Welcome letter

Welcome to the 7th ASME Micro-/Nanoscale Heat & Mass Transfer International Conference (MNHMT2024) website. This is the 7th conference in this series, following the previous six conferences held in Tainan (2008), Shanghai (2009), Atlanta (2012), Hong Kong (2013), Singapore (2016), and Dalian (2019) with an average of about 300 attendees each. This conference series is dedicated to my post-doc supervisor, Dr. Chang-Lin Tien (1935–2002), a world-renowned scholar and a leader in higher education, whose intellect and unique vision have continued to inspire our upmost efforts in expanding the frontiers of micro/nanoscale heat and mass transfer. I was honored to deliver a keynote address at the first MNHMT conference in Tainan, and it is now my distinct pleasure to be serving as the General Chair for MNHMT this year.

After a couple postponements during the global pandemic, we are looking forward to finally gathering in Nottingham (England) UK, August 5–7, 2024. The MNHMT Board of Conference (chaired by Zhuomin Zhang from Georgia Institute of Technology), International Advisory Committee, Technical Program Committee (chaired by Yuying Yan from University of Nottingham), together with the ASME staff are working diligently to make this event engaging and exciting. The three-day event will begin on the morning of Monday, August 5, with an opening plenary session and will end the afternoon of August 7.

Research and education on micro/nanoscale heat and mass transfer have advanced rapidly in the past 30 years, with direct impact now extending into various fields in both science and engineering. The conference will include plenary, invited presentations, contributed oral and poster presentations, as well as two exciting panels discussing Textbooks and Pedagogy in Micro/Nanoscale Heat and Mass Transfer and How Do We Attract and Sustain a Diverse Workforce in Micro/Nanoscale Heat and Mass Transfer. The conference is unique in that it draws from many disciplines and focuses on the interdisciplinary contributions to MNHMT. The conference is intended to provide a forum for researchers, educators, and practitioners around the world to exchange ideas on the state-of-the-art research and development and identify future research needs in this interdisciplinary field.


We are especially grateful to the many volunteers who ensure the conference’s high technical standards and engaging program. This conference is made possible by the contributions of our track organizers and organizers, technical reviewers, and paper authors. We are thankful to all the speakers for participating and sharing their expertise and knowledge with the community. We also gratefully acknowledge financial support from the National Science Foundation.

I hope to see you in August 2024 for what promises to be an exceptional conference.

Sincerely,

Professor Pamela Norris
Conference General Chair
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ON SITE REGISTRATION
AT THE
BUSINESS SCHOOL
SOUTH, FOYER
GROUND FL.

HOURS:
Sunday, August 4
1:00PM–5:00PM

Monday, August 5
8:00AM–5:00PM

Tuesday, August 6
8:00AM–5:00PM

Wednesday, August 7
8:00AM–5:00PM

REGISTRATION

Photo identification is required for badge pick-up at the on-site registration desk. Full Payment is required to attend. Badges will not be given to anyone with an outstanding balance.

If registered at a student rate, student identification must be provided on-site when picking up your badge. Valid student photo identification must include an ID number and “Valid Thru” date.

**Business School South Foyer, Ground Fl.**

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AUDIOVISUAL EQUIPMENT IN SESSION ROOMS

All Technical Sessions are equipped with a built-in LCD projector, screen and computer. It is advised that presenters save their presentation to a USB to be inserted into the computer. Laptops will not be provided. You can bring your own or arrange in advance to share. Make sure to have a connection cord especially if using an Apple device.

TICKETED FUNCTION

Some conference functions will require a ticket for admittance. All purchased tickets will be distributed with your badge at pickup. Dinner is the only ticketed event taking place during the conference. Check at registration if you have any questions.

HAVE QUESTIONS ABOUT THE MEETINGS?

If you have any questions or need assistance, an ASME representative will be located at the registration desk.

COMPLIMENTARY MEMBERSHIP

Attendees who pay the Non-Member registration rate will be offered a complimentary four-month ASME trial membership following the conference. ASME will contact eligible registrants and invite them to join ASME within 90 days after the conference. For more information, visit the ASME Membership website.
SPEAKER READY ROOM

There is a speaker-ready room available Monday thru Wednesday from 8:00AM - 5:00PM daily. Room A07, GF

POSTER PRESENTERS

Authors will have the opportunity to display their poster throughout the conference. Poster boards will be available for authors to mount their poster starting Monday August 5th at 8:00AM and should be removed by Wednesday August 7th by 5:00PM. Carefully mount your poster at your prearrange board spot. You should have received your poster number by email.

PHOTOS/VIDEOS, AUDIO RECORDINGS

Participants are reminded that material presented at ASME conferences is under the copyright of ASME. As a result, participants are prohibited from recording, screen-capturing, or photographing presentations in their entirety with the intent to distribute them to others.

WILL I BE ISSUED A PDH CERTIFICATE?

Technical Conference delegates will receive an email by September with a certificate of their attendance (Professional Development Hours).

SPECIAL EVENTS

RECEPTION

Business School South
Networking Reception
Monday, August 5
6:30PM – 7:30PM.

RECEPTION AND AWARDS DINNER

Trent Building, University Park – Round Trip Bus Transportation Provided
Tuesday, August 6, 2024
Reception: 6:00PM–7:00PM
Dinner: 7:00PM–8:30PM

The Awards Dinner is SOLD OUT and tickets are required to attend. However the preceding reception is open to all attendees.
ACCESSING THE UNIVERSITY OF NOTTINGHAM
GUEST WI-FI

- Make sure the wireless network adapter is activated on your device.

- If you are in range, your device should automatically connect to the UoN-guest network. If not, find ‘UoN-guest’ in the list of wireless connections available and select this network. If it is not listed - please move the device until you are in range.

- Open your web browser, and then browse to any unsecure website such as www.bbc.co.uk.

- The UoN-guest wireless login page will appear.

- If you have already created an account, click the link to log in, otherwise follow the on-screen instructions to register for an account.

- You will be sent a confirmation email to the email address you registered with. You have ten minutes to read and confirm your access. If you do not validate your account, then it will be deleted and your device will be disconnected.

- Once you have confirmed your account, disconnect and reconnect, logging in with your account details. You can log in and use the service for seven days before you will need to re-register.
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|                    | Room B52, First Fl.            | 9:30AM–10:20AM      | **Plenary-1.** Speaker: Professor Gang Chen  
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|                    | Room B52, First Fl.            | 10:20AM–11:10AM     | **Plenary-2.** Speaker: Professor Martyn Poliakoff  
University of Nottingham |
|                    | Room B52, First Fl.            | 1:40pm–2:30PM       | **Plenary-3.** Speaker: Professor Cristina Amon  
University of Toronto |
| **Tuesday, 6 August** | Room B52, First Fl.            | 9:00AM–9:45AM       | **Plenary-4.** Speaker: Professor Xing Zhang  
Tsinghua University |
| **Wednesday, 7 August** | Room B52, First Fl.          | 9:00AM–9:45AM       | **Plenary-5.** Speaker: Professor Clivia M. Sotomayor Torres  
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|                    | Business School South Foyer  
Ground Fl.                    | 3:30pm–4:10PM       | Closing remarks and PM break                                           |
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PRESENCEATION TITLE: RETHINKING EVAPORATION

Monday, August 5 - 9:30 AM–10:20 AM
Room B52, Lecture Theatre First Fl.

Professor Gang Chen
Department of Mechanical Engineering, Massachusetts Institute of Technology

Biography: Gang Chen is the Carl Richard Soderberg Professor of Power Engineering at Massachusetts Institute of Technology (MIT). He served as the Department Head of the Department of Mechanical Engineering at MIT from 2013 to 2018. He obtained his PhD degree from the Mechanical Engineering Department at UC Berkeley. He was a faculty member at Duke University and UCLA, before joining MIT in 2001. He received an NSF Young Investigator Award, an R&D 100 award, an ASME Heat Transfer Memorial Award, an ASME Frank Kreith Award in Energy, a Nukiyama Memorial Award by the Japan Heat Transfer Society, a World Technology Network Award in Energy, an Eringen medal from the Society of Engineering Science, and the Capers and Marion McDonald Award for Excellences in Mentoring and Advising from MIT. He is a fellow of the American Association for the Advancement of Science, the American Physical Society, The American Society of Mechanical Engineers, and the Guggenheim Foundation. He serves on the board of the Asian American Scholar Forum (aasforum.org). He is an academician of Academy Sinica, a fellow of the American Academy of Arts and Sciences, a member of the US National Academy of Engineering, and a member of US National Academy of Science.

PRESENTATION TITLE: SUPERCRITICALITY: FROM BLUE FLUID TO GREEN CHEMISTRY

Monday, August 5 - 10:20 AM–11:10 AM
Room B52, Lecture Theatre First Fl.

Professor Sir Martyn Poliakoff
School of Chemistry, University of Nottingham

Abstract: This lecture describes how I became fascinated in supercritical fluids (SCFs), which are gases such as CO2, compressed until they are nearly as dense as liquids. SCFs display an unusual combination of some of the properties of gases and liquids. I explain how SCFs led me to work in Green Chemistry, developing cleaner, more sustainable ways of making chemicals and materials. I also show how chance played a big role in determining how things developed for me and led me to the interface of chemistry and engineering. I thank all of my students, co-workers, collaborators, technicians, and collaborators, particularly Professor Mike George, for all of their help and support. I also thank all of the organizations that have funded my research.
PRESENTATION TITLE: MULTISCALE THERMAL MANAGEMENT OF ELECTRIC VEHICLE TECHNOLOGIES FROM NANOSCALES TO VEHICLE-LEVEL COOLING SYSTEMS

Monday, August 5 - 1:40 PM–2:30 PM
Room B52, Lecture Theatre First Fl.

Professor Cristina Amon
University of Toronto

Abstract: Core electrification technologies in Electric Vehicles (EV) require developments in battery cells and packs, chargers, and electric motors along with their thermal management strategies to improve performance, longevity, reliability and safety. Leap improvements rely on novel thermal management approaches and packaging architectures, which can optimally control the thermo-electrochemical phenomena occurring inside the batteries to maximize performance, minimize degradation, mitigate thermal runaway risk, enable fast-charging protocols, and accelerate a seamless transition of degraded EV batteries into less-demanding second-life stationary systems.

This talk will briefly discuss current engineering challenges and opportunities on EV thermal management. It will focus on our research on multiscale hierarchical modelling and optimization approaches to overcome thermal challenges across multiple physical domains and length scales spanning up to seven orders of magnitude, from battery cell electrode nanoscales to EV-level thermal management systems. This talk will also describe our surrogate modeling methodology based on deep-learning and convolutional encoder-decoder skip neural network architectures for conjugate heat transfer and illustrate it for the analysis and optimization of EV battery thermal management cold plate systems.

Biography: Cristina Amon is University Professor, Alumni Distinguished Professor and Dean Emerita of the Faculty of Applied Science and Engineering at the University of Toronto (UofT). She is the Scientific Director of the UofT’s Electrification Hub and Director of the ATOMS Laboratory. Prior to joining UofT in 2006, she was the Raymond J. Lane Distinguished Professor and Director of the Institute for Complex Engineered at Carnegie Mellon University. She has pioneered the field of Computational Fluid Dynamics and the development of multidisciplinary multiscale hierarchical modelling, concurrent design and optimization methodologies for thermo-fluid transport phenomena, with applications to renewable energy, biomedical devices, and thermal management of electronics and electric vehicles.

