MHMT
CONGRESS

7TH WORLD CONGRESS ON MOMENTUM, HEAT AND MASS TRANSFER (MHMT'2022)

April 07 - 09, 2022| ~~LISBON, PORTUGAL~~ | Virtual Conference

THE MHMT'22 CONGRESS IS COMPOSED OF 3 CONFERENCES

ENFHT 2022	ICMFHT 2022	CSP 2022

April 07	April 08	April 09

OUR PROGRAM SCHEDULE IS BASED ON EASTERN TIME (EDT - OTTAWA TIME)

APRIL 07

10:00 AM – 12:00 PM **Registrations**

MHMT'22 Scientific Committee Chair

Dr. Lixin Cheng
Sheffield Hallam University, UK
Congress Chair

View Profile

Dr. Tassos G. Karayiannis
Brunel University London, UK
Congress Co-Chair

View Profile

MHMT'22 Congress Local Chair

Dr. Sohel Murshed
University of Lisbon, Portugal
Congress Local Co-Chair

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APRIL 08

7:00 AM - 8:00 AM	Registrations
8:00 AM - 8:15 AM	Official Opening
	Dr. Lixin Cheng, Sheffield Hallam University, UK
8:15 AM - 9:00 AM	ENFHT'22 KEYNOTE LECTURE
	Chillerless High Performance Liquid Cooling for Sustainable Data Centres Dr. Poh Seng Lee, National University of Singapore (NUS), Singapore
09:00 AM - 09:45 AM	ICMFHT'22 KEYNOTE LECTURE
	Thermal-Mechanical flow and Heat Transfer of Supercritical Carbon Dioxide Dr. Xinrong Zhang, Peking University, China
09:45 AM - 10:30 AM	ICMFHT'22 KEYNOTE LECTURE
	Numerical Simulations of Complex Two-Phase Flows Dr. Omar K. Matar, Imperial College, UK
10:30 AM - 10:40 AM	BREAK

APRIL 08

Room 1		Room 2		Room 3	
10:40 AM - 12:45 PM	SYMPOSIUM Novel Methods for Numerical Simulation of Multiphase Flows and Heat Transfer I	10:40 AM - 01:05 PM	SYMPOSIUM Flow and Heat Transfer in Porous Media	10:40 AM - 11:55 PM	SESSION CFD I
01:05 AM - 01:15 PM	Break			11:55 AM - 12:55 PM	SESSION Combustion and Pollution
01:15 PM - 02:45 PM	SYMPOSIUM Novel Methods for Numerical Simulation of Multiphase Flows and Heat Transfer II	01:15 PM - 02:45 PM	SESSION CFD II		
02:45 PM - 03:05 PM	Lunch Break				

APRIL 08

03:05 PM - 3:50 PM	ICMFHT'22 KEYNOTE LECTURE
	Entrained Liquid Fraction in Annular Two-Phase Flow Dr. Andrea Cioncolini, The University of Manchester, UK
3:50 PM - 4:35 PM	ICMFHT'22 KEYNOTE LECTURE
	A Comprehensive Review of Pseudo-Slug Flow Dr. Cem Sarica, University Tulsa, USA

Room 1		Room 2		Room 3	
04:35 PM - 05:40 PM	SESSION MULTIPHASE FLOW AND HEAT TRANSFER IN MICRO AND NANO CHANNELS	04:35 AM - 05:50 PM	SESSION FLOW AND HEAT TRANSFER - NUMERICAL SIMULATION I		

KEYNOTE LECTURE

APRIL 08 | 8:15 AM - 9:00 AM | SESSION CHAIR: DR. LIXIN CHENG, SHEFFIELD HALLAM UNIVERSITY, UK

Titles: Chillerless High Performance Liquid Cooling for Sustainable Data Centres

Dr. Poh Seng Lee, National University of Singapore (NUS), Singapore

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Dr Poh Seng Lee is an Associate Professor with the Department of Mechanical Engineering at the National University of Singapore (NUS). Prof Lee's research interests include high performance cooling techniques (in particular single and two-phase microchannel cooling), energy efficient air conditioning and low grade waste heat recovery. He is the recipient of numerous research and innovation awards including 2013 NUS Faculty of Engineering's Young Faculty Research Award, 2011 Institution of Engineers Singapore (IES) Prestigious Engineering Achievement Award, 2011 Asia Pacific Clean Energy Summit Top 10 Defense Energy Technology Solutions Award and 2009 Tan Kah Kee Young Inventors Award (TKKYIA) – Defense Science. Dr Lee also serves as the Program Director of Cooling Energy Science & Technology Singapore (CoolestSG) consortium, Deputy Director of the Centre for Energy Research & Technology (CERT) and Assistant Dean of Research & Technology, Faculty of Engineering.

KEYNOTE LECTURE

APRIL 08 | 9:00 AM - 9:45 AM | SESSION CHAIR: DR. LIXIN CHENG, SHEFFIELD HALLAM UNIVERSITY, UK

Titles: Thermal-Mechanical flow and Heat Transfer of Supercritical Carbon Dioxide

Dr. Xinrong Zhang, Peking University, China

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Dr. Xin-Rong (Ron.) Zhang has been a professor at Peking University since January 2013. Dr. Zhang's research interests focused on supercritical and near-critical flow dynamics and heat transfer. He has made significant contributions to the supercritical heat transfer area through numerous innovation, experimental methodology and technical inventions spanning from sub to super-critical fluids. Particularly, he proposed the concepts of low temperature solar (or waste heat) powered trans-critical power generation cycle and supercritical power. Through 20 years' continuous efforts, his invention on the low and medium temperature trans- critical Power generation and CO2 vapor compression cycle have been translated into real applications. In 2014-2020, Dr. Zhang was selected as a most cited Chinese researcher by Elsevier. Now he is Chairman of Beijing Energy Society. He created five research institutes for recent years and was selected for Beijing Science Honor and also awarded the first prize for the excellent research by Beijing Institute of Energy. He published 2 monographs and more than 160 International Journal papers and was authorized more than 60 patents.

