



MNHMT 2024

7th ASME International Conference of Micro/Nanoscale Heat and Mass Transfer

CONFERENCE
AUGUST 5–7, 2024

University of Nottingham
Nottingham, United Kingdom

Program

<https://event.asme.org/MNHMT>

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.

The conference program is distributed into fifteen tracks: (1) Micro/Nanofluidics and Lab-On-A-Chip, (2) Nanofluids, (3) Micro/Nanoscale Interfacial Transport Phenomena, (4) Nano/Microscale Boiling and Condensation Heat Transfer, (5) Micro/Nanoscale Thermal Radiation, (6) Micro/Nanoscale Energy Devices and Systems, (7) Micro/Nano-Thermal Manufacturing and Materials Processing, (8) Micro/Nanoscale Heat Conduction, (9) Computational Methods In Micro / Nanoscale Transport, (10) Heat and Mass Transfer in Small Scale, (11) Micro/Miniature Two-Phase Devices/ Systems, (12) Biomedical Applications of Micro/ Nanoscale Transport, (13) Visualization of Heat and Mass Transfer in Micro/Nanoscale, (14) Measurement Techniques and Thermophysical Properties in Micro/Nanoscale, and finally (15) Poster Presentations. In addition to high-quality technical presentations, the conference features 5 Plenary Speakers, invited presentations, panel discussions, and a variety of networking opportunities.

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



Pamela M. Norris
Conference General Chair
George Washington University



Yuying Yan
Program Chair
University of Nottingham



Zhuomin Zhang (Chair)
Board of Conference
Georgia Institute of Technology



Contents

GENERAL INFORMATION.....	4
SPECIAL EVENTS.....	5
SCHEDULE-AT-A-GLANCE.....	7
PLENARY.....	10
PANELS.....	13
TRACK ORGANIZERS.....	15
BOARDS & COMMITTEES.....	16
TECHNICAL SESSIONS.....	17
AUTHOR INDEX.....	18
FLOOR PLAN.....	39

General Information



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.

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

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.

MNHMT 2024 SCHEDULE

Date	Venue	Time (Eastern Time)	Events
Monday, 5 August	Room B52, First Fl.	9:00AM–9:30AM	Opening Remarks and Welcome
	Room B52, First Fl.	9:30AM–10:20AM	Plenary-1 , Speaker: Professor Gang Chen Massachusetts Institute of Technology
		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 International Iberian Nanotechnology Laboratory (INL) Braga
	Business School South Foyer Ground Fl.	3:30pm–4:10PM	Closing remarks and PM break

Schedule-at-a-Glance

Date	Venue	Time (Eastern Time)	Events
Sunday, 4 August	Business School South Foyer, Ground Fl.	1:00PM–5:00PM	Registration and Information
Monday, 5 August	Business School South Foyer, Ground Fl.	8:00AM–5:00PM	Registration and Information
	Business School South Foyer, Ground Fl.	11:10AM–11:30AM 3:30PM–3:50PM	AM & PM Breaks
	Catering Atrium Jubilee Campus (3 min walk)	12:40PM–1:40PM	Lunch Break
	Business School South Foyer Ground Fl.	6:30PM–7:30PM	Networking Reception
Tuesday, 6 August	Business School South Foyer, Ground Fl.	8:00AM–5:00PM	Registration and Information
	Business School South Foyer, Ground Fl.	9:50AM–10:10AM 3:30PM–3:50PM	AM & PM Breaks
	Catering Atrium Jubilee Campus (3 min walk)	12:40PM–1:30PM	Lunch Break
	Room A25	3:50pm-5:30pm	Panel 1: How Do We Attract and Sustain a Diverse Workforce in Micro/Nanoscale Heat and Mass Transfer
	Senate Chamber, Council and Great Hall	Reception 6:00PM–7:00PM Dinner 7:00PM–8:30PM	Reception and Award Dinner - Tickets Required Trent Building, University Park Round trip Bus Transportation provided.
Wednesday, 7 August	Business School South Foyer, Ground Fl.	8:00AM–5:00PM	Registration and Information
	Business School South Foyer, Ground Fl.	9:50AM–10:10AM	AM Break
	Room A25	10:10AM–11:40AM	Panel 2: Textbooks and Pedagogy in Micro/ Nanoscale Heat and Mass Transfer
	Catering Atrium Jubilee Campus (3 min walk)	12:40PM–1:30PM	Lunch Break
	Business School South Foyer, Ground Fl.	3:30PM–4:10PM	Closing Remarks and PM Break

