



MHMT
CONGRESS

**PROCEEDINGS OF THE 8th WORLD
CONGRESS ON MOMENTUM, HEAT AND
MASS TRANSFER (MHMT 2023)**

March 26 - 28, 2023 | Lisbon, Portugal

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WELCOME MESSAGE FROM THE CONFERENCE CHAIR

On behalf of the International Academy of Science, Engineering and Technology (International ASET Inc.), the organizing committee would like to welcome you to the 8th World Congress on Momentum, Heat and Mass Transfer (MHMT 2023).

MHMT is aimed to become one of the leading international annual congresses in the fields of momentum, heat and mass transfer. This congress will provide excellent opportunities to scientists, researchers, industrial experts, and university students to present their research achievements and to develop new collaborations and partnerships with experts in the field.

In the eighth meeting of this Congress, three plenary and eight keynote speakers will share their expertise in a wide spectrum of fields and applications. In addition, approximately 56 papers will be presented by professors, students, and researchers from across the world.

We thank you for your participation and contribution to the 8th World Congress on Momentum, Heat and Mass Transfer (MHMT 2023). We wish you a very successful and enjoyable experience.

Dr. Lixin Cheng

*Congress Chair and Proceedings Editor
MHMT 2023*

Dr. Tassos G. Karayiannis

*Congress Co-Chair and Proceedings Editor
MHMT 2023*

Dr. Sohel Murshed

*Congress Local Chair
MHMT 2023*

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ABOUT MHMT 2023

MHMT is aimed to become one of the leading international annual congresses in the fields of momentum, heat and mass transfer. This congress will provide excellent opportunities to the scientists, researchers, industrial engineers, and university students to present their research achievements and to develop new collaborations and partnerships with experts in the field.

There are 3 conferences included in the CSEE Congress:

ENFHT'23 - 8th International Conference on Experimental and Numerical Flow and Heat Transfer

ICMFHT'23 - 8th International Conference on Multiphase Flow and Heat Transfer

CSP'23 - 8th International Conference on Combustion Science and Process

While each conference consists of an individual and separate theme, the 3 conferences share considerable overlap, which prompted the organization of this congress. The goal of this undertaking is to bring together experts in each of the specialized fields, and at the same time allow for cross pollinations and sharing of ideas from the other closely related research areas.

MHMT is an acronym for **M**omentum, **H**eat, and **M**ass Transfer

- The proceedings is published in Ottawa, Canada.
- All papers were peer-reviewed
- The congress proceedings is published under an ISSN and ISBN number
- Each paper is assigned a unique DOI number by [Crossref](#)
- The conference proceedings is indexed by [Google Scholar](#)
- The proceedings is permanently archived in [Portico](#) (one of the largest community-supported digital archives in the world)

 Google Scholar

 Crossref

 PORTICO

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SCIENTIFIC COMMITTEE

We would like to thank the following for accepting to act as a member of the Scientific Committee for the MHMT 2023 Congress:

■ Scientific Committee Members for ENFHT 2023

- Dr. Rayhaneh Akhavan, University of Michigan, USA
- Dr. Raya Al-Dadah, University of Birmingham, UK
- Dr. Jalel Azaiez, University of Calgary, Canada
- Dr. Francesco Coletti, Brunel University London, UK
- Dr. Longfei Chen, Beihang University, China
- Dr. Yanping Du, Shanghai Jiao Tong University, China
- Dr. Arend Dubbelboer, Danone Nutricia Research, Netherlands
- Dr. Zhixiong Guo, Rutgers University, USA
- Dr. Mohammad Hamdan, American University of Sharjah, United Arab Emirates, UAE
- Dr. Mohammad Hojjat, University of Isfahan, Iran
- Dr. Gamze Gediz Ilis, Gebze Technical University, Turkey
- Dr. Zdeněk Jegla, Brno University of Technology, Czech Republic
- Dr. Konstantinos Kontis, University of Glasgow, UK
- Dr. Vahid Motevalli, Penn State University, USA
- Dr. Sébastien Poncet, Sherbrooke University, Canada
- Dr. Muhammad Bilal Riaz, Lodz University of Technology, Poland
- Dr. Ziad Saghir, Ryerson University, Canada