KEYNOTE LECTURE

APRIL 08 | 09:45 AM - 10:30 AM | SESSION CHAIR: DR. LIXIN CHENG, SHEFFIELD HALLAM UNIVERSITY, UK

Titles: Numerical Simulations of Complex Two-Phase Flows

Dr. Omar K. Matar, Imperial College, UK

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Omar Matar, FREng, is a Professor of Fluid Mechanics and Head of Department of Chemical Engineering at Imperial College London. His research interests include the use of multi-scale, physics-informed, data-driven methods for the solution of complex non-isothermal multiphase flows with phase change. He is a Fellow of the Royal Academy of Engineering, the Institution of Chemical Engineers, and the American Physical Society, and a RAEng/PETRONAS Research Chair in Multiphase Fluid Dynamics. He has co-authored over 300 refereed papers and given over 70 invited talks. He is co-Editor-in-Chief of the Journal of Engineering Mathematics, and has received >£50M in funding from Research Councils UK and industry.

SYMPOSIUM

NOVEL METHODS FOR NUMERICAL SIMULATION OF MULTIPHASE FLOWS AND HEAT TRANSFER I

APRIL 08 | 10:40 AM - 12:45 PM | SESSION CHAIR: DR. MIRCO MAGNINI, UNIVERSITY OF NOTTINGHAM, UK & DR. EDWARD SMITH, BRUNEL UNIVERSITY LONDON, UK

Titles: Welcoming Speech

Welcoming Speech
Time: 10:40 - 10:45
Presenter: Dr. Mirco Magnini, University of Nottingham, UK & Dr. Edward Smith, Brunel University London, UK

Titles: Simulation of Micro-scale Particulate Motion in Gases
ICMFHT 164
Time: 10:45 - 11:00
Presenter: Josiah Jordan, University of Warwick, UK
Authors: Duncan Lockerby, Josiah Jordan

Titles: Conjugate Heat Transfer Effects on Flow Boiling in Microevaporators
ICMFHT 127
Time: 11:00 - 11:15
Presenter: Mirco Magnini, University of Nottingham, Uk
Authors: Mirco Magnini, Federico Municchi

Titles: Diffuse Interface Method for Nucleate Boiling Simulations
ICMFHT 159
Time: 11:15 - 11:30
Presenter: Giada Minozzi, The University of Edinburgh, UK
Authors: G. Minozzi, A. D. Lavino, E. R. Smith, J. Liu, T. Karayiannis, K. Sefiane, O. K. Matar, D. Scott, T. Krüger and P. Valluri

Titles: Drop Impact Simulation on Heated Structured Surfaces
ICMFHT 163
Time: 11:30 - 11:45
Presenter: Nima Samkhaniani, Karlsruhe Institute of Technology (KIT), Germany
Authors: N. Samkhaniani, M. Toprak, A. Stroh

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SYMPOSIUM

NOVEL METHODS FOR NUMERICAL SIMULATION OF MULTIPHASE FLOWS AND HEAT TRANSFER I

APRIL 08 | 10:40 AM - 12:45 PM | SESSION CHAIR: DR. MIRCO MAGNINI, UNIVERSITY OF NOTTINGHAM, UK & DR. EDWARD SMITH, BRUNEL UNIVERSITY LONDON, UK

Titles: Multiscale Modelling of Bubble Growth in a Nanocavity
ICMFHT 165
Time: 11:45 - 12:00
Presenter: Alessio D. Lavino, Imperial College London, UK
Authors: Arnoldo Badillo, Alessio D. Lavino, Annalisa Manera, Victor Petrov, Edward Smith, Mirco Magnini, Omar K. Matar

Titles: Accuracy of the Calculation of the Surface Tension Force in Diffuse Interface Models
ICMFHT 177
Time: 12:00 - 12:15
Presenter: Arnoldo Badillo, ETHZ, Switzerland
Authors: Arnoldo Badillo, Victor Petrov, Annalisa Manera

Titles: A Molecular Dynamics Study of Pool Boiling: Surface Structure and Chemistry Effects
ICMFHT 166
Time: 12:15 - 12:30
Presenter: Armin Shahmardi, Royal Institute of Technology (KTH), Sweden
Authors: Armin Shahmardi, Outi Tammisola, Mauro Chinappi, Luca Brandt

Titles: Microlayer Evaporation during Steam Bubble Growth, And the Evidence It Provides Regarding the Evaporative Process Itself
ICMFHT 167
Time: 12:30- 12:45
Presenter: Giovanni Giustini, The University of Manchester, UK
Authors: Giovanni Giustini

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SYMPOSIUM

FLOW AND HEAT TRANSFER IN POROUS MEDIA

APRIL 08 | 10:40 AM - 01:05 PM | SESSION CHAIR: DR. MARCELLO IASIELLO, UNIVERSITÀ DEGLI STUDI DI NAPOLI FEDERICO II, ITALY & DR. GERARDO MARIA MAURO, UNIVERSITÀ DEGLI STUDI DEL SANNIO, ITALY

Titles: Porous Media for the Thermal Design of Heat Sinks
ICMFHT 178
Time: 10:40 - 11:10
Presenter: Gerardo Maria Mauro, Università degli Studi del Sannio, Italy
Authors: Marcello Iasiello, Gerardo Maria Mauro

Titles: Experimental Study Onon Organic PCM Forfor High Temperature Applications
ICMFHT 133
Time: 11:10 - 11:25
Presenter: Simone Mancin, University of Padova, Italy
Authors: Giulia Righetti, Claudio Zilio, Giovanni A. Longo, Simone Mancin

Titles: Experimental Study on the Performance of Wet Thermoacoustic Engine with Modified Parallel Plate Stack Design
ENFHT 218
Time: 11:25 - 11:40
Presenter: Md. Imrul Kayes, University of Engineering and Technology, Bangladesh
Authors: Md. Imrul Kayes, Md. Ashiqur Rahman