MNHMT 2024 Program Schedule at a Glance		
Event	Time	Room
Sunday, 4 August 2024		
Registration and Information	1:00pm-5:00pm	Business School South Foyer, Ground Fl.
Monday, 5 August 2024		
Registration and Information	8:00am-5:00pm	Business School South Foyer, Ground Fl.
Opening Remarks and Welcome	9:00am-9:30am	Room B52, First Fl.
Plenary-1 Speaker: Professor Gang Chen Massachusetts Institute of Technology	9:30am-10:20am	Room B52, First Fl.
Plenary-2 Speaker: Professor Martyn Poliakoff University of Nottingham	10:20am-11:10am	Room B52, First Fl.
AM Break	11:10am-1:30am	Business School South Foyer, Ground Fl.
Technical Sessions	11:30 am-12:40pm	Rooms B52, A24, A25, A26
Lunch Break	12:40pm-1:40pm	Catering Atrium Jubilee Campus (3 min walk)
Plenary-3 Speaker: Professor Cristina Amon University of Toronto	1:40pm-2:30pm	Room B52, First Fl.
Technical Sessions	2:30pm-3:50pm	Rooms B52, A24, A25, A26
PM Break	3:30pm-4:10pm	Business School South Foyer, Ground Fl.
Technical Sessions	4:10pm-5:40pm	Rooms B52, A24, A25, A26
Networking Reception	6:30pm-7:30pm	Business School South Foyer Ground Fl.
Tuesday, 6 August 2024		
Registration and Information	8:00am-5:00pm	Business School South Foyer, Ground Fl.
Plenary-4 Speaker: Professor Xing Zhang Tsinghua University	9:00am-9:45am	Room B52, First Fl.
AM Break	9:50am-10:10am	Business School South Foyer, Ground Fl.
Technical Sessions	10:10am-12:40pm	Rooms B52, A24, A25, A26
Lunch Break	12:40pm-1:30pm	Catering Atrium Jubilee Campus (3 min walk)
Technical Sessions	1:30 pm-3:30 pm	Rooms B52, A24, A25, A26
PM Break	3:30pm-3:50pm	Business School South Foyer, Ground Fl.
Panel One How Do We Attract and Sustain a Diverse Workforce in Micro/ Nanoscale Heat and Mass Transfer	3:50pm-5:30pm	Room A25
Technical Sessions	3:50pm-5:30pm	Rooms B52, A24, A26
Reception and Award Dinner	<i>Reception</i> 6:00pm-7:00pm <i>Dinner</i> 7:00pm-8:30pm	Senate Chamber, Council and Great Hall Trent Building, University Park Round trip Bus Transportation provided Reception open to all. Tickets Required for Dinner
Wednesday, 7 August 2024		
Registration and Information	8:00am-5:00pm	Business School South Foyer, Ground Fl.
Plenary-5 Speaker: Professor Clivia M. Sotomayor Torres International Iberian Nanotechnology Laboratory (INL) Braga	9:00am-9:45am	Room B52, First Fl.
AM Break	9:50am-10:10am	Business School South Foyer, Ground Fl.
Panel Two Textbooks and Pedagogy in Micro/Nanoscale Heat and Mass Transfer	10:10am-11:40am	Room A25
Technical Sessions	10:10am-12:40pm	Rooms B52, A24, A25, A26
Lunch Break	12:40pm-1:30pm	Catering Atrium Jubilee Campus(3 min walk)
Technical Sessions	1:30 pm-3:30 pm	Rooms B52, A24, A25, A26
Closing Remarks and PM Break	3:30pm-4:10pm	Business School South Foyer, Ground Fl.



Professor Gang Chen

Department of Mechanical Engineering, Massachusetts Institute of Technology

Plenary Speaker

**Monday, August 5, 2024
9:30 AM–10:20 AM**

Room B52, Lecture Theatre First Fl.

PRESENTATION 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 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 Academia 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.

Professor Sir Martyn Poliakoff

School of Chemistry, University of Nottingham

Plenary Speaker

**Monday, August 5, 2024
10:20 AM–11:10 AM**

Room B52, Lecture Theatre First Fl.

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.



Professor Cristina Amon

University of Toronto

Plenary Speaker

**Monday,
August 5, 2024
1:40 PM–2:30 PM**

**Room B52,
Lecture Theatre
First Fl.**



Professor Xing Zhang

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

Plenary Speaker

**Tuesday,
August 6, 2024
9:00AM-9:45AM**

**Room B52,
Lecture Theatre
First Fl.**

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.



Professor Clivia M. Sotomayor Torres

Proper Affiliation
International Iberian
Nanotechnology
Laboratory (INL)
Braga

Plenary Speaker

**Wednesday,
August 7, 2024
9:00AM-9:45AM**

**Room B52,
Lecture Theatre
First Fl.**

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 Mittlsten- 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.