SCIENTIFIC COMMITTEE

Scientific Committee Members for ICMFHT 2023

- **Dr. Bofeng Bai**, Xi'an Jiaotong University, China
- **Dr. Vasilis Bontozoglu**, University of Thessaly, Greece
- **Dr. Andrea Cioncolini**, University of Manchester, UK
- **Dr. Sadegh Dabiri**, Purdue University, USA
- **Dr. Gioia Falcone**, University of Glasgow, UK
- **Dr. Kamiel Gabriel**, University of Ontario Institute of Technology, Canada
- **Dr. Afshin J. Ghajar**, Oklahoma State University, USA
- **Dr. Faik Hamad**, Teesside University, UK
- **Dr. Marcello Iasiello**, Università degli Studi di Napoli Federico II, Italy
- **Dr. Tassos Karayiannis**, Brunel University London, UK
- **Dr. Gerardo Maria Mauro**, Università degli studi del Sannio, Italy
- **Dr. Simone Mancin**, University of Padua, Italy
- **Dr. Christos N. Markides**, Imperial College London, UK
- **Dr. Peter Minev**, University of Alberta, Canada
- **Dr. João Miranda**, Faculdade de Engenharia da Universidade do Porto, Portugal
- **Dr. Ali Ozel**, Heriot-Watt University, UK
- **Dr. Huihe Qiu**, Hong Kong University of Science & Technology, Hong Kong
- **Dr. Qinlong Ren**, Xi'an Jiaotong University, China
- **Dr. Sergei Sazhin**, University of Brighton, UK
- **Dr. Mostafa Safdari Shadloo**, National Institute of Applied Science (INSA), France
- **Dr. Günter H. Schnerr**, Technical University of Munich, Germany
- **Dr. Pengfei Wang**, Xi'an Jiaotong University, China
- **Dr. Berend van Wachem**, University of Magdeburg, Germany
- **Dr. Somchai Wongwises**, King Mongkut's University of Technology Thonburi, Thailand
- **Dr. Jiyun Zhao**, City University of Hong Kong, Hong Kong

SCIENTIFIC COMMITTEE

Scientific Committee Members for CSP 2023

- **Dr. Pedro Jorge Martins Coelho**, National Technical University of Athens, Greece
- **Dr. Young Choi**, Korea Institute of Machinery and Materials, Korea
- **Dr. Byungchul Choi**, Chonnam National University, Korea
- **Dr. Lin Ma**, The University of Sheffield, UK
- **Dr. Maciej Mikulski**, University of Vaasa, Finland
- **Dr. Amir H. Mohammadi**, University of KwaZulu-Natal, South Africa
- **Dr. Vahid Motevalli**, Penn State University, USA
- **Dr. Dimitrios C. Rakopoulos**, Center for Energy Research and Technology Hellas, Greece
- **Dr. Constantine D. Rakopoulos**, National Technical University of Athens, Greece
- **Dr. Guido Saccone**, CIRA – Italian Aerospace Research Centre, Italy
- **Dr. Sergei Sazhin**, University of Brighton, UK
- **Dr. Vanja Subotic**, Graz University of Technology, Austria

PLENARY/KEYNOTE SPEAKERS

The Plenary and keynote speakers information for the 8th World Congress on Recent Advances in Nanotechnology (MHMT 2023) is as follows:

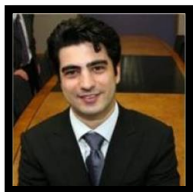
Plenary Speakers



Dr. Yulong Ding
University of Birmingham,
UK
ENFHT'23 Plenary Speaker



Dr. Satish Kandlikar
Rochester Institute of
Technology, USA
ICMFHT'23 Plenary Speaker



Dr. Christos Markides
Imperial College London,
UK
ICMFHT'23 Plenary
Speaker

Keynote Speakers



Dr. Matteo Bucci
Massachusetts Institute
of Technology, USA
ICMFHT'23 Keynote
Speaker