Professor Amon was appointed to the Order of Canada and inducted into the Canadian Academy of Engineering, Royal Society of Canada, Hispanic Engineer Hall of Fame, Spanish Royal Academy, and National Academy of Engineering. She was recognized as one of Canada’s Most Influential Women in 2012, the Powerful Women Trailblazers & Trendsetters in 2019, and received the highest honor for Engineers in Canada (2020 Engineers Canada Gold Medal) and Ontario (2015 PEO Gold Medal) for outstanding engineering public service, technical excellence, and professional leadership.

Cristina Amon is the founding chair of the Global Engineering Deans Council and has served in numerous editorial and technical conference roles, advisory and review boards in North America and abroad. She received her Mechanical Engineering degree from Simon Bolivar University in Venezuela, and her M.S. and Sc.D. from the Massachusetts Institute of Technology.
Plenary

PRESENTATION TITLE: PROGRESS AND PROSPECT OF NANOSCALE THERMAL MEASUREMENTS

Tuesday, August 6 - 9:00AM-9:45AM
Room B52, Lecture Theatre First Fl.

Professor Xing Zhang
Key Laboratory for Thermal Science and Power Engineering of Ministry of Education
Tsinghua University

Biography: Xing Zhang is the Director of the Institute of Engineering Thermophysics in the School of Aerospace Engineering at Tsinghua University, Beijing, China. He received his Ph.D. degree from Tsinghua University in 1988 and worked as a Lecturer at Southeast University after his graduation. From 1990 to 2006, he worked as a Research Associate, an Assistant Professor, and an Associate Professor at Kyushu University in Japan. He returned to Tsinghua University as a Professor in 2006. His current research interests include micro/nanoscale heat transfer, thermophysical properties of nanostructured materials, multiscale cooling technology for data centers, multidisciplinary optimization design for electronic devices, and the efficient use of wind/solar/hydrogen energy sources, etc. He has published over 400 refereed journals and conference publications, and delivered more than 60 Plenary, Keynote, and Invited Lectures at major technical Conferences and Institutions. He serves as the President of Asian Union of Thermal Science and Engineering (AUTSE). He received the Best Paper Award from the Heat Transfer Society of Japan in 2021 and 2008, the Thermal Engineering Award for International Activity from JSME in 2020, the Hartnett-Irvine Award from International Center for Heat and Mass Transfer (ICHMT) in 2019, the Natural Science Award (First Class) from the Ministry of Education of the People’s Republic of China in 2018, the Significant Contribution Awards from the 10th Asian Thermophysical Properties Conference in 2013, and the National Natural Science Award (Second Class) from the State Council of the People’s Republic of China in 2011.

PLENARY TITLE: PHONONS IN ULTRATHIN MEMBRANES AND TOPOLOGICAL WAVEGUIDES

Wednesday, August 7 - 9:00 AM– 9:45 AM
Room B52, Lecture Theatre First Fl.

Professor Clivia M. Sotomayor Torres
Director General
International Iberian Nanotechnology Laboratory (INL) Braga, Portugal

Biography: Prof. Dr. Clivia M. Sotomayor Torres was born in Arica, Chile, and obtained her PhD in Physics in 1984 from the University of Manchester, UK. She held tenured academic appointments at Saint Andrews and Glasgow universities in the UK, a C4 professorship at Wuppertal University in Germany was a research professor at the National university of Ireland University College Cork (Tyndall National Institute). From 2007 to 2023, she was an ICREA research professor and group leader of the Phononic and Photonic Nanostructures group at the Catalan Institute of Nanoscience and Nanotechnology in Spain. Clivia received awards from the Royal Society of Edinburgh, the Nuffield Foundation and an Amelia Earhart Fellowship from ZONTA International (USA). She carries out research in the science and engineering of phononic nanostructures, nanophotonics, and thermal transport. She was a guest professor at the P. Sabatier Univ. Toulouse, at the Royal Institute of Technology (KTH) in Sweden, and the Mittlesten- Schied Guest Professor at the University of Wuppertal in Germany. She has supervised over 20 PhD theses and more than 60 postdoctoral researchers. She has published extensively and has been cited over 12,000 times. Clivia has been and is an active participant in European level research since 1989 and coordinated several projects. She has held several commissions of trust including membership of the Danish National Research Council board, vice-chair of the Scientific Board of the Silicon Austria Laboratory, and co-Chair and Chair of the Advisory Group of the EU Future and Emerging Technologies. In 2020 she was elected to the Academia Europaea, and since 2021 she is a holder of an ERC Advanced Grant carrying out research on phonons for information and communication Technologies. Since September 2023, she is the Director General of the International Iberian Nanotechnology Laboratory (INL) in Braga, Portugal.
How do we attract and sustain a diverse workforce in micro/nanoscale heat and mass transfer

Tuesday August 6 - 3:50pm-5:30pm
Room A25

Synopsis: While the founder of this conference, Chang-Lin Tien, was dedicated to efforts focused on diversifying the field, this remains a challenge to this day. Panelists will discuss not only approaches for enhancing the recruitment of students/researchers from underrepresented populations, but also the need for enhanced retention. We must devote sustained and significant efforts to both recruitment and retention, with climate, in particular, as a focus. How do we make our workplaces and professional communities a place where women and underrepresented individuals enjoy working and want to continue to work. Panelists will share their experiences and the audience will participate in a discussion for audience-centered approaches.

Moderator
Pamela Norris, George Washington University

Panels

Pamela Norris
Moderator
George Washington University
MNHMT 2024
General Conference Chair

Alexis Abramson
Thayer School of Engineering Dartmouth

Cristina Amon
University of Toronto

Cynthia Hipwell
Texas A&M University

Cynthia Hipwell, Texas A&M University
Cristina Amon, University of Toronto
Pamela Norris, George Washington University
TEXTBOOKS AND PEDAGOGY IN MICRO/NANOSCALE HEAT AND MASS TRANSFER

Wednesday August 7 - 10:10am-11:40am
Room A25

Synopsis: Nano/microscale heat transfer has become one of most active areas of research since 1992, when ASME organized the first special session on Fundamental Issues in Small Scale Heat Transfer during its Annual Winter Meeting held in Anaheim, California. Since then, physical devices have continuously shrunk from microns well into nanometers while ultrafast transient has shortened from pico-, femto- all the way to attoseconds. The rapidly expanding physical and mathematical contents to address the rapidly evolving new physical phenomena in this field have made effective transmission of knowledge in both research and education very challenging. To facilitate effective teaching and learning, this panel focuses on the educational aspects of nanoscale heat transfer at both the graduate and undergraduate levels. They include the development of textbooks, teaching tools, teaching methods, and mentorship. Panelists will share their experiences in an audience-centered discussion on approaches.

MODERATOR
Zhuomin Zhang, Georgia Institute of Technology
D. Y. “Robert” Tzou, University of Missouri

PANELISTS
Gang Chen, Massachusetts Institute of Technology
Timothy Fisher, University of California Los Angeles
Liqiu Wang, Hong Kong Polytechnic University
Chang-Ying Zhao, Shanghai Jiao Tong University
Tracks & Track Chairs

TRACK 1 MICRO/NANOFLUIDICS AND LAB-ON-A-CHIP
Organizer: Dong Liu, University of Houston, United States
Co-organizer: Yoav Peles, University of Central Florida, United States
Organizer: S.M. Sohel Murshed, Universidade de Lisboa, Portugal
Co-organizer: Haiping Hong, South Dakota School of Mines & Technology, United States

TRACK 2 NANOFLUIDS
Organizer: S.M. Sohel Murshed, Universidade de Lisboa, Portugal
Co-organizer: Haiping Hong, South Dakota School of Mines & Technology, United States

TRACK 3 MICRO/NANOSCALE INTERFACIAL TRANSPORT PHENOMENA
Organizer: Patrick Hopkins, University of Virginia, United States
Co-organizer: Deyu Li, Vanderbilt University, United States
Co-organizer: Ashutosh Giri, University of Rhode Island, United States
Co-organizer: Nan Gao, University of Birmingham, UK

TRACK 4 NANO/MICROSCALE BOILING AND CONDENSATION HEAT TRANSFER
Organizer: Chen Li, University of South Carolina, United States
Co-organizer: Nenad Miljkovi, University of Illinois Urbana-Champaign, United States
Co-organizer: Ana Moita, Universidade de Lisboa, Portugal

TRACK 5 MICRO/NANOSCALE THERMAL RADIATION
Organizer: Ceji Fu, Peking University, China
Co-organizer: Yu-bin Chen, National Tsing Hua University, Taiwan

TRACK 6 MICRO/NANOSCALE ENERGY DEVICES AND SYSTEMS
Organizer: Theo Borca-Tasciuc, Rensselaer Polytechnic Institute, United States
Co-organizer: Melanie Derby, Kansas State University, United States
Co-organizer: Muhammad Wakil Shahzad, Northumbria University, UK

TRACK 7 MICRO/NANO-THERMAL MANUFACTURING AND MATERIALS PROCESSING
Organizer: Debjyoti Banerjee, Texas A&M University, College Station, United States
Co-organizer: Ronggui Yang, Huazhong University of Science and Technology, China
Co-organizer: Ali Beskok, Southern Methodist University, United States

TRACK 8 MICRO/NANOSCALE HEAT CONDUCTION
Organizer: Junichiro Shiomi, University of Tokyo, Japan
Co-organizer: Ilaria Zardo, University of Basel, Switzerland
Co-organizer: Bing-Yang Cao, Tsinghua University, China

TRACK 9 COMPUTATIONAL METHODS IN MICRO/NANOSCALE TRANSPORT
Organizer: Yonghao Zhang, Chinese Academy of Science, China
Co-organizer: David Emerson, STFC UKRI, UK
Co-organizer: Moran Wang, Tsinghua University, China

TRACK 10 HEAT AND MASS TRANSFER IN SMALL SCALE
Organizer: Ruina Xu, Tsinghua University, China
Co-organizer: Simone Mancin, University of Padova, Italy
Co-organizer: Marco Marengo, University of Brighton, UK
Moved from Bighton to University of Pavia, Italy

TRACK 11 MICRO/MINIATURE TWO-PHASE DEVICES/ SYSTEMS
Organizer: Xiangchun Xuan, Clemson University, United States
Co-organizer: Yulong Ji, Dalian Maritime University, China

TRACK 12 BIOMEDICAL APPLICATIONS OF MICRO/NANOSCALE TRANSPORT
Organizer: Diana-Andra Borca-Tasciuc, Rensselaer Polytechnic Institute, United States
Co-organizer: Bin Chen, Xi’an Jiaotong University, China

TRACK 13 VISUALIZATION OF HEAT AND MASS TRANSFER IN MICRO/NANOSCALE
Organizer: Guihua Tang, Xi’an Jiaotong University, China
Co-organizer: Oronzio Manca, Università Della Campania, Italy

TRACK 14 MEASUREMENT TECHNIQUES AND THERMOPHYSICAL PROPERTIES IN MICRO/NANOSCALE
Organizer: Xinwei Wang, Iowa State University, United States
Co-organizer: Oronzio Manca, Università Della Campania, Italy

TRACK 15 POSTER PRESENTATIONS
Organizer: Yasser Mahmoudi larimi, University of Manchester, UK
Co-organizer: Yong Ren, University of Nottingham Ningbo China
Boards and Committees

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Ping Cheng, Shanghai Jiao Tong University
Yogesh Jaluria, Rutgers, The State University of New Jersey
Hongbin Ma, University of Missouri-Columbia
Pamela M. Norris, George Washington University
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Yonghao Zhang, Chinese Academy of Science, China