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

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

PANELISTS

Cynthia Hipwell, Texas A&M University

Cristina Amon, University of Toronto

Pamela Norris, George Washington University

Panels



Zhuomin Zhang

Georgia Institute of
Technology
Co-Modern



D.Y. "Robert" Tzou

University of Missouri
Co-Modern

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 NANOFUIDS

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 Brighton 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 Iarimi, University of Manchester, UK

Co-organizer: Yong Ren, University of Nottingham Ningbo China

Boards and Committees

Board of Conference

Zhuomin Zhang (Chair), Georgia Institute of Technology
"Bob" D. Y. Tzou (Founding Chair), University of Missouri-Columbia
Yildiz Bayazitoglu, Rice University
Gang Chen, Massachusetts Institute of Technology
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
G. P. "Bud" Peterson, Georgia Institute of Technology
Timothy Tong, Hong Kong Polytechnic University
Liqiu "Rick" Wang, University of Hong Kong
Charles Chun Yang, Nanyang Technological University

International Advisory Committee

Cristina Amon, University of Toronto
Tim Fisher, University of California, Los Angeles
Kenneth E. Goodson, Stanford University
Costas Grigoropoulos, University of California, Berkeley
Zeng-Yuan Guo, Tsinghua University
Chih-Ming Ho, University of California, Los Angeles
Satish Kandlikar, Rochester Institute of Technology
Massoud Kaviany, University of Michigan
Shigeo Maruyama, University of Tokyo
Omar Matar, Imperial College London
Jayathi Murthy, Oregon State University
Dimos Poulidakos, Swiss Federal Institute of Technology
Wen-Quan Tao, Xi'an Jiaotong University
Yimin Xuan, Nanjing University of Aeronautics and Astronautics
Xing Zhang, Tsinghua University

Nottingham Local Committee Team

Christopher Tuck (Chair) Faculty of Engineering,
University of Nottingham, UK
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 Jabbal (Team Members)
Faculty of Engineering, University of Nottingham, UK

Technical Program Committee

Debjyoti Banerjee, Texas A&M University
Diana-Andra Borca-Tasciuc, Rensselaer Polytechnic Institute
Theo Borca-Tasciuc, Rensselaer Polytechnic Institute
Bing-Yang Cao, Tsinghua University
Bin Chen, Xi'an Jiaotong University
Yu-bin Chen, National Tsing Hua University
Melanie Derby, Kansas State University
David Emerson, STFC UKRI
Ceji Fu, Peking University
Ashutosh Giri, University of Rhode Island
Haiping Hong, South Dakota School of Mines & Technology
Patrick Hopkins, University of Virginia
Yasser Mahmoudi Iarimi, University of Manchester
Yulong Ji, Dalian Maritime University
Chen Li, University of South Carolina
Deyu Li, Vanderbilt University
Dong Liu, University of Houston
Oronzio Manca, Università Della Campania
Simone Mancin, University of Padova
Marco Marengo, University of Pavia, Italy
Nenad Miljkovi, University of Illinois Urbana-Champaign
Ana Moita, UT Austin Portugal
S.M. Sohel Murshed, Universidade de Lisboa
Yoav Peles, University of Central Florida
Yong Ren, University of Nottingham
Junichiro Shiomi, University of Tokyo
Guihua Tang, Xi'an Jiaotong University
Moran Wang, Tsinghua University
Xinwei Wang, Iowa State University
Ruina Xu, Tsinghua University
Xiangchun Xuan, Clemson University
Ronggui Yang, Huazhong University of Science and Technology
Ilaria Zardo, University of Basel
Yonghao Zhang, Chinese Academy of Science, China

MNHMT 2024 Technical Schedule at a Glance

	Monday, 5 August			Tuesday, 6 August			Wednesday, 7 August		
	11:30am -12:40pm	2:30pm -3:50pm	4:10pm -5:40pm	10:10am -12:40pm	1:30pm -3:30pm	3:50pm -5:30pm	10:10am -11:40am	11:40am -12:40pm	1:30pm -3:30pm
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-04-03 : Nano/ Microscale Boiling and Condensation Heat Transfer	Track-09-01	Track:09-02	Track: 09-03 Computational Methods in Micro/ Nanoscale Transport	Track-14-01 Measurement Techniques and Thermophysical Properties in Micro/Nanoscale		Track:10-04 Heat and Mass Transfer in Small Scale
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-12-01 Biomedical Applications of Micro/ Nanoscale Transport	Track: 02-01 Nanofluids	Track: 06-01 Micro/ Nanoscale Energy Devices and Systems	*Track-13-01 Visualization of Heat and Mass Transfer in Micro/ Nanoscale *		03-03 Micro/ Nanoscale Interfacial Transport Phenomena
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: 8-02 Micro/ Nanoscale Heat Conduction	*Panel-1 How Do We Attract and Sustain a Diverse Workforce in Micro/Nanoscale Heat and Mass Transfer Chair: Pamela Norris *	Panel-2 Textbooks and Pedagogy in Micro/Nanoscale Heat and Mass Transfer Chair: Zhuomin Zhang Co-Chair D. Y. "Robert" Tzou	Track: 05-04 Micro/ Nanoscale Thermal Radiation	Track-08-03 Micro/ Nanoscale Heat Conduction
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/ Nanofluidics and Lab-On-A-Chip	Track-11-02 Micro/Miniature Two-Phase Devices/ Systems		15-01 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 Micro-channel 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

Enhancement of Heat Transfer for Nucleate Boiling With Microlayer Evaporation on Micro-Pillar Arrayed Surface, {MNHMT2024-132478}

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

Modelling Approach for Sub-Micron Scales Bubble in Boiling Heat Transfer, {MNHMT2024-128730}

