stratified shear layer**<br>Takumi Akao, Tomoaki Watanabe, Koji Nagata (Kyoto Univ.) | PRTEC-24190<br>**Topologically optimized heat exchangers using a Darcy equation**<br>Hiroki Kawabe, Kaito Ohtani, Kentaro Yaji (Osaka Univ.), Ryota Fukunishi, Akira Ogawara (NTT DATA XAM Tech.) | PRTEC-24166<br>**Effect of the suction pipe material in a capillary tube-suction line heat exchanger on a refrigeration system performance**<br>Jaedeok Ko, Seongjun Jeon, Ingi Sung, Hyoin Lee, Junhyeok Park, Ji Hwan Jeong (Pusan National Univ.) | | PRTEC-24228<br>**First-principles study of rapid atomic acceleration in femtosecond lasers**<br>Mizuho Ono, Atsuki Komiya (Tohoku Univ.), Hiroki Gonome (Yamagata Univ.) |
| 11:25-11:45 | PRTEC-24160<br>**Enhancing Urban Microclimate Resilience: The Role of Temperature Stratification and CFD Modeling in Building Energy Efficiency**<br>Navid Goudarzi (Cleveland State Univ.) | PRTEC-24140<br>**Measurement of heat input of a self-excited acoustic heat pipe with a dry/wet regenerator by varying hot heat exchanger temperature**<br>Mariko Senga, Shinya Hasegawa (Tokai Univ.) | PRTEC-24255<br>**An Experimental Testing and Model Validation Framework for Microchannel Heat Exchangers**<br>Keliang Zhang, Mr. Junjia Zou, Luyao Guo (Xi'an Jiaotong-Liverpool Univ.), Xiaojie Lin (Zhejiang Univ.), Long Huang (Xi'an Jiaotong-Liverpool Univ.) | | PRTEC-24034<br>**Computational requirements for high-fidelity simulation of thermal properties of heat batteries**<br>Kevin Arturo Redosado Leon, Bernard J. Geurts (Univ. Twente), Alexey Lyulin (Eindhoven Univ. Tech.) |
| 11:45-12:05 | | PRTEC-24008<br>**Evaluation of methods for adding heat switch function to loop heat pipes**<br>Takeshi Miyakita, Masahito Nishikawara (Nagoya Univ.), Koki Sato (JAXA) | PRTEC-24103<br>**Simulation & Experimental Assessment of the Thermal-hydraulic Performance of a TPMS-based Heat Exchanger**<br>Arpita Das, James Tancabel, Jan Muehlbauer, Vikrant Aute (Univ. Maryland) | | |

# Technical Sessions

Thursday, December 19, 2024

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| | | **Topic (b-4)**<br>**Thermal Systems 2**<br><br>Chairperson<br>Tsuyoshi Nagasawa (Institute of Science Tokyo) | **Topic (b-5)**<br>**Frosting and refrigeration cycles**<br><br>Chairperson<br>Hiroyuki Kumano (Aoyama Gakuin Univ.) | | |
| 13:25-13:45 | | PRTEC-24154<br>**Combined Process of Heating-up and Refrigeration from Exhausted Heat by Applying Absorption Heat Pump with Function of Thermal Transistor**<br>Yoshinori Itaya (Aichi Inst. Tech.), Akira Suami, Nobusuke Kobayashi (Gifu Univ.), Kenji Marumo (Morimatsu Research Inst. Co., Ltd.) | PRTEC-24011<br>**Study of frost layer separation on a cryogenic flat plate under forced convection using the light section method**<br>Akihiro Hattori (Univ. Tokyo), Taisei Tomita (Waseda Univ.), Hikaru Nishikawa (Waseda Univ.), Tetsuya Sato (Waseda Univ.), Takehiro Himeno, Toshinori Watanabe (Univ. Tokyo) | | |
| 13:45-14:05 | | PRTEC-24054<br>**Non-catalytic methane pyrolysis characteristics for the development of CO2-free hydrogen production system by heat exchange with high temperature waste heat**<br>Shin Miyamoto, Teppei Suzumura, Kaito Shinoda, Kouta Sekiya, Makoto Asashara, Takeshi Miyasaka (Gifu Univ.) | PRTEC-24012<br>**Frost growth on silver iodide (AgI) dot-patterned surface under desublimation conditions**<br>Jinchen Tang, Takao Okabe, Katsuhiko Nishimura, Anna Sciazko, Naoki Shikazono (Univ. Tokyo) | | |
| 14:05-14:25 | | PRTEC-24086<br>**Thermal Cracking Experiment and Reaction Modeling on Supercritical Hydrocarbon Mixture**<br>Tatsushi Isono (JAXA), Ko Kurihara (Tohoku Univ.), Takuo Onodera (JAXA) | PRTEC-24007<br>**Dipolarcaloric refrigeration cycle for cooling applications**<br>Jae Hyeon Shin, Gil Jung, Seonggon Kim, Yong Tae Kang (Korea Univ.) | | |
| 14:25-14:45 | | | PRTEC-24071<br>**Analysis of application and commercialization feasibility of R290 for 1 ton refrigerated truck**<br>Hisuk Kim, Young Joo Kim, Joohyun Rho (Korea Railroad Research Inst.) | | |