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Xiaofeng Zheng (Co-Chair) Faculty of Engineering, University of Nottingham, UK
Sarah Taylor (Administrative Support/Secretary) Faculty of Engineering, University of Nottingham, UK
Mark Alston, Christopher Wood, Dr. Mark Jabbar (Team Members) Faculty of Engineering, University of Nottingham, UK
# MNHMT 2024 Technical Schedule at a Glance

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<th>Monday, 5 August</th>
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### Room B52, First Fl.
- **Track-04-01**: Nano/Microscale Boiling and Condensation Heat Transfer
- **Track-04-02**: Nano/Microscale Boiling and Condensation Heat Transfer
- **Track-09-01**: Nano/Microscale Boiling and Condensation Heat Transfer
- **Track-09-02**: Computational Methods in Micro/Nanoscale Transport

### Room A24, GF
- **Track-01-01**: Micro/Nanofluidics and Lab-On-A-Chip
- **Track-03-01**: Micro/Nanoscale Interfacial Transport Phenomena
- **Track-03-02**: Micro/Nanoscale Interfacial Transport Phenomena
- **Track-03-03**: Micro/Nanoscale Interfacial Transport Phenomena
- **Track-03-04**: Nano/Microscale Boiling and Condensation Heat Transfer

### Room A25, GF
- **Track-10-01**: Heat and Mass Transfer in Small Scale
- **Track-10-02**: Heat and Mass Transfer in Small Scale
- **Track-10-03**: Heat and Mass Transfer in Small Scale
- **Track-08-01**: Micro/Nanoscale Heat Conduction
- **Track-08-02**: Micro/Nanoscale Heat Conduction
- **Track-11-01**: Micro/Miniature Two-Phase Devices/Systems
- **Panel-1**: How Do We Attract and Sustain a Diverse Workforce in Micro/Nanoscale Heat and Mass Transfer
  - Chair: Pamela Norris
  - Co-Chair: D. Y. “Robert” Tzou

### Room A26, GF
- **Track-05-01**: Micro/Nanoscale Thermal Radiation
- **Track-05-02**: Micro/Nanoscale Thermal Radiation
- **Track-05-03**: Micro/Nanoscale Thermal Radiation
- **Track-11-01**: Micro/Miniature Two-Phase Devices/Systems
- **Track-04-04**: Nano/Microscale Boiling and Condensation Heat Transfer
- **Track-01-02**: Micro/Nanoscale Boiling and Condensation Heat Transfer
- **Panel-2**: Textbooks and Pedagogy in Micro/Nanoscale Heat and Mass Transfer
  - Chair: Zhuomin Zhang
  - Co-Chair: D. Y. “Robert” Tzou

### Additional Sessions
- **Panel-01**: Poster Session
MONDAY AUGUST 5, 2024

8/5/2024
11:30AM to 12:40PM
Room A24

Chair: Dong Liu - University of Houston
Chair: Pei Zhao - Shandong University

Presentations:

Three-Dimensional Structures and Dynamics of Nanoconfined Multiphase Fluids, (MNHMT2024-131504)
Technical Presentation Only
Qin-Yi Li - Kyushu University

Numerical and Experimental Study on Fluid-Structure Interactions in the Oscillating Flow in a Microfluidic Device, (MNHMT2024-122522)
Technical Paper Publication
Tuo Hou - University of Nottingham Ningbo China
Jing Wang - University of Nottingham Ningbo China
Yong Ren - University of Nottingham Ningbo China

Rapid Acid Value Test-Kit Development for Oleochemical Product Quality Control Using Microfluidic Technology, (MNHMT2024-130124)
Technical Paper Publication
Pei Xuan Ho - Heriot-Watt University Malaysia
Kai Seng Koh - Heriot-Watt University Malaysia
Billie Yan Zhang Hiew - Heriot-Watt University Malaysia
Chang Nong Lim - The University of Nottingham UK
Yong Ren - The University of Nottingham Ningbo China

Study on Flow Characteristics of Droplet Breaking Behavior in Microchannels, (MNHMT2024-132018)
Technical Paper Publication
Naixiang Zhou - Shandong University
Yuting Zhao - Shandong University
Li Lei - Shandong University
Jingzhi Zhang - Shandong University

8/5/2024
11:30AM to 12:40PM
Room B52

Chair: Ana Moita - Instituto Superior Técnico, Universidade de Lisboa
Chair: Matthias H. Buschmann - ILK Dresden gGmbH

Presentations:

Two-Dimensional Numerical Simulation on Bubble Growth in Microchannel Boiling Flow, (MNHMT2024-131996)
Technical Paper Publication
Hongtao Gao - Dalian Maritime University
Jianrong Zhai - Dalian Maritime University
Dong Niu - Dalian Maritime University
Huaqiang Liu - Dalian Maritime University
Yuying Yan - University of Nottingham

Technical Presentation Only
Jinming Zhang - Helmholtz-Zentrum Dresden-Rossendorf (HZDR), Institute of Fluid Dynamics
Uwe Hampel - Helmholtz-Zentrum Dresden-Rossendorf (HZDR), Institute of Fluid Dynamics, Chair of Imaging Techniques in Energy and Process Engineering, TU Dresden, Germany
Wei Ding - Helmholtz-Zentrum Dresden-Rossendorf (HZDR), Institute of Fluid Dynamics

Technical Paper Publication
Bhaskar Chakraborty - University of Brighton
Mirko Gallo - Sapienza University of Rome
Marco Marengo - University of Pavia
Joel De Coninck - University of Brighton
Carlo Massimo Casciola - La Sapienza University of Rome
Nicholas Miche - University of Brighton
Anastasios Georgoulas - University of Brighton

Technical Paper Publication
Chung Ki Cheng - City University of Hong Kong
Song Ni - City University of Hong Kong
Kwun Ting Lau - City University of Hong Kong
Shahid Ali Khan - City University of Hong Kong
Jiyun Zhao - City University of Hong Kong

Enhanced Flow Boiling of R1234yf Inside Topologically Optimized Microchannels, (MNHMT2024-131659)
Technical Presentation Only
Dr. Li Jia - Beijing Jiaotong University
Zhiqiang Zhang - Beijing Jiaotong University

8/5/2024
11:30AM to 12:40PM
Room A26

Chair: Ceji Fu - Peking University
Chair: P-Olivier Chapuis - CNRS
Presentations:

**Nanoscale Thermal Radiation and Metamaterials Energy Devices, (MNHMT2024-140721)**

Technical Presentation Only
Dr. Changying Zhao - Shanghai Jiao Tong University

**Double-Sided Spectrally Splitting Contrast Gratings for an Asymmetric Thermal Regulation Window, (MNHMT2024-132894)**

Technical Presentation Only
Ken Araki - Arizona State University
Richard Z. Zhang - University of North Texas

**Infrared Properties of Ultrathin 2d Ti3c2tx Mxene Films, (MNHMT2024-130884)**

Technical Presentation Only
Meng Li - the Hong Kong University of Science and Technology
Baoling Huang - the Hong Kong University of Science and Technology
Yang Li - Zhejiang University

**Active Tuning of Anisotropic Phonon Polaritons in Natural Van Der Waals Heterostructures for Manipulation of Near-Field Energy Transport, (MNHMT2024-131262)**

Technical Presentation Only
Shuo Chen - Peking University
Xiaohu Wu - Shangdong Institute of Advanced Technology
Ceji Fu - Peking University

8/5/2024
11:30AM to 12:40PM
Room A25

Chair: Lea Der Chen - Texas A&M University – Corpus Christi
Chair: Yingai Jin - JLU

Presentations:

**Study on Heat Transfer Characteristics of Successive Droplet Trains Impacting on Silicon Surface., (MNHMT2024-129836)**

Technical Paper Publication
Yuhang Li - Beihang University
Xu Gao - Beihang University
Wenhao Deng - Beihang University
Yakang Xia - Beihang University
Haiwang Li - Beihang University
Xuan Gao - Beihang University


Technical Paper Publication
Jiajun Xu - University of the District of Columbia
Patrick Adebay - UDC

**An Investigation of the Co-Boiling Phenomenon Between Napl and Water Within Porous Media: Implications for In-Situ Thermal Desorption, (MNHMT2024-131261)**

Technical Presentation Only
Xinyu Xu - Zhejiang University
Hu Nan - Zhejiang University
Liwu Fan - Zhejiang University

8/5/2024
2:30 PM to 3:50 PM
Room A24

Chair: Ashutosh Giri - University of Rhode Island
Chair: Ikuya Kinefuchi - The University of Tokyo

Presentations:


Technical Paper Publication
Renjie Hua - Hangzhou Dianzi University
Xiaogeng Gu - Hangzhou Dianzi University
Zhiyuan Huang - Imperial College
Yuan Dong - Hangzhou Dianzi University

**Molecular Transport Across a Steady-State Net Condensing Surface, (MNHMT2024-131347)**

Technical Presentation Only
Ahmet Ata Ersoy - Southern Methodist University
Mustafa Ozsipahi - U.S. DEVCOM Army Research Laboratory
Ali Beskok - Southern Methodist University
Author Index


Technical Paper Publication
Tang Zhixian - Key Laboratory of Enhanced Heat Transfer and Energy Conservation of Education Ministry, School of Chemistry and Chemical Engineering, South China University of Technology
Qi Ronghui - South China University of Technology

**Directing Interfacial Heat Flow via Mid-Infrared Thermal Polaritons, (MNHMT2024-141821)**

Technical Presentation Only
William Hutchins - University of Virginia
Saman Zare - University of Virginia
Mingze He - Vanderbilt University
Maxwell Tolchin - Pennsylvania State University
Jon-Paul Maria - Pennsylvania State University
Joshua Caldwell - Vanderbilt University
Patrick Hopkins - University of Virginia

**Interfacial Thermal Conductance Spectrum in Nonequilibrium Molecular Dynamics Simulations Considering Anharmonicity, Asymmetry, and Quantum Effects, (MNHMT2024-131228)**

Technical Presentation Only
Yixin Xu - The Hong Kong University of Science and Technology
Yanguang Zhou - The Hong Kong University of Science and Technology

8/5/2024
2:30 PM to 3:50 PM
Room B52

Chair: Ana Moita - Instituto Superior Técnico, Universidade de Lisboa
Chair: Wei Ding - Helmholtz-Zentrum Dresden-Rossendorf e.V.