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

Experimental Investigation of the Heat Transfer Performance of Low Concentration Surfactant Aided Pool Boiling with Electric Field, {MNHMT2024-130587}

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 Paper Publication
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:

Numerical Investigation of Heat Transfer Characteristics of Supercritical Co2 in a Microchannel, {MNHMT2024-133587}

Technical Presentation Only
Qinggang Qiu - Dalian University of Technology
Ren Qianqian - Dalian University of Technology

Numerical and Experimental Transient Analysis of Water Flash Heating of Mini Channel Heat Exchangers, {MNHMT2024-131584}

Technical Paper Publication
Ganga Raju Challa - University of Pisa
Ehsan Rezaei - University of Pisa
Bruno Marangolo - University of Pisa
Leonardo Bernardini - University of Pisa
Paolo Di Marco - University of Pisa

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

Development of Nano-Enhanced Phase-Change Materials With Improved Thermal Properties for Space Applications, {MNHMT2024-121278}

Technical Paper Publication
Jiajun Xu - University of the District of Columbia
Patrick Adegbaye - 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:

Ballistic-Diffusive Phonon Transport and Anderson Localization in Aromatic-Ring Single-Molecule Junctions, {MNHMT2024-123562}

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

Multiscale Simulation on Heat and Mass Transfer in Porous Electrodes for Electrolytic Air Dehumidification, {MNHMT2024-132708}

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 Polaritonics, {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)

Experimental and Simulation Study on Hydrodynamics of Single Bubble in Pool Boiling Under Different Wettability Surfaces., {MNHMT2024-131964}

Technical Paper Publication

Pengfei Zhao - Dalian University of Technology
Jawed Ahmed Jamali - Dalian University of Technology
Zihou Zhu - Dalian University of Technology
Ying He - Dalian University of Technology

New Bubbles Behavior and Flow Pattern Transition of Open Micro-Channel and Jet Impingement Hybrid Cooling Scheme by Separating Liquid-Vapour Pathways, {MNHMT2024-131862}

Technical Paper Publication

Yifei Li - Xi'an Jiaotong University
Yuming Guo - Xi'an Jiaotong University
Liang Zhao - Xi'an Jiaotong University

Enhancement of Steam Condensation Heat Transfer Using Polymeric Liquid-Like Surfaces, {MNHMT2024-132862}

Technical Presentation Only

Yuchen Zhang - Zhejiang University
Zhenbo Wang - Ningbo University
Tianyu Zhang - Zhejiang University
Yumin Ye - Ningbo University
Liwu Fan - Zhejiang University

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:

Heat and Mass Transfer Characteristics of the Taylor Bubble Flow in Pulsating Heat Pipe, {MNHMT2024-130825}

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

Investigation of Localized Heating Induced Thermal Size Effects With Kinetic Collective Model and Finite Volume Discrete Ordinate Method: A Comparative Study, {MNHMT2024-132097}

Technical Presentation Only

Amir Abdolhosseinzadeh - 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

Turbulent Flow Control in Composite Porous-Fluid Systems Through Graded Porosity, {MNHMT2024-132392}

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

High-performance Micro-nano Structures for Boiling Heat Transfer Enhancement, {MNHMT2024-134524}

Technical Presentation Only
 Xingchi Jiang - Sichuan University
 Shangzhen Xie - Hubei Univeristy

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

Experimental and Numerical Investigations of Green Nanofluids: Assessment of Wettability, Viscosity and Thermal Conductivity, {MNHMT2024-132927}

Technical Paper Publication

Glauco 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

James P. Seaba - SeabaTech LLC

Heat Transfer Characteristics of Liquid-Liquid Taylor Flows in Flat Mini Channels, {MNHMT2024-131142}

Technical Paper Publication

Naixiang Zhou - Shandong University

Jingzhi Zhang - Shandong University

Evaporation Characteristics of Carbon Nanotube Nanofluid Droplets on Different Material Surfaces, {MNHMT2024-131845}

Technical Presentation Only

Zhihao Zhang - University of Nottingham

Yuying Yan - University of Nottingham

Integration of Vapor Compression and Thermoelectric Cooling Systems for Enhanced Refrigeration Performance, {MNHMT2024-132400}

Technical Paper Publication

Tianqi Wang - Jilin University

Yingai Jin - Jilin University

Firoz Alam - RMIT University

Experimental Insights Into Thermal-Hydraulic Performance of a Compact Printed Circuit Heat Exchanger With Airfoil Fins Using High-Pressure Water, {MNHMT2024-121445}

Technical Paper Publication

Weitong Liu - Beihang University

Haoxing Zhi - Beihang University

Han Qi - Beihang University

Yan Chen Fu - Beihang University

Numerical Investigation of Convective Heat Transfer of Supercritical Hydrocarbon Fuel in a Tube Filled With Porous Media, {MNHMT2024-132655}

Technical Paper Publication

Lishuai Yao - Department of Thermal Engineering, School of Energy & Power Engineering, Dalian University of Technology

Xiao Yu - Shenyang Aeroengine Research Institute, Aero Engine Corporation of China

Bing Zhang - Shenyang Aeroengine Research Institute, Aero Engine Corporation of China