Titles: Flow Interaction Between Porous and Non-porous region in a Channel Partially Filled with a Porous Block: Pore-scale LES Study
ICMFHT 147
Time: 11:40 - 11:55
Presenter: Mohammad Jadidi, University of Manchester, UK
Authors: Mohammad Jadidi, Yasser Mahmoudi

Titles: Experimental and Numerical Analyses of Pressure Drops In A 3D Printed Foam
ICMFHT 179
Time: 11:55 - 12:10
Presenter: Simone Mancin, University of Padova, Italy
Authors: Giulia Righetti, Michele Calati, Claudio Zilio, Simone Mancin

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SYMPOSIUM

FLOW AND HEAT TRANSFER IN POROUS MEDIA

APRIL 08 | 10:40 AM - 01:05 PM | SESSION CHAIR: DR. MARCELLO IASIELLO, UNIVERSITÀ DEGLI STUDI DI NAPOLI FEDERICO II, ITALY & DR. GERARDO MARIA MAURO, UNIVERSITÀ DEGLI STUDI DEL SANNIO, ITALY

Titles: Porous Media Model Limit in Low Fin Packing Density Channel
ICMFHT 175
Time: 12:10 - 12:25
Presenter: Yohanna HENROTEL, Aix-Marseille Université, France
Authors: Yohanna HENROTEL, Damien SERRET, Joseph JABBOUR

Titles: Effective Thermal Conductivity of Tetragonal Pin Array Stack
ENFHT 239
Time: 12:25 - 12:40
Presenter: Elio Di Giulio, University of Naples Federico II, Italy
Authors: Elio Di Giulio, Armando Di Meglio, Nicola Massarotti, Raffaele Dragonetti

Titles: Establishing Suitable Conditions to Compare Multiphase Flow Laboratories with Different Line Pressures
ICMFHT 156
Time: 12:40 - 12:55
Presenter: Graeme Hunt, University of Glasgow, UK
Authors: Alexander J. Elliott , Olusegun S. Osundare1, Gioia Falcone, Dennis van Putten

Titles: Rayleigh-Taylor Instability of Miscible Displacements in Heterogeneous Porous Media
ENFHT 171
Time: 12:55 - 01:05
Presenter: Youssef Elgahawy, University of Calgary, Canada
Authors: Youssef Elgahawy, Jalel Azaiez

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SESSION

CFD I

APRIL 08 | 10:40 AM - 11:55 AM | SESSION CHAIR: DR. LIXIN CHENG, SHEFFIELD HALLAM UNIVERSITY, UK

Titles: Modelling of Effects of Process Inputs on Conditions in a BFB Furnace
CSP 119
Time: 10:40 - 10:55
Presenter: Sirpa Kallio, VTT Technical Research Centre of Finland Ltd, Finland
Authors: Sirpa Kallio, Elena Gorshkova, Marko Huttunen

Titles: Kinetic Analysis and CFD Modelling of Hydrogen-Air Combustion Applied to Scramjet Vehicles
CSP 103
Time: 10:55 - 11:10
Presenter: Guido Saccone, CIRA (Italian Aerospace Research Centre) Italy
Authors: Guido Saccone, Pasquale Natale, Luigi Cutrone, Marco Marini

Titles: Efficient CFD Methodology for Optimal Design of Oil Cooled Electric Motor Shaft
ICMFHT 111
Time: 11:10 - 11:25
Presenter: Rohit Sharma, Ansys Software Pvt Ltd, India
Authors: Rohit Sharma, Vinay Kumar Gupta, Alok Khaware, Vinayak Kamat

Titles: Lattice Boltzmann Modeling of Two-Phase Electrohydrodynamic (EHD) Flows
ICMFHT 112
Time: 11:25 - 11:40
Presenter: Andi Li, Fudan University, China
Authors: A.D. Li, Y.Q. Zu, C. Zhou

Titles: A Study on the Geometrical Parameter of a Mixing Chamber in an Air-Induction Nozzle
ICMFHT 118
Time: 11:40 - 11:55
Presenter: Milad Khaleghi Kasbi, Jeonbuk National University, Republic of Korea
Authors: Milad Khaleghi Kasbi, Reza Alidoost Dafsari, Jeekeun Lee2

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SESSION

COMBUSTION AND POLLUTION

APRIL 08 | 11:55 AM - 12:55 PM | SESSION CHAIR: DR. GUIDO SACCONE, ITALIAN AEROSPACE RESEARCH CENTRE - CIRA, ITALY

Titles: Simulation Analysis on the Identification of Chemical Effects by the Addition of Diatomic Gases in Acetylene Flame
CSP 113
Time: 11:55 - 12:10
Presenter: Hassan Osaf Ali, Hiroshima University, Japan
Authors: Hassan Osaf Ali, Daisuke Shimokuri, Muhammad Hassaan Athar, Faheem-ul-Hasnain, Talha Nadeem Hassan, Muhammad Azeem Ghouri

Titles: Evaluation of A Soot Modeling Strategy Including Sectional PAH Model and Lagrangian Soot Tracking
CSP 116
Time: 12:10 - 12:25
Presenter: Alexis Andre
Authors: Alexis Andre, Nicolas Bertier, Aymeric Boucher, Philippe Villedieu

Titles: Experimental Analysis Of Blast Furnace Gas Co-Firing In A Semi-Industrial Furnace Using Colour Images
CSP 117
Time: 12:25 - 12:40
Presenter: Pedro Compais, CIRCE Foundation, Spain
Authors: P. Compais, J. Arroyo1, A. González-Espinosa, C. Gonzalo-Tirado, M. A. Castán-Lascorz1, J. Barrio, V. Cuervo-Piñera

Titles: Experimental Study on the Performance of an Indigenous Wood Stove for Indian Rural Cooking
CSP 118
Time: 12:40 - 12:55
Presenter: Manish Kumar, Indian Institute of Technology Madras, India
Authors: K. Manish, B. Ashutosh, V. Raghavan