Presentations:

**Oscillating Heat Pipe and Thermosyphon Operated With Ferronanofluid Under Magnetic Field, (MNHMT2024-128803)**

Technical Paper Publication
Matthias H. Buschmann - ILK Dresden gGmbH

**Dynamics of Micro-Condensation Droplets on Nano-Micropillar Structured Superhydrophobic Surfaces, (MNHMT2024-131645)**

Technical Presentation Only
Soumei Baba - National Institute of Advanced Industrial Science and Technology (AIST)
Naoki Takada - National Institute of Advanced Industrial Science and Technology (AIST)
Shimpei Saito - National Institute of Advanced Industrial Science and Technology (AIST)
Satoshi Someya - National Institute of Advanced Industrial Science and Technology (AIST)

8/5/2024
2:30 PM to 3:50 PM
Room A25

Chair: Lea Der Chen - Texas A&M University – Corpus Christi
Chair: Qinggang Qiu - Dalian University of Technology

Presentations:


Technical Presentation Only
Xuehui Wang - University College Dublin
Ying Li - University of Nottingham Ningbo China
Chuang Wen - University of Reading
Bo Li - University of Kent
Yuying Yan - University of Nottingham


Technical Presentation Only
Amir Abdolhosseinizadeh - Boğaziçi University
Ali Ghojavand - University of Antwerp
Cem Sevik - University of Antwerp
Milorad Milosevic - University of Antwerp
Nazli Donmezer - Boğaziçi University
Experimental and Numerical Investigation of Vapour Jetting Phenomenon in the Combustion of a Polymer-Infused Fuel Droplet., (MNHMT2024-131585)

Technical Paper Publication
Rimjhim Spandan - Indian Institute of Science Bangalore
Aayushi Bohrey - Indian Institute of Science
Mandeep Deka - Indian Institute of Science
Jun Xia - Brunel University
R. V. Ravikrishna - Indian Institute of Science
Pratikash P. Panda - Indian Institute of Science

Jet Microchannel With Sawtooth Wall for Efficient Cooling of High-Power Electronics, (MNHMT2024-131307)

Technical Presentation Only
Zhihu Wu - Peking university
Bai Song - Peking University
Zhiyao Jiang - Peking university
Wujuan Yan - Peking University


Technical Paper Publication
Mohammad Jadidi - University of Manchester
Alistair Revell - University of Manchester
Yasser Mahmoudi - University of Manchester

8/5/2024
2:30 PM to 3:50 PM
Room A26

Chair: Ceji Fu - Peking University
Chair: Melanie Derby - Kansas State University

Presentations:

Manipulation of Near-Field Thermal Radiation With Thin Films, (MNHMT2024-139982)

Technical Presentation Only
Bai Song - Peking University

Narrowband Thermal Radiation on Refractory Metal Using 2d Superlattice Photonic Microcavity, (MNHMT2024-123962)

Technical Presentation Only
Zhen Liu - Tohoku University
Makoto Shimizu - Tohoku University
Hiroo Yugami - Tohoku University

Selective Nonreciprocal Thermal Emitters/Absorbers Using Magnetized Epsilon-Near-Zero Metamaterials, (MNHMT2024-130583)

Technical Presentation Only
Mengqi Liu - Shanghai Jiao Tong University
Shenghao Jin - Shanghai Jiao Tong University
Boxiang Wang - Shanghai Jiao Tong University

Changying Zhao - Shanghai Jiao Tong University

Parylene as a New Material for High-Resolution, Low Background Noise Heat Flow Sensors, (MNHMT2024-132950)

Technical Presentation Only
Ayan Majumder - University of Michigan, Ann Arbor
Kanishka Panda - University of Michigan, Ann Arbor
Rohith Mittapally - Massachusetts Institute of Technology
Audrey-Rose Gutierrez - University of Michigan, Ann Arbor
Pramod Reddy - University of Michigan, Ann Arbor
Edgar Meyhofer - University of Michigan, Ann Arbor

Near-Field Radiative Thermal Switches Between a Particle and a Flat Surface Based on Dissimilar Hyperbolic Materials, (MNHMT2024-131792)

Technical Presentation Only
Chengrong Zeng - Peking University
Yang Hu - Shandong Institute of Advanced Technology
Xiaohu Wu - Shandong Institute of Advanced Technology
Ceji Fu - Peking University

8/5/2024
4:10 PM to 5:40 PM
Room B52

Chair: Fang Liu - Shanghai University of Electric Power
Chair: Jin Yao Ho - Nanyang Technological University Singapore

Presentations:

Flow Boiling in Microchannels Based Heat Sinks Combined With Micro-Nano-Modified Surfaces, (MNHMT2024-131700)

Technical Paper Publication
Mariana Perez - IN+ Instituto Superior Técnico Universidade de Lisboa
Pedro Pontes - IN+ Instituto Superior Técnico Universidade de Lisboa
António Moreira - IN+ Instituto Superior Técnico Universidade de Lisboa
Ana Moita - IN+ Instituto Superior Técnico Universidade de Lisboa

Effect of Different Vertical Curved Surfaces on Bubble Merger Using Lattice Boltzmann Model With Large Density Ratio, (MNHMT2024-132000)

Technical Paper Publication
Hongtao Gao - Dalian Maritime University
Wenjie Guo - Dalian Maritime University
Huaqiang Liu - Dalian Maritime University
Dong Niu - Dalian Maritime University
Yuying Yan - University of Nottingham


Technical Presentation Only
Xingchi Jiang - Sichuan University
Shangzhen Xie - Hubei University
Droplet Dynamics During Evaporation-Induced Cassie to Wenzel Transition on Heated Superhydrophobic Surfaces, (MNHMT2024-132438)

Technical Paper Publication
Venugopal Venkitesh - Indian Institute of Science
Pranjal Agrawal - Indian Institute of Science
Susmita Dash - Indian Institute of Science Bangalore


Technical Paper Publication
Glaucio Nobrega - Mechanical Engineering and Resource Sustainability Center (METRICS); Centro de Investigação de Montanha (CIMO)
Beatriz Cardoso - Mechanical Engineering and Resource Sustainability Center (METRICS)
Filipe Barbosa - University of Minho
Diana Pinho - Center for MicroElectromechanical Systems (CMEMS-UMinho); LABBELS—Associate Laboratory
Cristiano Abreu - Instituto Superior de Eng. do Porto; Center for MicroElectromechanical Systems (CMEMS-UMinho); LABBELS—Associate Laboratory
Reinaldo Souza - Mechanical Engineering and Resource Sustainability Center (METRICS); IN+ Center for Innovation
Ana Moita - IN+ Center for Innovation; CINAMIL
João Ribeiro - Instituto Politécnico de Bragança; Centro de Investigação de Montanha (CIMO)
Rui A. Lima - Mechanical Engineering and Resource Sustainability Center (METRICS); CEFT—Transport Phenomena Research Center; ALICE - Associate Laboratory in Chemical Engineering

Heat Transfer and Flow Characteristics of Flow Boiling in Manifold Microchannel, (MNHMT2024-131891)

Technical Paper Publication
Jinjin Xu - Shandong University
Jingzhi Zhang - Shandong University
Gongming Xin - Shandong University
Wei Li - Zhejiang University

8/5/2024
4:10 PM to 5:40 PM
Room A25

Chair: Michael Seaton - UKRI STFC Daresbury Laboratory
Chair: Ronghui Qi - South China University of Technology.

Presentations:

On Liquid-Phase Transport Modeling of Sars-Cov-2 Virus-Laden Drops, (MNHMT2024-131824)

Technical Paper Publication
Sarah M. Seaba - Michigan State University
Lea-Der Chen - Texas A&M University – Corpus Christi
8/5/2024
4:10 PM to 5:40 PM
Room A26

Chair: Richard Zhang - Univ. of North Texas
Chair: Zhen Liu - Tohoku University

Presentations:

Ultrafast Evanescent Heat Transfer Across Solid State Interfaces via Phonon-Polaritons, (MNHMT2024-130965)
Technical Presentation Only
Patrick Hopkins - Professor

Thermal Emittance and Infrared Optical Constants Retrieval From a Germanium-Antimony-Tellurium (Gst) Film at Its Three Phases, (MNHMT2024-106022)
Technical Presentation Only
Yu-Bin Chen - National Tsing Hua University

Tailoring Thermal Radiation Based on Topological Photonic Structures, (MNHMT2024-122098)
Technical Presentation Only
Boxiang Wang - Shanghai Jiao Tong University
Fan Yi - Shanghai Jiao Tong University
Zhen Gong - Shanghai Jiao Tong University
Changying Zhao - Shanghai Jiao Tong University

Tunable Electro-Optical Switch in Infrared Communication Band Through Coupling Surface Plasm Polaritons and Magnetic Polaritons, (MNHMT2024-131286)
Technical Paper Publication
Yiquan Gong - Harbin Institute of Technology
Yanming Guo - Harbin Institute of Technology
Shuni Chen - Harbin Institute of Technology
Qinghui Pan - Harbin Institute of Technology
Yong Shuai - Harbin Institute of Technology

Design of a Four-Layer Induced-Transmission Filter for Promoting Thermophotovoltaic Efficiency, (MNHMT2024-120874)
Technical Paper Publication
Fan Yi - Shanghai Jiao Tong University
Boxiang Wang - Shanghai Jiao Tong University
Changying Zhao - Shanghai Jiao Tong University

Photothermal Coupling Model for Pulsed Laser-Induced Luminescence of Dy-Doped Yttria-Stabilized Zirconia Phosphor, (MNHMT2024-133110)
Technical Presentation Only
Yusong Wu - Tsinghua University
Yuhang Zhang - Tsinghua University
Changxian Zhang - Aero Engine Academy of China
Tairan Fu - Tsinghua University

8/5/2024
4:10 PM to 5:40 PM
Room A24

Chair: Ali Beskok - Southern Methodist University
Chair: Ikuya Kinefuchi - The University of Tokyo

Presentations:

Dynamic Mechanisms of Emulsion Droplets in Microchannels, (MNHMT2024-131546)
Technical Presentation Only
Xiang Wang - Beijing University of Technology
Yan Pang - Beijing University of Technology
Zhaomiao Liu - Beijing University of Technology

Capillary-Driven Passive Fog Harvesting With Cones From 3D Printing, (MNHMT2024-132662)
Technical Paper Publication
Abubaker S. Omer - Khalifa University
Aikifa Raza - Khalifa University
Maryam Alshehhi - Khalifa University
Faisal Almarzooqi - Khalifa University
Tiejun Zhang - Khalifa University

Atomistic Modeling of Thermochemical Processes for Efficient Recycling of Polymer Composite Materials, (MNHMT2024-131339)
Technical Presentation Only
Marina Provenzano - Politecnico di Torino
Francesco Maria Bellussi - Politecnico di Torino
Hernán Chávez Thielemann - Eindhoven University of Technology
Matteo Fasano - Politecnico di Torino

Molecular Dynamics Simulations of the Role of Oxygen and Nitrogen in the Evaporative Condensation Process of Water in the Knudsen Layer, (MNHMT2024-125748)
Technical Paper Publication
Zhijun Tian - Xi’an University of Architecture and technology
Yanfeng Liu - Xi’an university of architecture and technology, China

Interfacial Transport Across Graphene-Water From Machine Learning Molecular Dynamics, (MNHMT2024-131966)
Technical Paper Publication
Zhiqiang Li - Shandong University
Huanhuan Zhao - Shandong University
Linhua Liu - Shandong University
Jia-Yue Yang - Shandong University
Direct Observation of Tunable Thermal Conductance at Solid/porous Crystalline Solid Interfaces Induced by Water Adsorbents, (MNHMT2024-131655)

Technical Presentation Only
Guang Wang - The Hong Kong University of Science and Technology
Yanguang Zhou - The Hong Kong University of Science and Technology

Phonons in Ultrathin Membranes and Topological Waveguides, (MNHMT2024-122048)

Technical Presentation Only
Clivia M. Sotomayor Torres - International Iberian Nanotechnology Laboratory

Informatics Assisted Thermal Conductive Polymer Design: Recent Progress and Perspective, (MNHMT2024-130663)

Technical Presentation Only
Shenghong Ju - Shanghai Jiao Tong University


Technical Paper Publication
Richard Zhang - University of North Texas

Thermal Transport Study in Telescopic Nanowires Through Raman Thermometry, (MNHMT2024-140762)

Technical Presentation Only
Yashpreet Kaur - University of Basel
Saeko Tachikawa - University of Basel
Jose Manuel Sojo Gordillo - University of Basle
Milo Yaro Swinkels - University of Basel
Matteo Camponovo - University of Basel
Miquel Lopez-Suarez - Institut de Ciencia de Materials de Barcelona (ICMAB-CSIC)
Wonjong Kim - Ecole Polytechnique Fédérale de Lausanne
Anna Fontcuberta I Morral - Ecole Polytechnique Fédérale de Lausanne
Riccardo Rurali - Istituto di Ciencia de Materials de Barcelona (ICMAB-CSIC)
Ilaria Zardo - University of Basel