Yuxin Zhao - Shenyang Aeroengine Research Institute, Aero Engine Corporation of China

Qinggang Qiu - Department of Thermal Engineering, School of Energy & Power Engineering, Dalian University of Technology

Yifan Hao - Department of Thermal Engineering, School of Energy & Power Engineering, Dalian University of Technology

Hao Yan - Department of Thermal Engineering, School of Energy & Power Engineering, Dalian University of Technology

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 Plasmon 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 Ytria-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

Author Index

Direct Observation of Tunable Thermal Conductance at Solid/porous Crystalline Solid Interfaces Induced by Water Adsorbents, {MNHMT2024-131655}

Technical Presentation Only

Guang Wang - The Hongkong University of Science and Technology
Yanguang Zhou - The Hongkong University of Science and Technology

TUESDAY, AUGUST 6, 2024

8/6/2024

10:10 AM to 12:40 PM

Room A25

Chair: Junichiro Shiomi - The University of Tokyo
Chair: Yaguo Wang - The University of Texas at Austin

Presentations:

Irradiation Effect on Thermal Performance of Graphene Aerogel Encapsulating Polyethylene Glycol for Thermal Protection, {MNHMT2024-132664}

Technical Presentation Only

Jie Zha - University Science and Technology Beijing
Mengtao Zhang - University Science and Technology Beijing
Daili Feng - University Science and Technology Beijing
Xinxin Zhang - University Science and Technology Beijing
Yanhui Feng - University Science and Technology Beijing

Size Effects on the Electron and Phonon Scattering and Thermal Conductivity of Thin Metal Films and Multilayers for Metal Interconnects: Looking Beyond Copper, {MNHMT2024-133020}

Technical Presentation Only

Patrick Hopkins - Professor

Extreme-Scale Simulation of Heat Conduction of Silicon-Based Nanostructures and Devices, {MNHMT2024-122172}

Technical Presentation Only

Chaofeng Hou - Institute of Process Engineering, Chinese Academy of Sciences
Aiqi Zhu - Institute of Process Engineering, Chinese Academy of Sciences
Yufeng Huang - Institute of Process Engineering, Chinese Academy of Sciences

Thermal Transport in Metal-Organic Frameworks: The Influence of Water Adsorbents and Mechanical Strain, {MNHMT2024-105783}

Technical Presentation Only

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

Ballistic Phonon Heat Conduction Under Non-Equilibrium in Nanoscale Heterogeneous Semiconductor Thin Films, {MNHMT2024-130512}

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 - Univeristy of Basel
Saeko Tachikawa - University of Basel
Jose Manuel Sojo Gordillo - University of Basel
Milo Yaro Swinkels - University of Basel
Matteo Camponovo - Univeristy of Basel
Miquel Lopez-Suarez - Institut de Ciencia de Materials de Barcelona (ICMAB-CSIC)
Wonjong Kim - [Ecole Polytechnique F [ederale de Lausanne
Anna Fontcuberta I Morral - Ecole Polytechnique F [ederale de Lausanne
Riccardo Rurali - nstitut de Ciencia de Materials de Barcelona (ICMABCSIC)
Ilaria Zardo - Univeristy 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
Zhaomiao Liu - 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:

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

Time-Dependent Solution of Unsteady Flow Equations for Nanoscale Heat and Mass Transfer, Advanced Fluidics, Biofluidics, and Blast Wave Propagations, {MNHMT2024-132002}

Technical Paper Publication

Ramlala Sinha - Applied Engineering Consultants

Simulation of Nitrogen Atom Diffusion Using Machine-Learning-Based Interatomic Potential for Nitriding Model of Iron, {MNHMT2024-140668}

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

Seohee 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

Liangliang Zhang - Shandong University

Jingzhi 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

Three-Dimensional Oscillating Heat Pipe: Flow Pattern Transition and Heat Transfer Performance, {MNHMT2024-132056}

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

Performance Optimization on a Shell-and-Tube Latent Heat Storage Device by Enhanced Close-Contact Melting Mechanism and Nano-Enhanced Phase Change Material, {MNHMT2024-130635}

Technical Presentation Only
Zirui Li - Zhejiang University
Wenze 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
10:10 AM to 12:40 PM
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

Effects of Endothelial Glycocalyx on the Bifurcation Blood Flow and Circulating Red Blood Cells, {MNHMT2024-123568}

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

8/6/2024
1:30 PM to 3:30 PM
Room A24

Chair: Oronzio Manca - Università degli Studi della Campania
 Chair: Abdulaziz Alasiri - Imam Mohammed Ibn Saudi Islamic University

Presentations:

Natural Convection in an Enclosure With Multiple Heat Sources Filled With a Hybrid Nanofluids, {MNHMT2024-124460}

Technical Paper Publication
 Abdulaziz Alasiri - Imam Mohammed Ibn Saudi Islamic University
 Ramdan Saker - Imam Muhammed Ibn Saud Islamic University

Hydrosome Labs: Novel Production, Applications, and Characterization of Ultrafine Bubble Suspensions, {MNHMT2024-132113}