Dr. Zhixiong (James) Guo
Rutgers University - New
Brunswick, NJ, USA
ENFHT'23 Keynote Speaker



Dr. Boo Cheong Khoo
National University of
Singapore, Singapore
CSP'23 Keynote Speaker



Dr. Ali Kosar
Sabanci University, Turkey
ICMFHT'23 Keynote Speaker

PLENARY/KEYNOTE SPEAKERS

The Plenary and keynote speakers information for the 8th World Congress on Recent Advances in Nanotechnology (MHMT 2023) is as follows:

Keynote Speakers



Dr. Sunny Ri Li
Peking University, China
ENFHT'23 Keynote Speaker



Dr. Mohamed Pourkashanian
The University of Sheffield, UK
ENFHT'23 Keynote Speaker



Dr. Akio Tomiyama
Kobe University, Japan
ICMFHT'23 Keynote Speaker



Dr. Yuying Yan
University of Nottingham,
UK
ENFHT'23 Keynote Speaker

ENFHT 2023 PLENARY SPEAKER



Topic of Plenary: The Role of Heat Transfer and Fluid Flow in Thermal Energy Storage for Heating, Cooling and Mobility Decarbonisation
Dr. Yulong Ding, University of Birmingham, UK

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Professor Ding is founding Chamberlain Chair of Chemical Engineering and founding Director of University of Birmingham Centre for Energy Storage. His research has been on energy materials and processes. He has published 550+ technical papers with 450+ in peer-reviewed journals (GS H-Index ~80) and filed 100+ patents. He currently serves on Molten Salts Advisory Group of UK Department for Business, Energy and Industrial Strategy, Royal Society Net Zero Panel and IChemE Publication Medal Assessment Panel, and recently led a Royal Society briefing note on heating and cooling in Climate Change: Science and Solutions. Professor Ding invented liquid air energy storage technology and led the initial stage of technology developments (commercialised by Highview Power). He developed composite phase change materials for thermal energy storage and associated large-scale manufacture technologies, leading to large scale commercial applications with a total installation of >300MW / >1.5GWh so far (Jinhe Energy). His work on passively cooled container technology has been on large scale commercial demonstration for cold chain applications (CRRC). His work has been recognised by the election to Fellow of Royal Academy of Engineering (2020); IChemE Clean Energy Medal (2021); IChemE Global Awards in three categories of Energy, Research Project and Outstanding Achievement (2019); Distinguished Energy Storage Individual Award (Beijing International Energy Storage and Expo, 2018); and Energy & Environment Award and Technology and Innovation Grand Prix Award ('The Engineer', 2011). He currently serves as an associate editor of Energy Storage and Saving (Elsevier) and Discovery Energy (SpringerNature), and serves on editorial boards Journals of Energy Storage (Wiley), Thermal Science (Springer), and Particuology (Elsevier).

ICMFHT 2023 PLENARY SPEAKER



Topic of Plenary: Multiscale Enhancement
Techniques in Pool Boiling
[Dr. Satish Kandlikar, Rochester Institute of
Technology, USA](#)

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Satish Kandlikar is working in diverse areas including pool and flow boiling, water management in fuel cells and breast cancer detection. Innovation and creativity are the hallmarks of his team which has presented novel ways to improve performance in these fields. He has published over 400 research papers and graduated 15 PhD students and over 100 MS student in a career spanning over 40 years. The talk will is aimed at developing a new insight among the students and researchers to develop a highly productive innovative work environment. He has received numerous awards including the coveted ASME Heat Transfer Memorial Award.

ICMFHT PLENARY SPEAKER



Topic of Plenary: Spatiotemporally-Resolved Multi-Field Measurements in Multiphase Flows with Phase Change