The Morphology Regulation Mechanism of Microdroplet During the Flexible Fevices Printing With Molten Metal Droplet., (MNHMT2024-131227)

Technical Presentation Only
Nan Zheng - Beijing University of Technology
Zhaoqia Guo - Beijing University Of Technology
Xiang Wang - Beijing University Of Technology
Yan Pang - Beijing University Of Technology

8/6/2024
10:10 AM to 12:40 PM
Room B52

Chair: Yonghao Zhang - Institute of Mechanics, Chinese Academy of Sciences
Chair: David R Emerson - STFC

Presentations:
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Developing Code_saturne for Advanced Micro-Scale Gas Transport, (MNHMT2024-132089)

Technical Paper Publication
Xiao-Jun Gu - Scientific Computing Department, STFC Daresbury Laboratory
Adam Greenbank - STFC Daresbury Laboratory
Charles Moulinec - Scientific Computing Department, STFC Daresbury Laboratory
David R Emerson - Scientific Computing Department

Development of Enhanced Interactions for Highly Coarse-Grained Materials, (MNHMT2024-132397)

Technical Paper Publication
Michael Seaton - UKRI STFC Daresbury Laboratory
Vlad Sokhan - UKRI STFC Daresbury Laboratory
Ilian Todorov - UKRI STFC Daresbury Laboratory


Technical Paper Publication
Ramlala Sinha - Applied Engineering Consultants


Technical Presentation Only
Peijie Feng - The University of Tokyo
Aditya Lele - Princeton University
Minhyeok Lee - The University of Tokyo
Yiguang Ju - Princeton University
Yuji Suzuki - The University of Tokyo

Pore-Scale Turbulent Physics Informed Neural Network of Turbulent Flow Over Porous Media, (MNHMT2024-132339)

Technical Paper Publication
Seohye Jang - University of Manchester
Mohammad Jadidi - University of Manchester
Yasser Mahmoudi - University of Manchester

Machine-Learning-Based Thermal Conductivity Prediction in Two-Dimensional TiS2/MoS2 Van Der Waals Heterostructures, (MNHMT2024-129692)

Technical Paper Publication
Akhil Kunjikuttan Nair - University of Toronto
Carlos Manuel Da Silva - University of Toronto
Cristina H. Amon - University of Toronto

Searching for Coherent Phonons in Colloidal Quantum Dot Films, (MNHMT2024-131968)

Technical Presentation Only
Yuchen Li - ZJU-UIUC Institute, College of Energy Engineering, Zhejiang University
Wee-Liat Ong - ZJU-UIUC Institute, College of Energy Engineering, Zhejiang University

Controlling Evaporation on Textured Surfaces, (MNHMT2024-132671)

Technical Presentation Only
Michael Rennick - Durham University
Sam Avis - Durham University
Halim Kusumaatmaja - Durham University

8/6/2024
10:10 AM to 12:40 PM
Room A26
Chair: Timothy Fisher - UCLA
Chair: Melanie Derby - Kansas State University

Presentations:

An Experimental and Modeling Study on Device- and System-Level Micro-Channel Two-Phase Cooling for High-Heat-Flux Application, (MNHMT2024-121519)

Technical Paper Publication
Zhaozan Feng - Zhuzhou CRRC Times Electric UK Innovation Center
Guomeng Song - Zhuzhou CRRC Times Electric UK Innovation Center
Fan Xia - Zhuzhou CRRC Times Electric Co., Ltd.
Bin Liu - Zhuzhou CRRC Times Electric UK Innovation Center
Jinfeng Yang - Zhuzhou CRRC Times Electric Co., Ltd.
Kai He - Zhuzhou CRRC Times Electric Co., Ltd.

Experimental Investigation of Two-Phase Flows in Printed Circuit Heat Exchangers, (MNHMT2024-132015)

Technical Paper Publication
Liangle Zhang - Shandong University
Jingzi Zhang - Shandong University
Li Lei - Shandong University
Wei Li - Zhejiang University

Flash Boiling in Microchannels for High Heat Flux Devices, (MNHMT2024-131567)

Technical Presentation Only
Naarendharan Meenakshi Sundaram - UCLA
Rishi Pugazhendhi - UCLA
Timothy S. Fisher - UCLA
Subramanian S. Iyer - UCLA
Author Index

An Experimental Investigation on Characteristics of Liquid Film Thickness of Gas-Liquid Taylor Flow in Rectangular Microchannel, (MNHMT2024-130963)

Technical Paper Publication
Dengwei Fu - SUN YAT-SEN UNIVERSITY
Sihui Hong - Sun Yat-Sen University


Technical Paper Publication
Zhang Liu - Dalian Maritime University
Yulong Ji - Dalian Maritime University
Dengke Zhang - Dalian Maritime University

Experimental Study on the Heat Transfer Performance of a Cesium Oscillating Heat Pipe, (MNHMT2024-132016)

Technical Paper Publication
Yanmin Feng - Dalian Maritime University
Yulong Ji - Dalian Maritime University
Zhonghao Liu - Dalian Maritime University
Mengke Wu - Dalian Maritime University
Huaqiang Liu - Dalian Maritime University


Technical Presentation Only
Zirui Li - Zhejiang University
Wenzhe Yang - Zhejiang University
Liwu Fan - Zhejiang University

Experimental Study on Heat Transfer Characteristics of Flexible Loop Heat Pipes for Mobile Devices, (MNHMT2024-130870)

Technical Paper Publication
Qingjie Cui - Xi'an Jiaotong University
Xiaoping Yang - Xi'an Jiaotong University
Xiang Ma - Xi'an Jiaotong University
Ziyi You - Xi'an Jiaotong University
Yonghai Zhang - Xi'an Jiaotong University
Jinjia Wei - Xi'an Jiaotong University

Pool Boiling of Silicon With Multi-Length Scale Surface Structures, (MNHMT2024-132716)

Technical Presentation Only
Fabian Medina - The University of Arizona
Qing Hao - University of Arizona
Haomin Li - University of Arizona
Qiyu Chen - University of Arizona

8/6/2024
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Room A24

Chair: Angelo Gaitas - Mount Sinai School of Medicine
Chair: Kai Yu - University of Colorado At Denver

Presentations:

Invited: Microthermocouple Sensors for in Biological Thermometry, (MNHMT2024-132919)

Technical Presentation Only
Angelo Gaitas - Mount Sinai School of Medicine
Modeling of a Thermal Wave Technique to Determine the Extent of the Freezing Region Surrounding a Cryoprobe, (MNHMT2024-132904)
Technical Presentation Only
Yi Zhang - Rensselaer Polytechnic Institute
Chengxi Wu - Rensselaer Polytechnic Institute
Theodorian Borca-Tasciuc - Rensselaer Polytechnic Institute

Mechanisms of Confined Single-Layer Ion Transport: Implications for Protein Channel, (MNHMT2024-132570)

Technical Presentation Only
Qiyuan Wang - Qiyuan Wang
Chengzhen Sun - State Key Laboratory of Multiphase Flow in Power Engineering


Technical Presentation Only
Hui Lin Zhou - Northeastern University
Jun Ke Xing - Northeastern University
Xi Zuo Jiang - Northeastern University

Numerical Study of Droplet Dynamics and Breakup Under Direct and Alternating Electric Fields, (MNHMT2024-131903)

Technical Paper Publication
Davoud Lanbaran - The University of Kent
Hosein Ebrahimi - The University of Kent
Xuehui Wang - University College Dublin
Chuang Wen - University of Reading
Bo Li - University of Kent

Tunable Particle Manipulation Using Chiral Light-Matter Interactions, (MNHMT2024-131465)

Technical Presentation Only
Huaxin Li - Harbin Institute of Technology
Yatao Ren - Harbin Institute of Technology
Mingjian He - Harbin Institute Technology
Hong Qi - Harbin Institute of Technology
Hemodynamic Characteristics and Nitric Oxide Local Distributions in Aging Aorta Based on Simvascular Fluid-Structure Interaction Simulation, (MNHMT2024-132014)

Technical Presentation Only
Huimin Chen - School of Energy and Power Engineering
Qingzhuo Chi - School of Energy and Power Engineering
Ying He - School of Energy and Power Engineering
Zhong Gao - Department of Peripheral Intervention
Wenjun Wang - Department of Peripheral Intervention
Xijing Zhuang - Department of Cardiovascular Surgery

Hybrid Three-Stage Microfluidic Device for Continuous Particle Separation in Viscoelastic Fluids With Different Rheological Properties, (MNHMT2024-132042)

Technical Presentation Only
Liang-Liang Fan - Xi'an Jiaotong University
Liang Zhao - Xi'an Jiaotong University
Lv Liu - Xi'an Jiaotong University
Chongshan Gan - Xi'an Jiaotong University

Aggregate Size and the Attenuation of Medium-Frequency Acoustic Signals in Carbon Black Nanofluids, (MNHMT2024-139993)

Technical Presentation Only
Adam Mcelligott - Western Norway University of Applied Sciences
Boris Balakin - Western Norway University of Applied Sciences

Numerical Investigation on Mixed Convection With Nanofluids in Vertical Channels With Different Aspect Ratios and Moving Plate, (MNHMT2024-132601)

Technical Paper Publication
Bernardo Buonomo - Università degli Studi della Campania “Luigi Vanvitelli”
Oronzio Manca - Università degli Studi della Campania
Sergio Nardini - Università degli Studi della Campania “Luigi Vanvitelli”
Chiara Ripoli - Università degli Studi della Campania “Luigi Vanvitelli”
Gianluca Sarli - Università degli Studi della Campania “Luigi Vanvitelli”

Li-Ion Battery Thermal Management System Using Nanofluid Active Cooling and Porous Nanoparticle Layer Surface Effects, (MNHMT2024-132646)

Technical Presentation Only
Faroq Riaz Siddiqui - Exponent Ltd.
Jim Zhang - Exponent Ltd.