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SYMPOSIUM

NOVEL METHODS FOR NUMERICAL SIMULATION OF MULTIPHASE FLOWS AND HEAT TRANSFER II

APRIL 08 | 01:15 PM - 02:45 PM | SESSION CHAIR: DR. MIRCO MAGNINI, UNIVERSITY OF NOTTINGHAM, UK & DR. EDWARD SMITH, BRUNEL UNIVERSITY LONDON, UK

Titles: Micro-Scale Simulations of Boiling Heat Transfer via a Volume of Fluid Approach: Application to Pool Boiling and Flow Boiling
ICMFHT 180
Time: 01:15 - 01:30
Presenter: Anastasios Georgoulas, University of Brighton, UK
Authors: Anastasios Georgoulas, Mirko Gallo, Francesco Magaletti, Marco Marengo, Carlo Massimo Casciola

Titles: Pinning and Its Role in The Directed Motion of Fluids on Solid Substrates
ICMFHT 171
Time: 01:30 - 01:45
Presenter: Pangiotis Theodorakis, Institute of Physics, Polish Academy of Sciences, Poland
Authors: Pangiotis Theodorakis, Zhizhao Che, Bin Hu, Alidad Alidad, Sergei Egorov, Andrey Milchev

Titles: An OpenFOAM Framework for the Two-phase Flows with Heat and Mass Transfer
ICMFHT 176
Time: 1:45 - 2:00
Presenter: Henning Scheufler, Institute of Space Systems, Germany
Authors: Henning Scheufler

Titles: Mesoscale Simulations of Bubble Nucleation via a Diffuse Interface Approach: Application to Cavitation and Boiling Onset
ICMFHT 170
Time: 2:00 - 2:15
Presenter: Francesco Magaletti, University of Brighton, Uk
Authors: Francesco Magaletti, Mirko Gallo, Anastasios Georgoulas, Marco Marengo, Carlo Massimo Casciola

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SYMPOSIUM

NOVEL METHODS FOR NUMERICAL SIMULATION OF MULTIPHASE FLOWS AND HEAT TRANSFER II

APRIL 08 | 01:15 PM - 02:45 PM | SESSION CHAIR: DR. MIRCO MAGNINI, UNIVERSITY OF NOTTINGHAM, UK & DR. EDWARD SMITH, BRUNEL UNIVERSITY LONDON, UK

Titles: Inertio-Thermal Vapour Bubble Growth
ICMFHT 168
Time: 2:15 - 2:30
Presenter: Patrick Sullivan, University of Edinburgh, UK
Authors: Rohit Pillai, Patrick Sullivan

Titles: Combining Phase Field And Geometric Algorithms For The Numerical Simulation Of Multiphase Flows
ICMFHT 162
Time: 02:30 - 02:45
Presenter: Federico Municchi, Colorado School of Mines, USA
Authors: Federico Municchi, Mirco Magnini, Icardi Matteo

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KEYNOTE LECTURE

APRIL 08 | 3:05 PM - 3:50 PM | SESSION CHAIR: DR. LIXIN CHENG, SHEFFIELD HALLAM UNIVERSITY, UK

Titles: Entrained Liquid Fraction in Annular Two-Phase Flow

Dr. Andrea Cioncolini, The University of Manchester, UK

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I am Reader in Thermal-Hydraulics at the Department of Mechanical, Aerospace and Civil Engineering of the University of Manchester, UK. My background is Nuclear Engineering (BSc, MSc, PhD) and Mathematics (MSc), with specialty in nuclear thermal-hydraulics and computational fluid dynamics.

My research includes experiments, physical modelling and numerical simulations in thermo-fluids and fluid-structure interactions (flow boiling and multi-phase flow; thermal-hydraulics and corrosion; micro-fluidics; fluid systems transient analysis; flow induced vibration and flexible fluid-structure interaction), and is motivated by demanding cooling applications (nuclear fission reactors, microelectronics, high-energy particle detectors), flow control and small-scale energy harvesting.

After graduating, I worked as Senior Engineer/Scientist for the nuclear vendor Westinghouse Electric in Pittsburgh-PA, USA, on transient/safety analysis of water-cooled nuclear power plants and on design/testing of small-modular water-cooled nuclear reactor systems. I successively moved to the Laboratory of Heat and Mass Transfer at EPFL (The Swiss Federal Institute of Technology in Lausanne, Switzerland), where I worked as post-doctoral researcher on macro-micro-scale two-phase flow modelling for demanding cooling applications. I joined the University of Manchester in 2013.

KEYNOTE LECTURE

APRIL 08 | 3:50 PM - 04:35 PM | SESSION CHAIR: DR. LIXIN CHENG, SHEFFIELD HALLAM UNIVERSITY, UK

Titles: A Comprehensive Review of Pseudo-Slug Flow

Dr. Cem Sarica, University Tulsa, USA

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Dr. Cem Sarica, F.H. “Mick” Merelli/Cimarex Energy Professor of Petroleum Engineering at the University of Tulsa (TU), is currently serving as the director of three industry-supported consortia at the TU: Fluid Flow, Paraffin Deposition, and Horizontal Well Artificial Lift Projects. His research interests are production engineering, multiphase flow in pipes, flow assurance, and horizontal wells. He holds BS and MS degrees in petroleum engineering from Istanbul Technical University and a Ph.D. degree in petroleum engineering from TU. He has previously served in various SPE Committees, and he is currently serving as a member of the SPE Production and Facilities Advisory Committee. He was a member of the SPE Journal Editorial Board between 1999 and 2007. He also served as Associate Editor of JERT of ASME between 1998 and 2003. He is a member of the Technical Advisory Committee of British Hydrodynamics Research Group (BHRg) Multiphase Production Conferences. He served as the Technical Program Chair of BHRg 2008 and 2012 Conferences. He is the recipient of the 2010 SPE International Production and Operations Award. He is recognized as a Distinguished Member of SPE in 2012. Cem received SPE John Franklin Carll Award and SPE Cedric K. Ferguson Certificate in 2015.