Technical Presentation Only
 Peter Kozak - Hydrosome Labs
 John Nicholas Jackowitz - Hydrosome Labs
 Carly S. Hanson - Hydrosome Labs

Effect of Ph on Disaggregation, Rheological Property and Thermal Conductivity of Citric Acid Modified Magnetic Nanofluid, {MNHMT2024-121328}

Technical Paper Publication
 Zeyu Liu - Dalian Maritime University
 Rong Fu - Chinese Academy of Sciences
 Yulong Ji - Dalian Maritime University
 Yuying Yan - University of Nottingham

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 Paper Publication
 Farooq 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)
 Xiaozhe Du - Key Laboratory of Power Station Energy Transfer Conversion and System (North China Electric Power University)

Author Index

8/6/2024

1:30 PM to 3:30 PM

Room B52

Chair: Xiao-Jun Gu - STFC Daresbury Laboratory, UK
Chair: Baochao Guo - Shanghai No.1 Machine Tool Works Co.,Ltd.

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

Particle Settling Dynamics in Rayleigh-Benard Convection, {MNHMT2024-132846}

Technical Presentation Only
Thota Srinivas - Indian Institute of Science
Gaurav Tomar - Indian Institute of Science Bangalore

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

8/6/2024

1:30 PM to 3:30 PM

Room A25

Chair: Patrick Hopkins - University of Virginia
Chair: Zhonghao Rao - Hebei University of Technology

Presentations:

Giftbte: An Efficient Deterministic Solver for Non-Gray Phonon Boltzmann Transport Equation, {MNHMT2024-132048}

Technical Presentation Only
Hua Bao - Shanghai Jiao Tong University

Nanoscale Thermal Cloak Based on Amorphous Hole Structure of Silicon Film, {MNHMT2024-101197}

Technical Paper Publication
Haochun Zhang - Harbin Institute of Technology
Jian Zhang - Harbin Institute of Technology

Stacking Order, Thickness and Strain Dependent Thermal Conductivity of Res₂, {MNHMT2024-132133}

Technical Presentation Only
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

Nanoscale Mechanisms of Heat Transfer in Carbon Fibers: Insights From Large-Scale Atomistic Simulations, {MNHMT2024-131028}

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

Yanguang 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

8/6/2024

1:30 PM to 3:30 PM

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

Micro/nanostructuring of Additively Manufactured 316L Stainless Steel for Enhanced Pool Boiling Heat Transfer, {MNHMT2024-132060}

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

8/6/2024

3:50 PM to 5:30 PM

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

Numerical Simulation of Droplet Impact on Patterned Porous Substrate, {MNHMT2024-132768}

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 Matsuura - 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-CNM)
Carolina Duque Sierra - Catalonia Institute for Energy Research (IREC)
Marc Salleras - Institute of Microelectronics of Barcelona (IMB-CNM)
Luis Fonseca - Institute of Microelectronics of Barcelona (IMB-CNM)
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

8/6/2024

3:50 PM to 5:30 PM

Room B52

Chair: David R Emerson - STFC

Chair: Dr. Haihu Liu - Xi'an Jiaotong University

Presentations:

Nanoscale Heat Conduction With Electrons and Phonons From the Discrete Ordinate Method, {MNHMT2024-140769}

Technical Presentation Only

Ali Alkurdi - CNRS
Weizheng Chen - INSA Lyon
P-Olivier Chapuis - CNRS

Computational Prediction of Temperature Influence on Adhesion of Nanocarriers in Microvessels, {MNHMT2024-132540}

Technical Presentation Only

Kai Yue - University of Science and Technology Beijing
Xiaolin Liu - University of Science and Technology Beijing
Yuming Qing - University of Science and Technology Beijing
Anqi Wang - University of Science and Technology Beijing
Weishen Zhong - University of Science and Technology Beijing

Effect of Adjacent Synthetic Jets on Mass Transfer in Microchannels, {MNHMT2024-131887}

Technical Paper Publication

Delara Soltani - TUDublin
Tim Persoons - Trinity College Dublin
Sajad Alimohammadi - TUDublin

Mode-Resolved Phonon Transmittance Across Ga2O3/sic Interface Using Lattice Dynamics With Machine Learning Potentials, {MNHMT2024-131217}

Technical Paper Publication

HongAo Yang - Tsinghua University
Yuanbin Liu - University of Oxford
Bingyang Cao - Tsinghua University

Numerical Modelling of Molecular Attraction Force in Shakov-Enskog-Vlasov Equation, {MNHMT2024-132741}

Technical Presentation Only

Zuoxu Li - Centre for Interdisciplinary Research in Fluids, Institute of Mechanics, Chinese Academy of Sciences
Yonghao Zhang - Centre for Interdisciplinary Research in Fluids, Institute of Mechanics, Chinese Academy of Sciences
Shaokang Li - The University of Edinburgh

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

Glauco 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

8/6/2024

3:50 PM to 5:30 PM

Room A26

Chair: Qin-Yi Li - Kyushu University

Chair: Yong Ren - University of Nottingham

Presentations:

A New Strategy for Numerical Analysis of Non-Harmonic Acoustic Streaming, {MNHMT2024-130919}

Technical Presentation Only

Dong Liu - University of Houston

Runjia Li - University of Houston

Jiming Bao - University of Houston

Detection of Sars-Cov-2 Using a Microwave Sensor Integrated in a Microfluidic Platform, {MNHMT2024-132855}

Technical Presentation Only

Pei Zhao - Shandong University

Ning Qin - Shandong University

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

8/7/2024

10:10 AM to 12:40 PM

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

Jin Zhu 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

Author Index

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

Numerical Study of Pool Boiling Heat Transfer on a Heated Cylinder by Lattice Boltzmann Method, {MNHMT2024-131778}

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 Thermorefectance 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 Thermorefectance 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 Sripatha - 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)

8/7/2024

10:10 AM to 12:40 PM

Room A25

Chair: Zhuomin Zhang - Georgia Institute of Technology

Chair: Robert Tzou - N/A

Presentations:

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

Author Index

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

Baoling 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

Modeling of Heat Transfer and Moisture Transport in the Porous Hydrogel for Efficient Heat Dissipation, {MNHMT2024-131152}

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

External Electric Field Effect on the Thermal Conductivity of Wurtzite Aluminum Nitride: A First-Principles Calculations and Frequency Domain Thermoreflectance Study, {MNHMT2024-140806}

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

Jinjia Wei - 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

Building Application Performance Enhancement Potential of Split-Band Modulated Adaptive Thermochromic Windows, {MNHMT2024-140699}

Poster Presentation

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

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

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
Xu Zhang - Jilin University
Jiang Lei - Jilin University

Numerical Simulation of Droplet Growth Mode for Pure Steam Dropwise Condensation, {MNHMT2024-132759}

Poster Presentation

Yali Guo - Dalian University of Technology
Qinggong Qiu Qiu - Dalian University of Technology
Shengqiang Shen - Dalian University of Technology
Luyuan Gong - Dalian University of Technology

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

8/7/2024

1:30 PM to 3:30 PM

Room B52

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

Presentations:

Experimental Investigation of Alternative Coolants for Combustion Engine Valves, {MNHMT2024-130901}

Technical Paper Publication

Shaozhe Zhang - ILK Dresden / TU Dresden
Andreas Rittsche - ILK Dresden
Ronny Künanz - ILK Dresden
Matthias H. Buschmann - ILK Dresden

Numerical Study on Thermal Storage-Discharge Process of Envelopes in Building Heating Systems With Different Terminals, {MNHMT2024-121987}

Technical Paper Publication

Baoping Xu - North China Electric Power University
Hengrui Zhang - North China Electric Power University
Yanzhe Dou - North China Electric Power University
Xiaofeng Zheng - University of Nottingham
Yuying Yan - University of Nottingham

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

Tokyo

Biomass Derived Carbon Aerogel Composite Phase Change Thermal Insulation Material With Stable Shape for Thermal Protection, (MNHMT2024-132020)

Technical Presentation Only

Zihao Zhao - University Science and Technology Beijing

Daili Feng - University Science and Technology Beijing

Xinxin Zhang - University Science and Technology Beijing

Yanhui Feng - University Science and Technology Beijing

Thermal Conductivity of Plasma-Assisted Molecular-Beam Epitaxy α -Ga₂O₃ and Suboxide Molecular-Beam Epitaxy α -(Al_xGa_{1-x})₂O₃, (MNHMT2024-140782)

Technical Presentation Only

Gustavo Alvarez - Cornell University

Jonathan Mccandless - Cornell University

Amelia Schaeffer - Cornell University

Manas Verma - Cornell University

Zhiting Tian - Cornell University

Tuning the Thermal Conductivity of Halide Hybrid Perovskites Through Alloying, (MNHMT2024-131953)

Technical Presentation Only

Guang Wang - The HONGKONG University of Science and Technology

Yanguang Zhou - The Hongkong University of Science and Technology

Experimental Characterization of Thermal Conductivity of Porous Media Across Wide Operating Temperatures, (MNHMT2024-132935)

Technical Presentation Only

Juan Daniel Rengifo Guzman - Boise State University

Todd Otanicar - Boise State University

Experimental Observation of Second Sound in Thin Graphite, (MNHMT2024-140028)

Technical Presentation Only

Yeongcheol Park - Gwangju Institute of Science and Technology

Minyoung Lee - Gwangju Institute of Science and Technology

Youngsik Lee - Gwangju Institute of Science and Technology

Jae Hun Seol - Gwangju Institute of Science and Technology

Author Index

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 CsSnI₃,
{MNHMT2024-132793}**

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

**Measuring Nanoscale Interfacial Heat Transport Across Solid-
Liquid, -Gas, and -Plasma Interfaces: How Matter Heats and Cools,
{MNHMT2024-133021}**