Effect of Preparation Method on the Characteristics of Al2o3-H2o Nanofluids, (MNHMT2024-133293)

Technical Presentation Only
Khalad Almuhaysh - Imperial College London
Antonis Sergis - Imperial College London
Yannis Hardalupas - Imperial College London

Effect of Hybrid Nanoparticle Additives on the Specific Heat Capacity of Molten Salt, (MNHMT2024-131945)

Technical Paper Publication
Guangrui Li - State Key Laboratory of Alternate Electrical Power System with Renewable Energy Sources (North China Electric Power University)
Liu Cui - State Key Laboratory of Alternate Electrical Power System with Renewable Energy Sources (North China Electric Power University)
Gaosheng Wei - Key Laboratory of Power Station Energy Transfer Conversion and System (North China Electric Power University)
Feng Ye - Key Laboratory of Power Station Energy Transfer Conversion and System (North China Electric Power University)
Weijia Wang - Key Laboratory of Power Station Energy Transfer Conversion and System (North China Electric Power University)
Dongyue Zhang - Key Laboratory of Power Station Energy Transfer Conversion and System (North China Electric Power University)
Xiaoze Du - Key Laboratory of Power Station Energy Transfer Conversion and System (North China Electric Power University)
Presentations:

Multiscale Simulation of Water/oil Displacement With Dissolved Co2: Implications for Geological Carbon Storage, (MNHMT2024-132684)
Technical Presentation Only
Sheng Li - Xi'an Jiaotong University
Haihu Liu - Xi'an Jiaotong University

Kinetic Modelling of Nanoscale Heat and Mass Transfer of Confined Van Der Waals Fluid, (MNHMT2024-132225)
Technical Presentation Only
Baochao Shan - University of Edinburgh
Livio Gibelli - School of Engineering
Yonghao Zhang - Institute of Mechanics, Chinese Academy of Sciences

A Comprehensive Numerical Model to Predict Melt Pool Characteristics During Selective Laser Melting Process, (MNHMT2024-106576)
Technical Presentation Only
Nitesh Anand - National Tsing Hua University
Ming-Tsang Lee - National Tsing Hua University
Yu-Bin Chen - National Tsing Hua University

Impact of Fluid Vibration and Temperature Gradient on Thermocapillary Droplet Flow, (MNHMT2024-121929)
Technical Paper Publication
Yousuf Alhendal - Department of Mechanical Power and Refrigeration Tech (MPR), College of Technological Studies (CTS), Public Authority for Applied Education and Training (PAAET), Kuwait
Sara Touzani - Research team, Energy Systems, Mechanical Materials and Structures, and Industrial Processes Modeling (MOSEM2PI), Mohammadia School of Engineers, Mohammed V University in Rabat

A Two-Dimensional Potential for Modeling Active Particles, (MNHMT2024-132852)
Technical Presentation Only
Shaobin Zhuo - Hong Kong University of Science and Technology
Jingyuan Chen - University of Hong Kong
Jinyao Tang - University of Hong Kong
Zhigang Li - Hong Kong

High-Throughput Screening of High-Temperature Thermoelectric Metal Oxides via Interpretable Machine Learning, (MNHMT2024-132993)
Technical Presentation Only
Shengluo Ma - Shanghai Jiao Tong University
Shenghong Ju - Shanghai Jiao Tong University

Giftbte: An Efficient Deterministic Solver for Non-Gray Phonon Boltzmann Transport Equation, (MNHMT2024-132048)
Technical Presentation Only
Haochun Zhang - Harbin Institute of Technology
Jian Zhang - Harbin Institute of Technology

Nanoscale Thermal Cloak Based on Amorphous Hole Structure of Silicon Film, (MNHMT2024-101197)
Technical Paper Publication
Yaguo Wang - The University of Texas at Austin
Zefang Ye - The University of Texas at Austin

Thermal Transport in Monolayer Amorphous Carbon, (MNHMT2024-130864)
Technical Presentation Only
Yuxi Wang - Peking University
Wujuan Yan - Peking University
Nianjie Liang - Peking University
Haiyu He - Peking University
Bai Song - Peking University

Technical Presentation Only
Antonios S. Valavanis - University of Virginia
Leonid V. Zhigilei - University of Virginia
Observations of Nonequilibrium Phonon Transport Near Nanoscale Hotspots, (MNHMT2024-131799)

Technical Paper Publication
Jiaxuan Xu - Shanghai Jiao Tong University
Hua Bao - Shanghai Jiao Tong University

Phonon-Mediated Ionic Transport in Fluorite-Structured Solids, (MNHMT2024-131241)

Technical Presentation Only
Yixin Xu - The Hong Kong University of Science and Technology
Yuanguang Zhou - The Hong Kong University of Science and Technology

First-Principles Based Non-Fourier Thermal Analysis for Nanoscale Devices, (MNHMT2024-131554)

Technical Paper Publication
Yufei Sheng - Shanghai Jiao Tong University
Hua Bao - Shanghai Jiao Tong University

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Room A26

Chair: Hongtao Gao - N/A
Chair: Soumei Baba - National Institute of Advanced Industrial Science and Technology (AIST)

Presentations:

Molecular Dynamic Study on the Nucleation Characteristics of Carbon Dioxide During Pressure Drop, (MNHMT2024-131733)

Technical Paper Publication
Xiang Wang - Shanghai University of Electric Power
Fang Liu - Shanghai University of Electric Power


Technical Presentation Only
Leymus Yong Xiang Lum - Nanyang Technological University
Xinrui Wang - Nanyang Technological University
Kazi Fazle Rabbi - University of Illinois at Urbana-Champaign
Nenad Miljkovic - University of Illinois at Urbana-Champaign
Jin Yao Ho - Nanyang Technological University

A Multi-Fidelity Design Method of Heat Sink Based on Topology Optimization and Flow Boiling Simulation, (MNHMT2024-131214)

Technical Paper Publication
Yi Yuan - Xi’an Jiaotong university
Li Chen - Xi’an Jiaotong university
Chuangde Zhang - Xi’an Jiaotong university
Wenquan Tao - Xi’an Jiaotong university

Superhydrophilic Composite Structure of Copper Micro-Pin-Fins and Nano-Forest for Enhancing Boiling Heat Transfer, (MNHMT2024-133006)

Technical Paper Publication
Xiang Ma - School of Chemical Engineering and Technology, Xi’an Jiaotong University
Yonghai Zhang - School of Chemical Engineering and Technology, Xi’an Jiaotong University
Xiaoping Yang - School of Chemical Engineering and Technology, Xi’an Jiaotong University
Jinjia Wei - School of Chemical Engineering and Technology, Xi’an Jiaotong University

Enhancing Pool Boiling Heat Transfer Performance With Composite Multiscale Bionic Structures Fabricated by Additive Manufacturing, (MNHMT2024-132004)

Technical Paper Publication
Zhonghao Gu - East China University of Science and Technology
Kang Yang - East China University of Science and Technology
Li Zhang - East China University of Science and Technology

Frequency Analysis of Pressure Drop Oscillations in Subcooled Flow Boiling through Microchannel Heat Sink, (MNHMT2024-133026)

Technical Paper Publication
Nishant Shah - Sardar Vallabhbhai National Institute of Technology
Hemantkumar B. Mehta - Sardar Vallabhbhai National Institute of Technology
Jyotirmay Banerjee - Sardar Vallabhbhai National Institute of Technology

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Room A24

Chair: Makoto Shimizu - Tohoku University
Chair: Bo Li - University of Kent

Presentations:

Numerical Investigation on Liquid Cooling of Batteries in Phase Change Materials With Nanofluids and Metal Foams, (MNHMT2024-132693)

Technical Paper Publication
Aanandsundar Arumugam - Università degli Studi della Campania “Luigi Vanvitelli”
Bernardo Buonomo - Università degli Studi della Campania “Luigi Vanvitelli”
Sergio Nardini - Università degli Studi della Campania “Luigi Vanvitelli”
Oronzio Manca - Università degli Studi della Campania
Author Index


Technical Paper Publication
Peilin Cui - Shanghai Jiao Tong University
Zhenyu Liu - Shanghai Jiao Tong University
Huiying Wu - Shanghai Jiao Tong University

Investigation of Nanofin Effect (Nfe) for Pool Boiling on Nanostructured Surfaces Using Surface Micromachined Temperature Nanosensors, (MNHMT2024-133009)

Technical Paper Publication
Ronita Roy - Texas A&M University
Yi Wang - University of Birmingham
Debjyoti Banerjee - Texas A&M University

Achieving Robust Superhydrophobic Solar-Thermal Anti-Frosting and Defrosting by Controlling Frost Formation, (MNHMT2024-130898)

Technical Presentation Only
Wei Ma - The Hong Kong University of Science and Technology
Shuhuai Yao - The Hong Kong University of Science and Technology

Optical Rectenna Using a Hollow Resonator for Broad Wavelength Range Infrared Energy Harvesting, (MNHMT2024-132766)

Technical Presentation Only
Makoto Shimizu - Tohoku University
Zhen Liu - Tohoku University
Daisuke Matsuiura - Tohoku University
Hiroo Yugami - Tohoku University

Densely Packaged All-Silicon Micro-Thermoelectric Generator, (MNHMT2024-132606)

Technical Presentation Only
Jose Manuel Sojo Gordillo - University of Basel
Denise Estrada-Wiese - National Institute of Astrophysics, Optics, and Electronics (INAOE),
Alex Rodriguez-Iglesias - Institute of Microelectronics of Barcelona (IMB-CNRM)
Carolina Duque Sierra - Catalonia Institute for Energy Research (IREC)
Marc Salleras - Institute of Microelectronics of Barcelona (IMB-CNRM)
Luis Fonseca - Institute of Microelectronics of Barcelona (IMB-CNRM)
Alex Morata - Catalonia Institute for Energy Research (IREC)
Albert Tarancón - Catalonia Institute for Energy Research (IREC)

Solar-Thermal Synthesis of Cylindrical Graphite for Thermal Interface Materials, (MNHMT2024-125562)

Technical Presentation Only
Min Jong Kil - University of California, Los Angeles
Timothy Fisher - University of California, Los Angeles
Nanoscale Modelling of Evaporative Flows, (MNHMT2024-130897)

Technical Presentation Only
Shaokang Li - University of Edinburgh
Yonghao Zhang - Centre for Interdisciplinary Research in Fluids, Institute of Mechanics, Chinese Academy of Sciences
Livio Gibelli - School of Engineering, The University of Edinburgh

Thermal and Fluid Flow Behavior Within an Organ-on-a-Chip Model: A Molecular Dynamics Study, (MNHMT2024-132481)

Technical Paper Publication
Filipe Barbosa - Mechanical Engineering and Resource Sustainability Center (METRICS)
Violeta Carvalho - Mechanical Engineering and Resource Sustainability Center (METRICS); ALGORITMI Center/LASI; Center for MicroElectromechanical Systems (CMEMS-UMinho); LABBELS—Associate Laboratory
Glaucio Nobrega - Mechanical Engineering and Resource Sustainability Center (METRICS)
Diana Pinho - Center for MicroElectromechanical Systems (CMEMS-UMinho); LABBELS—Associate Laboratory
Jorge Dueñas-Pamplona - Universidad Politécnica de Madrid
Cristiano Abreu - Instituto Superior de Eng. do Porto; Center for MicroElectromechanical Systems (CMEMS-UMinho); LABBELS—Associate Laboratory
Senhorinha Teixeira - ALGORITMI Center/LASI
Rui Lima - Mechanical Engineering and Resource Sustainability Center (METRICS); CEFT—Transport Phenomena Research Center; ALiCE - Associate Laboratory in Chemical Engineering
Ana Moita - IN+ Center for Innovation; CINAMIL

Unlocking Nanoscale Capillary Condensation-Driven Transport, (MNHMT2024-132556)

Technical Presentation Only
Runfeng Zhou - Xi’an Jiaotong University
Chengzhen Sun - Xi’an Jiaotong University

Thermal and Hemodynamic Characterization of Intracranial Aneurysm on Chip: A Numerical Investigation., (MNHMT2024-132824)

Technical Paper Publication
Gaurav Kumar - National Institute of Technology Rourkela
Aneesh A. M. - Birla Institute of Technology and Science- Pilani
Sumit Kumar - National Institute of Technology Rourkela

WEDNESDAY, AUGUST 7, 2024

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Room B52

Chair: YOSHIYASU ICHIKAWA - Tokyo University of Science
Chair: Chuang Wen - University of Reading

Presentations:

Heat Transfer of a Train of Microdroplets Impinging on the Surface and Film in Spray Cooling, (MNHMT2024-132083)

Technical Presentation Only
Hongbing Ding - Tijian University
Xinyu Song - Tianjin University
Xutian Chai - Tianjin University
Xuehui Wang - University College Dublin
Bo Li - University of Kent
Yan Yang - University of Exeter
Chuang Wen - University of Reading

Molecular Dynamic Simulations on Wetting Behavior of Nanodroplets on Periodic Groove Surfaces, (MNHMT2024-130257)

Technical Presentation Only
Dr. Li Jia - Beijing Jiaotong University
Jinzhu Xu - Beijing Jiaotong University