SESSION

CFD II

APRIL 08 | 01:15 PM - 02:45 PM | SESSION CHAIR: DR. YINGQING ZU, FUDAN UNIVERSITY, CHINA

Titles: Electro-Dip Simulation of a Car BIW using Volume-of-Fluid Model with Hybrid Time Advancement Scheme
ICMFHT 121
Time: 1:15 - 1:30
Presenter: Vishesh Aggarwal, Ansys Software Pvt. Ltd, India
Authors: Vishesh Aggarwal, Tushar Patil, Vivek Patil, Ian Lockley

Titles: Experimental and Numerical Investigation of the Solid-Liquid Phase Change of a Low Temperature Paraffin for Refrigerated Transport Applications
ICMFHT 134
Time: 1:30 - 1:45
Presenter: Simone Mancin, University of Padova, Italy
Authors: Calati M., Guarda D., Zilio C., Righetti G., Mancin S.

Titles: CFD Simulation of Mixing Tank with Different Rushton Agitator Diameters and Constant Power Consumption
ICMFHT 135
Time: 1:45 - 2:00
Presenter: Luiza Fernandes, Cidade Universitária Zeferino Vaz, Brazil
Authors: Luiza B. Fernandes, José R. Nunhez

Titles: Numerical Simulations of Microchannels with Functionalized Surfaces for Fluid Treatment with COVID-19
ICMFHT 142
Time: 2:00 - 2:15
Presenter: Bruna I. Bittelbrunn, University of Campinas, Brazil
Authors: Harrson S. Santana, João L. Silva Jr, Bruna I. Bittelbrunn, Mariana G. M. Lopes1, Osvaldir P. Taranto

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SESSION

CFD II

APRIL 08 | 01:15 PM - 02:45 PM | SESSION CHAIR: DR. YINGQING ZU, FUDAN UNIVERSITY, CHINA

Titles: A New One-equation Turbulence Model based on the Combined Standard k-ε and k-ω Turbulence Models for Benchmark Flow Configurations
ICMFHT 145
Time: 2:15 - 2:30
Presenter: Fei Wang, The Hong Kong Polytechnic University, Hong Kong SAR, China
Authors: Fei Wang, Tat Leung Chan

Titles: Assessment of Flame Structure of Turbulent Bluff-Body CH4/H2 Flame Using RANS-FPV Model
CSP 111
Time: 2:30 - 2:45
Presenter: Rudra N. Roy, Indian Institute of Technology, India
Authors: Hrishikesh Kotwal, Rudra N. Roy

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SESSION
MULTIPHASE FLOW AND HEAT TRANSFER IN MICRO AND NANO CHANNELS

APRIL 08 | 4:35 PM - 5:40 PM | SESSION CHAIR: DR. FRIA HOSSEIN, UNIVERSITY COLLEGE LONDON, UK

Titles: Thermohydraulic Characterization of DI Water Flow in Rectangular Microchannels By Means Of Experiments and Simulations
ICMFHT 174
Time: 4:35 - 4:50
Presenter: Mark Schepperle, University of Freiburg Georges-Koehler-Allee, Germany
Authors: Mark Schepperle, Nima Samkhaniani, Mirco Magnini, Peter Woias, Alexander Stroh

Titles: A Study on the Mathematical Modelling of Homogeneous Condensation in Supersonic Separators
ICMFHT 172
Time: 4:50 - 4:55
Presenter: Nathalia Sa, Universidade Federal do Rio de Janeiro, Brazil
Authors: Nathalia Sa, Antonio O S Moraes, Pedro Kropf, Ricardo Medronho, Luiz F L R Silva, Tânia Klein, Fabio Santos

Titles: Bubble Growth in Saturated Pool Boiling of Water on a Smooth Surface
ICMFHT 143
Time: 4:55 - 5:10
Presenter: Mohamed Mahmoud, Zagazig University, Egypt
Authors: M. M. Mahmoud, Tassos G. Karayiannis

Titles: Developed Macro-Scale Flow and Heat Transfer in Micro-Channels with Large Arrays of Offset Strip Fins for a Uniform Heat Flux
ENFHT 225
Time: 5:10 - 5:25
Presenter: Arthur Vangeffelen, KU Leuven, Belgium
Authors: Arthur Vangeffelen, Geert Buckinx, Maria Rosaria Vetrano, Martine Baelmans

Titles: Two-Dimensional Approximation of a Three-Dimensional Wavy Microchannel
ENFHT 160
Time: 5:25 - 5:40
Presenter: Roxana Durantes, California State University, USA
Authors: Roxana Durantes, J. Rafael Pacheco, Arturo Pacheco-Vega

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SESSION
FLOW AND HEAT TRANSFER - NUMERICAL SIMULATION I
SESSION CHAIR: DR. MOHAMMAD JADIDI, THE UNIVERSITY OF MANCHESTER, UK

Titles: Thermal Fatigue at Mixing Points in Industrial pipework
ENFHT 238
Time: 4:35 - 4:50
Presenter: Funke Dacosta-Salu, Coventry University, UK
Authors: Funke Dacosta-Salu, Michael E. Fitzpatrick, Xiang Zhang, Tyler London, Alessio Basso, James Jewkes

Titles: A Theoretical Analysis of Hybrid Liquid Desiccant-Vapor Compression Air Conditioning Systems
ENFHT 191
Time: 4:50 - 5:05
Presenter: Ghaleb Ibrahim, American University in Dubai, UAE
Authors: Ghaleb Ibrahim and Husham M. Ahmed

Titles: Non-Newtonian Spreading Simulation of Molten Nuclear Combustible
ENFHT 198
Time: 5:05 - 5:20
Presenter: Thomas Schiano, Cadarache, Saint-Paul-lez-Durance, Grenoble Alpes University, France
Authors: Thomas Schiano, Barbara Bigot, Jean-François Haquet, Pierre Saramito, Claude Smutek