Dr. Christos Markides

Imperial College London, UK

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Christos Markides is Professor of Clean Energy Technologies, Head of the Clean Energy Processes Laboratory, and leads the Experimental Multiphase Flow Laboratory, which is the largest experimental space of its kind at Imperial College London. He is also, amongst other, Editor-in-Chief of journal Applied Thermal Engineering, a member of the UK National Heat Transfer Committee, and on the Scientific Board of the UK Energy Storage SUPERGEN Hub. He specialises in applied thermodynamics and transport processes as applied to high-performance devices, technologies and systems for energy recovery, utilization, conversion or storage, and has an ongoing interest in advanced diagnostic techniques for the provision of detailed, spatiotemporally resolved information in turbulent, reacting and multiphase flows. He has published >300 journal papers and >350 conference papers on these topics. He has won multiple awards, including IChemE's Global Award for "Best Research Project" for his work on hybrid PV-thermal technologies (2018). He also won IMechE's Donald Julius Groen outstanding paper prize (2016), the Engineers' Without Borders "Chill Challenge" (2020), as well as Imperial College London President's Awards for Teaching (2016) and for Research Excellence (2017).

ICMFHT 2023 KEYNOTE SPEAKER



Topic of Keynote: The Percolative Scale-Free Nature of the Boiling Crisis

[Dr. Matteo Bucci, Massachusetts Institute of Technology, USA](#)

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Dr. Matteo Bucci is Associate Professor of Nuclear Science and Engineering at MIT. He has joined the MIT faculty in 2016, where he teaches undergraduate and graduate courses in nuclear reactor engineering and design, and two-phase heat transfer. His thermal-hydraulics group at MIT focuses on two major research axes related to nuclear reactor safety and design: (1) New understanding of heat transfer mechanisms in nuclear reactors, (2) Engineered surfaces and coatings to enhance two-phase heat transfer. His group also develops and uses advanced diagnostics, such as high-speed infrared thermometry, and post-processing algorithms to perform unique heat transfer experiments. Matteo has published over 40 articles in the areas of two-phase flow and heat transfer, and surface engineering technology. For his research work and his teaching, he won several awards, among which the MIT Ruth and Joel Spira Award for Excellence in Teaching (2020), ANS/PAI Outstanding Faculty Award (2018), the UIT-Fluent Award (2006), the European Nuclear Education Network Award (2010), and the 2012 ANS Thermal-Hydraulics Division Best Paper Award (2012). In 2022, Matteo received the inaugural DOE Early Career Award for Nuclear Energy. Matteo is Editor of Applied Thermal Engineering and a consultant for the nuclear industry.

ENFHT 2023 KEYNOTE SPEAKER



Topic of Keynote: Interfacial Heat Transport in Semiconducting Heterostructures

[Dr. Zhixiong \(James\) Guo, Rutgers University - New Brunswick, NJ, USA](#)

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Dr. Zhixiong “James” Guo is a Professor of Mechanical and Aerospace Engineering at Rutgers University-New Brunswick, NJ, USA. He received his B.S., M.S., and Doctorate, all in Engineering Physics, from Tsinghua University, Beijing in 1989, 1991, and 1995, respectively. Then he left China and worked as a Research Fellow in KAIST, South Korea, and a Research Associate in Tohoku University, Japan. From 1999 to 2001, he worked as a research staff member in NYU-Tandon School of Engineering, where he completed his Ph.D. in Mechanical Engineering in the same time period. He joined the faculty at Rutgers in July 2001. He is a recognized expert in heat transfer, with notable expertise in radiation transport, heat transfer enhancement, and nanoscale heat transfer. His discovery and solution for conserving scattered energy and scattering angle in radiation transfer modeling is of significant contribution to the advancement of radiative transfer computation. He is a pioneer in ultrafast laser radiation transport modeling and applications. He explored plasma-mediated ablation and developed it successfully to tissue grafting and decontamination. He conducted leading research on near-field radiation, addressing emerging technological applications such as MEMS/NEMS sensors, ultrafine measurement, and biological sensing at the molecular level. Nowadays he explores innovative utilization of renewable solar energy and investigates fundamentals in interfacial heat transfer and boiling mechanisms at the molecular level. He has supervised 17 PhD and 20 Master students and mentored 14 postdoctoral/visiting scholars. He received research funds from the NSF, NASA/NJSGC, USDA, ASEE/DOD, MTF, NIH, NJ Nanotechnology Consortium, Charles and Johanna Busch Memorial Funds, NNSFC, JSPS, and other sources. He also received a teaching award from Rutgers Vice President Office for Undergraduate Education in 2002.