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

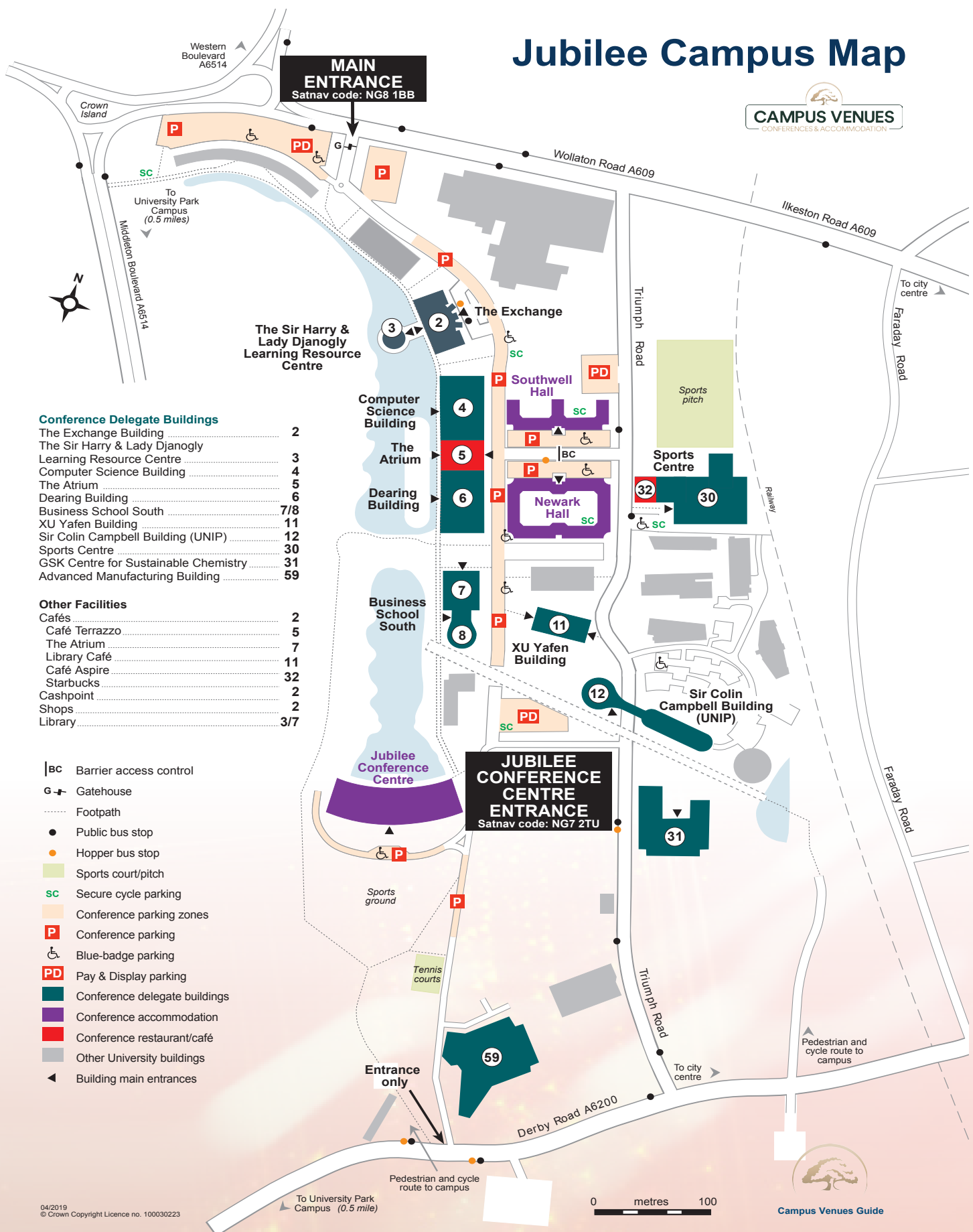
**Room Temperature Electro-Crystallization of Water by Molecular
Dynamics Simulations, {MNHMT2024-131917}**

Technical Presentation Only
Ezgi Satiroglu - 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

Jubilee Campus Map



Conference Delegate Buildings

The Exchange Building	2
The Sir Harry & Lady Djanogly Learning Resource Centre	3
Computer Science Building	4
The Atrium	5
Dearing Building	6
Business School South	7/8
XU Yafen Building	11
Sir Colin Campbell Building (UNIP)	12
Sports Centre	30
GSK Centre for Sustainable Chemistry	31
Advanced Manufacturing Building	59

Other Facilities

Cafés	2
Café Terrazzo	5
The Atrium	7
Library Café	11
Café Aspire	32
Starbucks	2
Cashpoint	2
Shops	2
Library	3/7

- BC Barrier access control
- G Gatehouse
- Footpath
- Public bus stop
- Hopper bus stop
- Sports court/pitch
- SC Secure cycle parking
- Conference parking zones
- P Conference parking
- ♿ Blue-badge parking
- PD Pay & Display parking
- Conference delegate buildings
- Conference accommodation
- Conference restaurant/café
- Other University buildings
- ◀ Building main entrances

04/2019
© Crown Copyright Licence no. 100030223

0 metres 100





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