Titles: Thermal Stability Analysis of Toroidal Thermosyphon Models with Fuzzy Controllers
ENFHT 161
Time: 5:20 - 5:35
Presenter: Daniel Lopez, California State University, USA
Authors: Daniel Lopez, Arturo Pacheco-Vega

Titles: An Experimental Study on the Multiphase Behaviour of an Agricultural Air Induction Nozzle with Various Internal Geometry
ICMFHT 119
Time: 5:35 - 5:50
Presenter: Reza Alidoost Dafsari, Jeonbuk National University , South Korea
Authors: Reza Alidoost Dafsari, Milad Khaleghi Kasbi, Seunghwa Yu, Yong Choi, Jeekeun Lee

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APRIL 09

8:00 AM - 8:45 AM	**CSP'22 KEYNOTE LECTURE**
	Decarbonising Heavy Duty Internal Combustion Engines - Challenges and Opportunities **Dr. Alasdair Cairns, University of Nottingham, UK**
8:45 AM - 9:30 AM	**ENFHT'22 KEYNOTE LECTURE**
	Study on Mechanism and Performance Enhancement of Thermal Energy Storage with Composite Phase Change Material **Dr. Qiuwang Wang, Xi'an Jiaotong University, China**
9:30 AM - 10:15 AM	**CSP'22 KEYNOTE LECTURE**
	Computational and Experimental Investigation of Swirling and Bluff-Body Stabilized Ammonia/Hydrogen Flames **Dr. Pedro Coelho, Universidade de Lisboa, Portugal**
10:15 AM - 10:25 AM	**BREAK**

Room 1		Room 2		Room 3	
10:25 AM - 11:55 AM	**SESSION Nanofluids**	**10:25 AM - 11:15 AM**	**SESSION Experimental Flow and Heat Transfer I**	**10:25 AM - 10:40 AM**	**SESSION Mass Transfer Operations**
11:55 AM - 01:10 PM	**SESSION Flow and Heat Transfer - Numerical Simulation II**	**11:20 AM - 12:50 PM**	**SESSION CFD III**	**11:00 AM - 11:50 AM**	**SESSION Heat Transfer Enhancement**

APRIL 09

01:10 PM - 01:40 PM	**LUNCH BREAK**
01:40 PM - 2:25 PM	**ICMFHT'22 KEYNOTE LECTURE**
	Optimizing the Next Generation of Heat Sinks for Immersion Cooling: Think, Print and Test **Dr. Simone Mancin, University of Padova, Italy**
02:25 PM - 3:10 PM	**ENFHT'22 KEYNOTE LECTURE**
	Spectral Tuning Of Solar Irradiation with Water-Based Nanofluid for Energy Collection and Natural Illumination **Dr. Zhixiong Guo, The State University of New Jersey, USA**
3:10 PM - 3:20 PM	**Break**

Room 1		**Room 2**		**Room 3**	
03:20 PM - 04:20 PM	**SESSION** **EXPERIMENTAL FLUID FLOW AND HEAT TRANSFER II**	**3:20 PM - 04:25 PM**	**SESSION** **CFD IV**		

CSP'22 KEYNOTE LECTURE

APRIL 09 | 08:00 AM - 08:45 AM | SESSION CHAIR: DR. TASSOS G. KARAYIANNIS, BRUNEL UNIVERSITY LONDON, UK

Titles: Decarbonising Heavy Duty Internal Combustion Engines - Challenges and Opportunities

Dr. Alasdair Cairns, University of Nottingham, UK

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Professor Alasdair Cairns is Director of the Powertrain Research Centre at the University of Nottingham, UK, with 22 years' experience in light and heavy duty engines and fuels. His early career involved 10 years with engineering consultancy MAHLE Powertrain, managing large collaborative R&D programmes. He manages a large team and funding portfolio of £8M in current UK government funded projects across marine, construction and stationary power generation applications, with several current projects on ammonia and hydrogen fuels. He has previously received prizes for related research from both the UK Institution of Mechanical Engineers and SAE International.

KEYNOTE LECTURE

APRIL 09 | 9:45 AM - 10:30 AM | SESSION CHAIR: DR. TASSOS G. KARAYIANNIS, BRUNEL UNIVERSITY LONDON, UK

Titles: Study on Mechanism and Performance Enhancement of Thermal Energy Storage with Composite Phase Change Material

Dr. Qiuwang Wang, Xi'an Jiaotong University, China

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Dr. Qiuwang Wang, Professor of School of Energy & Power Engineering, Dean of Department for Undergraduate Education, Executive Director of International Joint Research Laboratory of Thermal Science and Engineering, Xi'an Jiaotong University, China. He was a visiting scholar at City University of Hong Kong from May 1998 to March 1999, a guest professor at Kyushu University of Japan from September to December 2003, and a senior visiting scholar at Rutgers, The State University of New Jersey, USA from December 2012 to June 2013. His research interests include heat transfer enhancement and its applications, high-temperature/high-pressure heat transfer and fluid flow, transport phenomena in porous media, numerical simulation, prediction & optimization, etc. He is a Fellow of ASME, a China Delegate of Assembly for Intl Heat Transfer Conference (AIHTC), a member of Scientific Council of Intl Centre for Heat & Mass Transfer (ICHMT), a Vice President of Chinese Society of Engineering Thermophysics in Heat & Mass Transfer. He is the founding Editor-in-Chief of Energy Storage and Saving, an Associate Editor of Heat Transfer Engineering, and Editorial Board Members for several international journals such as Renewable and Sustainable Energy Reviews, Energy Conversion and Management, Energy, Applied Thermal Engineering, etc. He is founding chair of International Workshop on Heat Transfer Advances for Energy Conservation and Pollution Control (IWHT) (every two years since 2011, 2011-Xi'an, 2013-Xi'an, 2015-Taipei, 2017-Las Vegas, 2019- Novosibirsk, 2021-Harbin). He has also delivered more than 50 Invited/Keynote lectures in international conferences or foreign Universities. He has also been authors or co-authors of 4 books and more than 200 international journal papers. He has obtained more than 40 China Invent Patents and 4 US Patents.