CSP 2023 KEYNOTE SPEAKER



Topic of Keynote: On the Shuttling Transverse Combustion (STC)

[Dr. Boo Cheong Khoo, National University of Singapore, Singapore](#)

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BC Khoo graduated from the University of Cambridge with a BA (Honours, 1st Class with Distinction). In 1984, he obtained his MEng from the NUS and followed by PhD from MIT in 1989. He joined NUS in 1989. From 1998 to 1999, he was seconded to the Institute of High Performance Computing (IHPC, Singapore) and served as the deputy Director and Director of Research. In 1999, BC returned to NUS and spent time at the SMA-I (Singapore MIT Alliance I) as the co-Chair of High Performance Computation for Engineered Systems Program till 2004. In the period 2005-2013, under the SMA-II, he was appointed as the co-Chair of Computational Engineering Program. In 2011-2012, BC was appointed the Director of Research, Temasek Laboratories, NUS. Since 2012, he has been the Director, Temasek Laboratories. BC Khoo serves on numerous organizing and advisory committees for International Conferences/Symposiums held in USA, China, India, Singapore, Taiwan, Malaysia, Indonesia and others. He is a member of the Steering Committee, HPC (High Performance Computing) Asia. He has received a Defence Technology Team Prize (1998, Singapore) and the prestigious Royal Aeronautical Prize (1980, UK). Among other numerous and academic and professional duties, he is on the Editorial Board of International Journal of Thermofluid Science and Technology, Ocean Systems Engineering (IJOSE), International Journal of Intelligent Unmanned Systems (IJIUS), The Open Mechanical Engineering Journal (OME) and The Open Ocean Engineering Journal.

ICMFHT 2023 KEYNOTE SPEAKER



Topic of Keynote: New Generation Functional Surfaces with Biocoatings for Boiling Heat Transfer and Anti-Freezing
[Dr. Ali Kosar, Sabanci University, Turkey](#)

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Ali Koşar is a Distinguished Research Professor at Sabanci University. He earned his master's and doctoral degrees in Mechanical Engineering from Rensselaer Polytechnic Institute. He is focusing on the design and development of new generation micro heat sinks with functional surfaces and microfluidic devices including cavitation on chip devices. His research interests constitute a spectrum covering heat and fluid flow in micro/nano scale, condensation, boiling heat transfer, microfluidic systems, and cavitation. He co-authored over 150 research articles in top journals and 80 conference papers in prestigious international conferences. He has also a co-inventor on 7 granted patents and 7 pending patent applications. He received numerous national and international honors, including the "µFIP Prominent Researcher Award" in the 2021 micro Flow and Interfacial Phenomena (µFIP) Conference, METU (Middle East Technical University) Prof. Mustafa N. Parlar Foundation Science Award (2021). He is currently leading a large research group consisting of members from various disciplines, graduate students and engineers and to bridge different disciplines (Energy, Nanotechnology, Applied Physics, Bioengineering, Biochemistry, Mechanical Engineering). He has been successful to secure funding for his research activities from a wide variety of national and international resources. He also serves as a reviewer in many prestigious journals and is a Subject Editor in the Applied Thermal Engineering journal. He is the Co-director of Center of Excellence for Functional Surfaces and Interfaces for Nano diagnostics (EFSUN) and a Distinguished Researcher of Sabanci University Nanotechnology and Application Center. He was recently elected as a Member of Turkish Academy of Sciences (TÜBA).

ENFHT 2023 KEYNOTE SPEAKER



Topic of Keynote: Applying Surface Engineering to Thermal Fluid Research and Applications
[Dr. Sunny Ri Li, The University of British Columbia, Canada](#)

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Dr. Sunny Ri Li is currently a professor at The University of British Columbia (UBC), Okanagan campus. He is the director of UBC Thermal Management and Multiphase Flows Lab, the Chair of CSME Heat Transfer Committee, and the Canadian Delegate on The Assembly for International Heat Transfer Conferences. His research around the fluid dynamics of multiphase flows and heat transfer involved in high-heat-flux cooling technologies and applications, with particular focus on the cooling and thermal management for microelectronics and power electronics. Before joining UBC, he was a research scientist in the Electronics Cooling Lab at the Global Research Center of General Electric, Schenectady, New York. He received his MSc and Ph.D. in mechanical engineering from University of Toronto in 2004 and 2008, respectively.