Pool Boiling Heat Transfer of Propane on Single Horizontal Tube Sintered With Different Metal Particles and Visualization, (MNHMT2024-131807)

Technical Presentation Only
Wen-Tao Ji - Xi’an Jiaotong Univ.
Yu-Zhong Ding - Xi’an Jiaotong University
Yi Du - Xi’an Jiaotong Univ.
Guo-Hui Ou - Xi’an Jiaotong University
Highly Efficient and Rapid Shrinkage of Carbon Dioxide Bubbles in Microchannels, (MNHMT2024-132762)

Technical Presentation Only
Ning Qin - Shandong University
Qinglin Chen - Shandong University
Pei Zhao - Shandong University
Gongming Xin - Shandong University

The Influence of Non-Ideal Heat Conduction Medium Assumption on Measuring Thermal Conductivity With Transient Plane Source Method, (MNHMT2024-132528)

Technical Presentation Only
Hu Zhang - Xi’an Jiaotong University
Kefan Wu - Xi’an Jiaotong University
Guihua Tang - Xi’an Jiaotong University

A Fast Method for Predicting Radiative Properties of Participating Media in Solid Rocket Motor, From Microscale to Macroscale, (MNHMT2024-131672)

Technical Presentation Only
Xuefan Hao - Xi’an Jiaotong University
Hu Zhang - Xi’an Jiaotong University


Technical Paper Publication
Xi Li - Xi’an Jiaotong University
Huixiong Li - Xi’an Jiaotong University
Xiaoyi Wu - Xi’an Jiaotong University

Flow Boiling of Zeotropic Mixture Refrigerant R456a in Microchannels, (MNHMT2024-132683)

Technical Paper Publication
Yu Xia - Queen Mary University of London
Dilara Suulker - Queen Mary University of London
Zhen Long - Queen Mary University of London
Huasheng Wang - Queen Mary University of London

Spectral Radiative Properties of Zrb2-Sic Ceramic Matrix Composites at High Temperature, (MNHMT2024-132531)

Technical Presentation Only
Qi Xie - Xi’an Jiaotong University
Hu Zhang - Xi’an Jiaotong University

Optical and Thermal Characteristics of Micro-Scale Porous Selective Radiative Cooling Material With Dust Deposition, (MNHMT2024-132788)

Technical Presentation Only
Fan Fan - Southeast University
Qihao Xu - Southeast University
Haodan Pan - Southeast University
Huajie Tang - Southeast University
Dongliang Zhao - Southeast University

8/7/2024
10:10 AM to 12:40 PM
Room A24

Chair: Amy Marconnet - Purdue University
Chair: xing zhang - Tsinghua University

Presentations:

Anisotropic Thermal Resistance Characterization Using 3-Omega Joule Heating Thermometry and Scanning Thermal Microscopy, (MNHMT2024-132942)

Technical Presentation Only
Nazia Islam - Rensselaer Polytechnic Institute
Theodorian Borca-Tasciuc - Rensselaer Polytechnic Institute

Simultaneous Determination of Thermal Conductivity and Heat Capacity in Thin Films With Picosecond Transient Thermoreflectance and Picosecond Laser Flash, (MNHMT2024-132134)

Technical Presentation Only
Yaguo Wang - The University of Texas at Austin

Sub-Micron Resolution Mapping of Thermal Properties in Cvd and Mbe-Grown Molybdenum Disulfide via Nanoscale Thermoreflectance Microscopy, (MNHMT2024-132727)

Technical Presentation Only
Brian Foley - Laser Thermal
Andrew Jones - Laser Thermal
Patrick Hopkins - Laser Thermal
John Gaskins - Laser Thermal

Application of Hexagonal Boron Nitride Nanoparticles in Thermal Improvement of Oil-Based Nanofluids Stabilized With Non-Ionic Surfactant, (MNHMT2024-132797)

Technical Paper Publication
Mustafa Alsaady - University of Jeddah
Tong Chan Ray - Universiti Teknologi PETRONAS
Suhaib Umer Ilyas - University of Jeddah
Ayman Abdulrahman - University of Jeddah
Rashid Shamsuddin - Universiti Teknologi PETRONAS
Quantitative Thermoreflectance Characterization of Quantum Cascade Laser Facets, (MNHMT2024-132858)

Technical Presentation Only
Andrew Jones - Laser Thermal
Brian Foley - Laser Thermal
Jeremy Kirch - University of Wisconsin-Madison
Shuqi Zhang - University of Wisconsin-Madison
Dan Botez - University of Wisconsin-Madison
Luke Mawst - University of Wisconsin-Madison

Thermal Metrology for Advanced Electronics Packaging, (MNHMT2024-121238)

Technical Presentation Only
Aalok Gaitonde - Purdue University
Aaditya Candadai - TBD
Shanmukhi Sripada - Purdue University
Justin Weibel - Purdue University
Amy Marconnet - Purdue University

Optical Super-Resolution Nanothermometry via Stimulated Emission Depletion Imaging, (MNHMT2024-140800)

Technical Presentation Only
Andrea Pickel - University of Rochester

Thermoelectric Properties of Stressed P-Doped Polycrystalline Hollow Nanotubes, (MNHMT2024-132609)

Technical Paper Publication
Jose Manuel Sojo Gordillo - University of Basel
Yashpreet Kaur - University of Basel
Mercè Pacios Pujadó - Catalonia Institute for Energy Research
Giulio De Vito - University of Basel
Saeko Tachikawa - National Institute of Advanced Industrial Science and Technology
Alex Morata - Catalonia Institute for Energy Research (IREC)
Ilaria Zardo - University of Basel

Experimental Study of Thermal Conductivity and Interfacial Thermal Resistance in Single Microparticle, (MNHMT2024-132676)

Technical Presentation Only
Jie Zheng - Tsinghua University
Haidong Wang - Tsinghua University

Photo-Thermo-Electrochemical Cell for Energy Harvesting, (MNHMT2024-139803)

Technical Presentation Only
Matteo Bevione - École Polytechnique Fédérale de Lausanne (EPFL) - Laboratory of Nanoscience for Energy Technologies (LNET)

Near-Field Radiative Heat Transfer Between a Sphere and a Flat Surface Up to High Temperatures and Down to the Sub-100 Nm Regime, (MNHMT2024-140768)

Technical Presentation Only
Mathieu Thomas - CNRS
P-Olivier Chapuis - CNRS

A Hierarchically Designed Metafilm for Efficient Daytime Radiative Cooling, (MNHMT2024-130664)

Technical Presentation Only
Chongjia Lin - The Hong Kong University of Science and Technology

Power-Generating Smart Glass With Adjustable Spectral Transmission, (MNHMT2024-131643)

Technical Paper Publication
Shuni Chen - Harbin Institute of Technology
Yanming Guo - Harbin Institute of Technology
Yiquan Gong - Harbin Institute of Technology
Chao Shen - Harbin Institute of Technology
Yong Shuai - Harbin Institute of Technology

Experimental Study on Near-Field Thermal Radiation Based on Double Helix Wire Parallel Plate Structure With Fixed Gap, (MNHMT2024-130629)

Technical Presentation Only
Chunyang Wang - Institute of Engineering Thermophysics, Chinese Academy of Sciences
Xiao Yang - Institute of Engineering Thermophysics, Chinese Academy of Sciences
Yanan Shen - Institute of Engineering Thermophysics, Chinese Academy of Sciences
Haibo Zhao - Institute of Engineering Thermophysics, Chinese Academy of Sciences
Yang Bai - Army Academy of Armored
Haisheng Chen - Institute of Engineering Thermophysics, Chinese Academy of Sciences
Ting Zhang - Institute of Engineering Thermophysics, Chinese Academy of Sciences
Xinghua Zheng - Institute of Engineering Thermophysics, Chinese Academy of Sciences
8/7/2024
10:10 AM to 12:40 PM
Room A26

Chair: Timothy Fisher - UCLA
Chair: Yatao Ren - Harbin Institute of Technology

Presentations:

Formation Mechanisms and Interfacial Evolutions of Compound Droplets Based on Coaxial Capillaries, (MNHMT2024-132798)
Technical Presentation Only
Xiang Wang - Beijing University of Technology
Yan Pang - Beijing University of Technology
Zhaomiao Liu - Beijing University of Technology

A Liquid Metal Enabled Three-Dimensional Pump, (MNHMT2024-133168)
Technical Presentation Only
Rui Xue - Harbin institute of technology
Ye Tao - Harbin Institute of Technology
Haishuang Li - Harbin Institute of Technology
Chenchen Hu - Harbin Institute of Technology
Junjie Huo - Harbin Institute of Technology
Yukun Ren - Harbin Institute of Technology

Experimental and Numerical Study on Phase Change Heat Transfer of Ternary Non-Azeotropic Mixture, (MNHMT2024-131675)
Technical Paper Publication
Bo Zhang - China Tobacco Hunan Industrial Co., Ltd.
Peipei Tian - Shanghai Jiao Tong University
Zhiguo Wang - China Tobacco Hunan Industrial Co., Ltd.
Zhiwei Sun - China Tobacco Hunan Industrial Co., Ltd.
Peilin Cui - Shanghai Jiao Tong University
Zhenyu Liu - Shanghai Jiao Tong University

Heat Transfer Effects of Sintered Particle Monolayers on Steam Flow Condensation in Mini-Channels With Flow Visualization, (MNHMT2024-132214)
Technical Paper Publication
Gennifer A. Riley - Kansas State University
David E. Mendez - Kansas State University
Munonyedi K. Egbo - Wichita State University
Gisuk Hwang - Wichita State University
Melanie M. Derby - Kansas State University

Experimental Study of a High-Temperature Oscillating Heat Pipe Using Infrared Imaging, (MNHMT2024-131798)
Technical Paper Publication
Xin Yang - Dalian Maritime University
Yulong Ji - Dalian Maritime University
Jianhang Sun - Dalian Maritime University
Mengke Wu - Dalian Maritime University
Yanmin Feng - Dalian Maritime University

Study on Saturated Pool Boiling Heat Transfer Characteristics of R-245fa on Sintered Porous Surface, (MNHMT2024-130896)
Technical Paper Publication
Shichao Bu - Xi’an Jiaotong University
Xiaoping Yang - Xi’an Jiaotong University
Haolei Wang - Xi’an Jiaotong University
Fan Liu - ZTE Corporation, State Key Laboratory of Mobile Network and Mobile Multimedia Technology
Zhen Sun - ZTE Corporation, State Key Laboratory of Mobile Network and Mobile Multimedia Technology
Yonghai Zhang - Xi’an Jiaotong University
Jinjia Wei - Xi’an Jiaotong University

Molecular Dynamics Simulation of Argon-Nitrogen Liquid-Liquid Flow in Nanochannels, (MNHMT2024-132095)
Technical Presentation Only
Yunmin Ran - University of Liverpool
Volfango Bertola - University of Liverpool

Enhancing Ion Rejection During Seawater Freezing Through Shear Rate, (MNHMT2024-132847)
Technical Presentation Only
Yixiang Wang - The Hong Kong University of Science and Technology
Zhigang Li - The Hong Kong University of Science and Technology
Gongze Liu - The Hong Kong University of Science and Technology
Dachuang Shi - The Hong Kong University of Science and Technology
Baoiling Huang - The Hong Kong University of Science and Technology

8/7/2024
1:30 PM to 3:30 PM
Room A26

Chair: Yong Ren - University of Nottingham
Chair: Chuang Wen - University of Reading

Presentations:

Intracellular Heat Transfer Revealed by Time-Resolved Luminescence Nanothermometry, (MNHMT2024-131861)
Poster Presentation
Jiahua Zhang - The University of Hong Kong
Zhiqin Chu - The University of Hong Kong