CSP'22 KEYNOTE LECTURE

APRIL 09 | 09:30 AM - 10:15 AM | SESSION CHAIR: DR. TASSOS G. KARAYIANNIS, BRUNEL UNIVERSITY LONDON, UK

Titles: Computational and Experimental Investigation of Swirling and Bluff-Body Stabilized Ammonia/Hydrogen Flames

Dr. Pedro Coelho, Universidade de Lisboa, Portugal

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Professor Pedro Coelho graduated in Mechanical Engineering in 1984 and received his Ph.D. in 1992 from Instituto Superior Técnico (IST), University of Lisbon, Portugal. He is professor at the Department of Mechanical Engineering of IST, being currently the head of the Department. He has about 100 papers published in international journals, and more than 120 papers presented at international conferences. He is co-author of a book on Combustion (in Portuguese) for undergraduate and master students. His research is in the field of numerical simulation of heat transfer and combustion problems. Specific areas of interest are radiation models, turbulence-radiation interaction, computational heat transfer, turbulent diffusion flames, mild combustion and industrial combustion equipment. He is member of the Eurotherm Committee for the Advancement of Thermal Sciences and Heat Transfer, member of the Scientific Council, Assembly and Executive Committee of the International Centre of Heat and Mass Transfer, member of the Assembly for International Heat Transfer Conferences and member of the Assembly of the World Conference (AWC) on Experimental Heat Transfer, Fluid Mechanics, and Thermodynamics. He is associate editor of the J. Quantitative Spectroscopy and Radiative Transfer, Int. J. Thermal Sciences, and member of the advisory board of Computational Thermal Sciences, Heat Transfer Research and Energy for a Clean Environment.

SESSION
NANOFLUIDS

APRIL 09| 10:25 AM - 11:55 PM | SESSION CHAIR: DR. TASSOS G. KARAYIANNIS, BRUNEL UNIVERSITY LONDON, UK

Titles: Ascorbic-acid-coated Magnetite as Nanoabsorbent for CO2 Capture
ENFHT 147
Time: 10:25 - 10:40
Presenter: Yong Tae Kang, Korea University, South Korea
Authors: Yong Tae Kang

Titles: Spreading Dynamics of Al2O3-Water Nanofluid Droplets Impacting On a Smooth Flat Surface
ENFHT 199
Time: 10:40 - 10:55
Presenter: Yunus Tansu Aksoy, KU Leuven, Belgium
Authors: Yunus T. Aksoy, Pinar Eneren, Erin Koos, Maria Rosaria Vetrano

Titles: Rheology and Thermal Conductivity of Three Metallic Oxides Nanofluids
ENFHT 234
Time: 10:55 - 11:10
Presenter: Wagd Ajeeb, University of Lisbon, Portugal
Authors: Wagd Ajeeb, R. R. S. Thieleke da Silva, S M Sohel Murshed

Titles: Evaluation of Stability of Alumina Nanofluids and Its Impact on Viscosity and Density
ENFHT 242
Time: 11:10 - 11:25
Presenter: Elaine Fabre, Universidade de Lisboa, Portugal
Authors: Elaine Fabre and S M Sohel Murshed

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SESSION
NANOFLUIDS

APRIL 09| 10:25 AM - 11:55 PM | SESSION CHAIR: DR. TASSOS G. KARAYIANNIS, BRUNEL UNIVERSITY LONDON, UK

Titles: Heat Transfer and Hydrodynamic Study of Particulate Flow in Channel with Extended Surfaces
ENFHT 163
Time: 11:25 - 11:40
Presenter: Rasa Soleimani, University of Calgary, Canada
Authors: Rasa Soleimani, Mohammad Zargartalebi, Jalel Azaiez, Ian D. Gates

Titles: Experimental Assessment of the Thermal Performance of Two Water-based Nanofluids in Laminar Pipe Flow
ENFHT 223
Time: 11:40 - 11:55
Presenter: Alexandre Briclot, Université de Reims Champagne-Ardenne, France
Authors: Alexandre BRICLOT, Catalin POPA, Jean-François HENRY, Stéphane FOHANNO

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SESSION

EXPERIMENTAL FLOW AND HEAT TRANSFER I

APRIL 09| 10:25 AM - 11:15 PM | SESSION CHAIR: DR. MOHAMMAD JADIDI, THE UNIVERSITY OF MANCHESTER, UK

Titles: Matched Wetting Behaviour of Material Pairings for Optical In-Situ Measurements in PEM Fuel Cells
ICMFHT 110
Time: 10:25 - 10:40
Presenter: Sebastian Blessing, Karlsruhe Institute of Technology (KIT), Germany
Authors: Sebastian Blessing, Moritz Kippenberger, Alexander Stroh, Jochen Kriegseis

Titles: Analysis of Gas-Liquid Intermittent Flow Sub-Regimes by Pressure Drop Signal Fluctuations
ICMFHT 128
Time: 10:40 - 10:55
Presenter: Abderraouf Arabi, SONATRACH, Direction Centrale Recherche et Développement, University of Sciences and Technology Houari Boumediene USTHB, Algeria
Authors: Abderraouf Arabi, Yacine Salhi, Youcef Zenati, El-Khider Si-Ahmed, Jack Legrand

Titles: Experimental Investigation Of the Thermal-Hydraulic Characteristics of Agglomerates in Gas-Solid Fluidized-Bed Reactors
ICMFHT 136
Time: 10:55 - 11:00
Presenter: Matteo Errigo, University College London, UK
Authors: Matteo Errigo, Massimiliano Materazzi, Paola Lettieri