ENFHT 2023 KEYNOTE SPEAKER



Topic of Keynote: Power to Liquid: Delivering a Sustainable Pathway for Jet Fuel Production and Utilisation

[Dr. Mohamed Pourkashanian, The University of Sheffield, UK](#)

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Professor Pourkashanian, OBE for services to Net Zero Research and to Innovation (2023) leads on the University Energy flagship Institute and Energy-2050 initiative. He holds a chair in Energy Engineering, is the General Secretary for the International Flame Research Foundation and is Managing Director of the Translational Energy Research Centre National Facilities and Sustainable Aviation Fuels Innovation Centre. He has completed numerous major research projects on clean energy technology, alternative aviation fuels production, characterisation and utilisation, receiving substantial grants from the EPSRC, EU, NATO and industry. He and his students have authored over 498 publications in refereed journals and conference proceedings and have co-authored a several books. Professor Pourkashanian has graduated over 87 Ph.D. candidates and supervised over 40 postdoctoral scholars and research associates. He is currently Chair of International Test Centre Network ([https://itcn\[1\]global.org/](https://itcn[1]global.org/)), member of the Industrial Strategy Challenge Fund (ISCF): Industrial Decarbonisation Advisory Group, Member of Jet Zero Council SAF Delivery Group, Fellow of the Energy Institute and Chartered Engineer.

ICMFHT 2023 KEYNOTE SPEAKER



Topic of Keynote: Mass Transfer from a Bubble in a Vertical Pipe

[Dr. Akio Tomiyama, Kobe University, Japan](#)

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Akio Tomiyama is Professor at Kobe University since 2003. He obtained his PhD from Tokyo Institute of Technology. He was formerly a Researcher at the Energy Research Lab. at Hitachi Ltd. in 1984-1988, a research Associate (1988-1991) and associate professor (1991-2002) and Dean of Faculty of Engineering (2015-2019) at Kobe University. His main research areas are multi-scale CFD for multiphase flows, experiments and modeling of bubble dynamics and gas-liquid two-phase flows. He has received several best paper awards and outstanding achievement awards from Japan Society of Mechanical Engineers, Japanese Society of Multiphase Flows and Japan Atomic Energy Society. He is serving as the editor-in-chief of Multiphase Science and Technology and a member of editorial advisory board of Int. J. Heat and Fluid Flow, and had been an associate editor of Int. J. Multiphase Flow for 16 years. He has also served as the President of Japanese Society for Multiphase Flow and a Governing Board member of Int. Conf. Multiphase Flow.

ENFHT 2023 KEYNOTE SPEAKER



Topic of Keynote: Advances in Using Nature Inspired Solutions to Enhance Heat Transfer and Thermal Energy Storage
[Dr. Yuying Yan, University of Nottingham, UK](#)

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Yuying Yan (BSc, January 1982 from Jilin University of Technology, MSc, May 1986 in Thermal Science Engineering at Shanghai Institute of Mechanical Engineering) obtained his PhD in Mechanical Engineering at City, University of London in 1996. After taking research & academic positions at University of Surrey and Nottingham Trent University, respectively, he joined University of Nottingham in 2004, and was promoted to full Professor in 2011 as Chair in Thermal Fluids Engineering. His research covers widely ranged areas of thermofluids including heat transfer enhancement, applied thermodynamics, phase change, nanofluids and nature inspired solutions for energy efficiency and thermal management. He is member/director of UK national heat transfer committee, member of UK EPSRC peer review college, fellow of International Society of Bionic Engineering (ICBE). He was head of fluids & thermal engineering and faculty director of global engagement at UoN, deputy general secretary of ICBE, panel member of European Research Council's advanced research grant, etc. He has chaired or co-chaired over 10 international conferences/events. He has supervised more than 40 PhD students so far, authored or co-authored over 450 papers including about 300 journal papers. He serves as Senior Editor for Elsevier e-Prime: Advances in Electrical Engineering, Electronics and Energy, Associate Editor for Elsevier "Case Studies in Thermal Engineering", also holds editorial board membership at International Journal of Heat and Mass Transfer, Scientific Reports, Journal of Bionic Engineering, Thermal Science & Engineering Progress, Energy Storage & Saving, and Automotive Innovation, etc.