High-Strength Magnetic Aramid Nanofiber Composite Hydrogels With Photoweldability, (MNHMT2024-132017)
Poster Presentation
Hengjia Zhu - The University of Hong Kong
Enhancement of Interfacial Thermal Transport in Twisted Two-Dimensional Heterostructures, [MNHMT2024-133438]  
Poster Presentation  
Yufeng Zhang - Tsinghua University  
Yanzheng Du - Tsinghua University  
Weigang Ma - Tsinghua University  
Xing Zhang - Tsinghua University

Electrical and Thermal Transport Characteristics of High Crystalline Pdte2 Nanoribbons Under a Strong Magnetic Field, [MNHMT2024-136753]  
Poster Presentation  
Tingting Miao - China University of Petroleum-Beijing

Study on the Effect of Grain Size on Thermal Conductivity of Polycrystalline Silicon, [MNHMT2024-130653]  
Poster Presentation  
Mei-Jiau Huang - National Taiwan University  
Hao-Jhan Hong - National Taiwan University

Poster Presentation  
Wuwei Zou - Tsinghua University  
Jinhan Mo - Shenzhen University

Predicting Radiative Properties in Micro-Scaled Polydisperse Porous Media Using Deep Learning and Feature Fusion, [MNHMT2024-132335]  
Poster Presentation  
Shima Hajimirza - Stevens  
Farhin Tabassum - Stevens Institute of Technology

Improvement of Thermoelectric Properties of Two-Dimensional Snse2 Thin Films, [MNHMT2024-132723]  
Poster Presentation  
Xiao Yang - Institute of Engineering Thermophysics, Chinese Academy of Sciences  
Haibo Zhao - Institute of Engineering Thermophysics, Chinese Academy of Sciences  
Yanan Shen - Institute of Engineering Thermophysics, Chinese Academy of Sciences  
Chunyang Wang - Institute of Engineering Thermophysics, Chinese Academy of Sciences  
Ting Zhang - Institute of Engineering Thermophysics, Chinese Academy of Sciences  
Xinghua Zheng - Institute of Engineering Thermophysics, Chinese Academy of Sciences

Large Laser Spot-Swift Mapping Surface-Enhanced Raman Scattering on Ag Nanoparticle Substrates for Biofluid Analysis, [MNHMT2024-133263]  
Poster Presentation  
Xiaoyu Zhang - Tsinghua University  
Aoran Fan - Tsinghua University  
Xing Zhang - Tsinghua University

Protein Accumulation and Immobilization by Plasmonic Bubble, [MNHMT2024-139947]  
Poster Presentation  
Reo Sudo - Tokyo University of Science  
Koki Okada - Tokyo University of Science  
Yoshiyasu Ichikawa - Tokyo University of Science  
Sho Ito - Tokyo University of Science  
Tatsuya Nishino - Tokyo University of Science  
Masahiro Motosuke - Tokyo University of Science

Poster Presentation  
Gustavo Alvarez - Cornell University  
Amelia Schaeffer - Cornell University  
Naomi Pieczulewski - Cornell University

Near-Wall Microfluidic Temperature Imaging by Fluorescence Anisotropy, [MNHMT2024-140848]  
Poster Presentation  
Kei Kurihara - Tokyo University of Science  
Yoshiyasu Ichikawa - Tokyo University of Science  
Masahiro Motosuke - Tokyo University of Science

Experimental Study of Flow-Boiling Heat Transfer Enhanced by Droplet Micro Pin Fins in Microchannels, [MNHMT2024-132476]  
Poster Presentation  
Hongqiang Chen - School of Chemical Engineering and Technology, Xi'an JiaoTong University  
Yonghai Zhang - School of Chemical Engineering and Technology, Xi'an JiaoTong University  
Jinjia Wei - School of Chemical Engineering and Technology, Xi'an JiaoTong University

Correlative Pump-Probe Techniques to Study Thermal Transport in Complex Nanomaterials., [MNHMT2024-132799]  
Poster Presentation  
Deeksha Sharma - University of Basel  
Ahmad Zenji - University of Basel  
Jose Manuel Sojo Gordillo - University of Basel  
Ilaria Zardo - University of Basel  
Begoña Abad - University of Basel

Poster Presentation
Shuangdui Wu - Tsinghua university
Mengfan Duan - Southeast University
Hongli Sun - Sichuan university
Hengxin Zhao - Tsinghua university
Borong Lin - Tsinghua university

Numerical Simulation of Droplet Growth Mode for Pure Steam Dropwise Condensation, (MNHMT2024-132759)

Poster Presentation
Yali Guo - Dalian University of Technology
Qinggang Qiu Qiu - Dalian University of Technology
Shengqiang Shen - Dalian University of Technology
Luyuan Gong - Dalian University of Technology

The Effect of Low Calorific Value Gas Components on the Heating Performance of Catalytic Combustion Heaters for Oil Shale In-Situ Conversion, (MNHMT2024-148008)

Poster Presentation
Wei Guo - Jilin University
Haoche Shui - Jilin University
Fengtian Bai - Jilin University
Qiang Li - Jilin University
Yuan Wang - Jilin University
Chaofan Zhu - Jilin University
Pengyu Zhang - Jilin University
Jiang Lei - Jilin University
Xu Zhang - Jilin University
Chen Chen - Jilin University
Baoyi Chen - Jilin University

The Investigation on Parameters and Applicability of Catalytic Combustion Heater Using Low Calorific Value Gas for Oil Shale In-Situ Conversion, (MNHMT2024-148009)

Poster Presentation
Haoche Shui - College of Construction Engineering, Jilin University
Wei Guo - Jilin University
Chen Chen - Jilin University
Qiang Li - Jilin University
Yuan Wang - Jilin University
Fengtian Bai - Jilin University
Chaofan Zhu - Jilin University
Baoyi Chen - Jilin University
Pengyu Zhang - Jilin University
Jiang Lei - Jilin University
Xu Zhang - Jilin University

Boiling Morphology of a Water Droplet Impact on a Heated Micro-Pillar Array Surface, (MNHMT2024-132280)

Poster Presentation
Shaowei Zheng - Beijing University of Chemical Technology
Tianrun Yue - Beijing University of Chemical Technology
Shengqiang Shen - Dalian University of Technology
Xue Chen - Beijing University of Chemical Technology

The Effect of Temperature on Hydrocarbon Generation Characteristics of Low Immature/low-Maturity Source Rock, (MNHMT2024-148010)

Poster Presentation
Fengtian Bai - Jilin University
Wei Guo - Jilin University
Qiang Li - Jilin University
Yuan Wang - Jilin University
Haoche Shui - Jilin University
Chen Chen - Jilin University
Chaofan Zhu - Jilin University
Baoyi Chen - Jilin University
Pengyu Zhang - Jilin University
Jiang Lei - Jilin University

Ultra-Efficient Single-Phase Microchannel Cooling for a High Power-Density Silicon Carbide Power Module With Heat Flux Over 1000 W/cm², (MNHMT2024-132754)

Technical Presentation Only
Xiangbo Huang - Zhejiang University
Weiyu Tang - Zhejiang University
Zan Wu - Zhejiang University
Wei Li - Zhejiang University
Wicking and Evaporation in a Heated Microchannel, (MNHMT2024-131869)
Technical Presentation Only
Nabajit Deka - Indian Institute of Science Bangalore
Susmita Dash - Indian Institute of Science Bangalore

Convective Heat Transfer Characteristics of Nano-Confined Water via Molecular Dynamics Simulations, (MNHMT2024-132652)
Technical Presentation Only
Zhiling Qiu - Xi’an Jiaotong University
Chenzhen Sun - Xi’an Jiaotong University

Dynamics of Droplet Impact in the Transitional Boiling Regime, (MNHMT2024-130742)
Technical Presentation Only
Pranjal Agrawal - Indian Institute of Science
Susmita Dash - Indian Institute of Science, Bangalore
Siddharth Merukar - Indian Institute of Technology, Patna

8/7/2024
1:30 PM to 3:30 PM
Room A25

Chair: Junichiro Shiomi - The University of Tokyo
Chair: Daili Feng - University Science and Technology Beijing

Presentations:
Effect of Temperature and Water Content on Thermal Conductivity in Ordered and Amorphous Proton Exchange Membranes: A Molecular Dynamics Study, (MNHMT2024-131742)
Technical Paper Publication
Ke Ren - Hebei University of Technology
Xinjian Liu - Hebei University of Technology
Zhonghao Rao - Hebei University of Technology

Thermal Conductivity Characterisation and Quantification of Solid Dielectrics in Nano/micro Scale Thin Film Systems, (MNHMT2024-131873)
Technical Paper Publication
Mohammad Ehsan Khaled - Consultant (unaffiliated)
Liangchi Zhang - Soutehrn University of Science and Technology

Thermal Boundary Conductance Mapping Across Bonded Heterogeneous Sic-Si Interface, (MNHMT2024-132702)
Technical Presentation Only
Rulei Guo - Department of Mechanical Engineering, The University of Tokyo
Fengwen Mu - Innovative Semiconductor Substrate Technology Co., Ltd.
Bin Xu - Institute of Engineering Innovation, The University of Tokyo
Junichiro Shiomi - Institute of Engineering Innovation, The University of Tokyo
8/7/2024
1:30 PM to 3:30 PM
Room A24

Chair: Ashutosh Giri - University of Rhode Island
Chair: Xiang Wang - Harbin Engineering University

Presentations:

Interfacial Thermal Resistance Between Bi2Te3 and CuxSn3, {MNHMT2024-132793}

Technical Presentation Only
Koji Miyazaki - Kyushu University
Kosuke Watanabe - Kyushu Institute of Technology
Asuka Miura - Kyushu Institute of Technology
Tomohide Yabuki - Kyushu Institute of Technology
Satoshi Iikubo - Kyushu University


Technical Presentation Only
Patrick Hopkins - Professor

Molecular Beam Experiment of Evaporating Water Molecules From a Liquid-Vapor Interface, {MNHMT2024-132610}

Technical Presentation Only
Ikuya Kinefuchi - The University of Tokyo

Graphene Plays a Role of Bridge in the Heat Transfer From Silicon to Water, {MNHMT2024-134711}

Technical Presentation Only
Weigang Ma - Tsinghua University
Tao Ding - Tsinghua University

A New Model for Capillary Imbibition With Asymmetric Wettability Walls, {MNHMT2024-131972}

Technical Paper Publication
Chenyue Zhu - University of Nottingham
Yuying Yan - University of Nottingham
Mark Alston - University of Nottingham

Thermal Transport and Mechanical Properties of Solid Electrolyte Interphases (Sei) of Li-Ion Batteries: Atomistic Insights From Molecular Dynamics Simulations, {MNHMT2024-132012}

Technical Presentation Only
Jia Liu - Zhejiang University
Liang Wang - Zhejiang University
Liwu Fan - Zhejiang University

Room Temperature Electro-Crystallization of Water by Molecular Dynamics Simulations, {MNHMT2024-131917}

Technical Presentation Only
Ezgi Satioglu - Southern Methodist University
Murat Barisik - The University of Tennessee at Chattanooga
Ali Beskok - Southern Methodist University

Role of Anharmonicity in Dictating the Thermal Boundary Conductance Across Interfaces Comprised of Two-Dimensional Materials, {MNHMT2024-140379}

Technical Presentation Only
Sandip Thakur - University of Rhode Island
Ashutosh Giri - University of Rhode Island
MNHMT 2024 conference team would like to thank the NSF (National Science Foundation) in their support of student and young scientist travel awards to the conference.