LIST OF PAPERS

The following papers were presented at the 8th World Congress on Momentum, Heat and Mass Transfer (MHMT 2023).

Virtual Session

CFD Modelling Of Compressible Two-Phase Flow With Phase Change Using Openfoam

Authors: Gokul Siddarth Mani Sakthi, Laila Abu-Farah, Natalie Germann

Thermochemical Energy Storage Using Radial Flow Annular Reactor for Attaining Lower Pressure Drop

Authors: Ankush Shankar Pujari, Rudrodip Majumdar, Sandip K. Saha

Hydrodynamics and Mixing Characteristics of a Multiphase Coaxial Mixing Tank: Design and Scalability Study

Authors: Ali Rahimzadeh, Farhad Ein-Mozaffari, Ali Lohi

Power Consumption Analysis for Gas Dispersion in a Dual Coaxial Mixer Containing Yield-Pseudoplastic Fluids via Experimental and Numerical Approaches

Authors: Forough Sharifi, Ehsan Behzadfar, Farhad Ein-Mozaffari

Fluid Flow Characterization of Gas Dispersion in a Yield-Pseudoplastic Biopolymer Using a Coaxial Mixer: Effect of Rotation Mode

Authors: Paloma L. Barros, Farhad Ein-Mozaffari, Ali Lohi

Evaluating the effect of PCM insulation packaging design on the thermal protection performance

Authors: Kasra Ghasemi, Mehran Bozorgi, Syeda Tasnim, Shohel Mahmud Pilla

LIST OF PAPERS

Virtual Session

Performance Improvement Of Solar-Assisted Desiccant Cooling System By Changing Collector Type And Stage Number

Authors: Mehran Bozorgi, Kasra Ghasemi, Syeda Humaira Tasnim, Shohel Mahmud

Modelling Of Subcooled Flow Boiling For Saline Solution Using New Bubble Dynamic Parameter Models

Authors: Junping Gu, Qinggong Wang, Yuxin Wu

Bubble Growth and Deformation Characteristics Under Non-Uniform Electric Field

Authors: Wu Tianyi, Wang Junfeng, Zhang wei, Su Qiaoling

Cooking Performance Optimization with New Types of Fan Baffles in Domestic Built-in Ovens

Authors: Fulya Bilen, Vasıf Can Yıldırım, Ayberk Salim Mayıl, Oğuzhan Erbaş

Dual Modal Imaging Of Two-Phase Flows Using Electromagnetic Flow Tomography And Electrical Tomography – State Estimation Approach

Authors: Muhammad Ziaul Arif, Aku Seppänen, Marko Vauhkonen

Surface Phosphor Thermometry behind a Water Film in a Rectangular Cooling Channel

Authors: Sacha Hirsch, Nicolas Fdida, Cornelia Irimiea, Sylvain Petit, Baptiste Dejean, Philippe Reulet, Benoît Fond, Guillaume Pilla

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CFD

[Determination of Rate Coefficient for Para-Orthohydrogen Conversion in Cryogenic Vortex Tube](#)

Authors: Konstantin I. Matveev, Jacob W. Leachman

[Sensitivity Analysis on the Performance of a Natural Draft Direct Dry Cooling System for a 50 MWe CSP Application](#)

Authors: Wian Strydom, Johannes Pretorius, Jaap Hoffmann

[Numerical Simulation of Heat Transfer Performance in Novel Biomorphic Pin-Fin Heat Sinks](#)

Authors: Mohammad Harris, Hongwei Wu

[Numerical Simulation of the Effect of Temperature on Binary Alkane Mixture Segregation using a Mass Transfer Cavitation Model](#)

Authors: Philip Schwarz, Romuald Skoda

[Experimental and Numerical Study of a Cryogenic Ball Valve Using Liquid Nitrogen](#)

Authors: Maria Teresa Scelzo, Maria Faruoli, Hubert Lejeune, Sandra Varin, Jorge Pinho

[Cavitation Erosion Modelling Using a Poly-Disperse Fluid Formulation](#)

Authors: Fran Delić, Waleed Al-Sallami, William Anderson, Hrvoje Jasak

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CFD

[A Comparative Study of Transport Equation Models for Prediction of Cloud Cavitation in a Venturi](#)

Authors: Naga Nitish Chamala, Mingming Ge, Olivier Coutier-Delgosha

[Simulating Cloud Cavitation Using Detached Eddy Simulation And Other Hybrid Turbulence Models](#)

Authors: Dhruv Apte, Mingming Ge, Olivier Coutier-Delgosha

[Design and Analysis of a Cryogenic Unsteady Flow Experiment through a Propellant Assisted Valve](#)

Authors: Jorge Pinho, Arnaud Magette, Maria Teresa Scelzo, Jean-Baptiste Gouriet, Johan Steelant

[Insights into Multi-Stage Heat Release Phenomenon of Polyoxymethylene Dimethyl Ether 1 \(PODE₁\)](#)

Authors: Denis Buntin, Leonid Tartakovsky

[Various Motorcycle Configurations And Their Influence On Aerodynamic Performance – A CFD Analysis](#)

Authors: Krzysztof Retych, Krzysztof Balcerzak, Bartosz Potęga, Michał Remer

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Experimental Measurements

[Experimental and Numerical Investigation of Particle Erosion on Squared T-Junctions](#)

Authors: F. L. M. Reis, C. M. P. Rosero, E. R. David, D. A. Rodrigues and A. P. Silva Freire

[Experimental Study of A LTES Made By a Finned Heat Exchanger Immersed In a Paraffinic PCM](#)

Authors: Giulia Martino, Claudia Naldi, Matteo Dongellini, Gian Luca Morini

[A Large-Scale Experiment for the Visualization of Near-Wall Structures in Turbulent Pipe Flow Using Stereoscopic PIV](#)

Authors: R. Jäckel, B. Owolabi, B. Magacho, L. Moriconi, D. J. C. Dennis, J. B. R. Loureiro

[Airlift Pumps with Annulus Risers: An Experimental Investigation](#)

Authors: Shahriyar G. Holagh, Dana Fadlalla, Marwan H. Taha, Alexander Doucette, Wael H. Ahmed

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Heat Transfer Enhancement

[Simulation of Heat and Moisture Coupling Transfer Characteristics of Grain Pile Drying Process Based On DEM-CFD](#)

Authors: LI Xin, WANG Yuancheng, YANG Kaimin, DU Xinming

[Performance Curve of a Patch Heater Fabricated by Silver Screen Printing for Satellite Applications](#)

Authors: Jinwoo Choi, Jaeyong Sung, Joon Hyun Kim

[Comparison of 1D and 3D Electrochemical-Thermal Model of Lithium-Ion Battery](#)

Authors: Yiğitalp GÖKMEN, Tuğçe GÜL, Gamze GEDİZ ILIS

[The Effect of Particle Collisions on Heat Transfer in a non-Isothermal Dilute Turbulent Gas-Particle Flow](#)

Authors: Hamid Reza Zandi Pour, Michele Iovieno

[Multi-Objective Optimisation of Heat Transfer Elements within A Rotary Regenerative Heater](#)

Authors: Jordan White, Marco Veza

[On Saturated Flow Boiling Heat Transfer Of Deionized Water and Ferrofluid on Structured Surfaces With/Without External Magnetic Field](#)

Authors: Behnam Parizad Benam, Mandana Mohammadlooey, Hyun Sun Park, Abdolali K Sadaghiani, Ali Kosar

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Heat Transfer Enhancement

[A Biomimetic Approach to Improve Convective Heat Transfer Using Fluid-Induced Vibrations from Self-Excited Flaps](#)

Authors: Sahand Najafpour and Majid Bahrami

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