Titles: Void Fraction Experimental Determination in Gas/Liquid Horizontal Pipe Flow by Mean of a Dual Optical Probe
ICMFHT 151
Time: 11:00 - 11:15
Presenter: Aude Lecardonnel, Von Karman Institute for Fluid Dynamics, Belgium
Authors: Aude Lecardonnel, Carlo De Servi, Piero Colonna, Delphine Laboureur

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EXPERIMENTAL FLOW AND HEAT TRANSFER I

APRIL 09| 10:25 AM - 11:15 PM | SESSION CHAIR: DR. MOHAMMAD JADIDI, THE UNIVERSITY OF MANCHESTER, UK

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ICMFHT 151
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Authors: Aude Lecardonnel, Carlo De Servi, Piero Colonna, Delphine Laboureur

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SESSION

MASS TRANSFER OPERATIONS

APRIL 09| 10:25 AM - 11:35 PM | SESSION CHAIR: DR. MOHAMMAD JADIDI, THE UNIVERSITY OF MANCHESTER, UK

Titles: Theoretical and Experimental Investigation of Mass and Heat Transfer in the Drum in Household Heat Pump Laundry Dryers
ENFHT 204
Time: 10:25 - 10:30
Presenter: Gökhan Sır, Arçelik A.Ş. Central R&D, Turkey
Authors: Gökhan Sır, Şevket Özgür Atayılmaz

Titles: Experimental Investigation of the Interaction of Axial Transport and Drying in Rotary Kilns
ENFHT 193
Time: 10:30 - 10:35
Presenter: Claudia Meitzner, Otto von Guericke University Magdeburg, Germany
Authors: Claudia Meitzner, Fabian Herz, Eckehard Specht, Bilal Mehdi, Jakob Seidenbecher,

Titles: Sensitivity Study of Soil Volatile Contaminants Extraction by Controlled Hot Air Injection
ENFHT 104
Time: 10:35 - 11:40
Presenter: Abraham Dayan, Tel Aviv University, Israel
Authors: Abraham Dayan

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SESSION

FLOW AND HEAT TRANSFER - NUMERICAL SIMULATION II

APRIL 09| 11:55 AM - 01:10 PM | SESSION CHAIR: DR. LIXIN CHENG, SHEFFIELD HALLAM UNIVERSITY, UK

Titles: A Theoretical Analysis on Air-Falling Film Desiccant Dehumidifier
ENFHT 190
Time: 11:55 - 12:10
Presenter: Ghaleb Ibrahim, American University in Dubai, UAE
Authors: Ghaleb Ibrahim and Husham M. Ahmed

Titles: Analysis of Thermal Performance of Different Materials and Configurations for Insulation Walls of Transport Refrigeration Vehicles
ENFHT 224
Time: 12:10 - 12:25
Presenter: Mehrab Hossen Siam, Bangladesh University of Engineering and Technology, Bangladesh
Authors: Md. Mehrab Hossen Siam, Meraj Hossain, Md. Ashiqur Rahman

Titles: Dynamic Simulation of Vapor Compression Refrigeration System with R134a and R1234yf using Dymola Behavior Modeling
ENFHT 243
Time: 12:25 - 12:40
Presenter: Vijay Bhatkar, Marathwada Mitra Mandal College of Engineering, M.S. India
Authors: V. W. Bhatkar, R. M. Tak

Titles: Experiment and Molecular Dynamics Analysis on Enhanced Evaporation of Silver Nanofluids under Light Irradiation
ENFHT 194
Time: 12:40 - 12:55
Presenter: Chang Zhao, Tongji University, P.R. China
Authors: Chang Zhao, Wei An, Yifan Zhang, Qingchun Dong, Naiping Gao

Titles: Investigation of Transport and Structural Properties of Binary fluid Mixtures in the Near-Critical-Region via Molecular Dynamics Simulations
ENFHT 231
Time: 12:55 - 01:10
Presenter: Devinda Wijerathne, University of Peradeniya, Sri Lanka
Authors: Devinda Wijerathne, Krishan De Silva, Arjuna De Alwis, Muditha Abeysekera, Hansani Weeratunge3, Ubaya Higgoda

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CFD III

APRIL 09| 11:20 AM - 12:50 PM | SESSION CHAIR: DR. MOHAMMAD JADIDI, THE UNIVERSITY OF MANCHESTER, UK & DR. YINGQING ZU, FUDAN UNIVERSITY, CHINA

Titles: Numerical Study of the Effects of Humidity on Natural Convective Flows in Building-Integrated Photovoltaic (BIPV) Systems
ENFHT 197
Time: 11:20 - 11:35
Presenter: Hadi Ahmadi Moghaddam Dastjerdi, UNSW Sydney, Australia
Authors: H. Ahmadi Moghaddam, S. Tkachenko, J. Reizes, R. Raja, C. Menezo, S. Giroux–Julien, V. Timchenko

Titles: Thermal Flow Analysis In Natural Gas Tubings In Relation To Downhole Applications
ENFHT 169
Time: 11:35 - 11:50
Presenter: Khaled Almuhammadi, EXPEC Advanced Research Center, Saudi Aramco, KSA
Authors: K.H. Al-Muhammadi, B.S. Yilbas, S.Z. Shuja, A. Al-Sharafi

Titles: Moving Grid Generation: An Unstructured FEM for Simulating Moving Body
ENFHT 212
Time: 11:50 - 12:05
Presenter: Saeed Rafiei, Shahid Chamran University of Ahvaz, Iran
Authors: Saeed Rafiei, Ebrahim Khajehpour

Titles: Hydrothermal Performances of Liquid Cold Plates
ENFHT 219
Time: 11:20 - 11:35
Presenter: Andoniaina M. Randriambololona, University of the District of Columbia, USA
Authors: Andoniaina M. Randriambololona, Mohammad Reza Shaeri

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CFD III

APRIL 09| 11:20 AM - 12:50 PM | SESSION CHAIR: DR. MOHAMMAD JADIDI, THE UNIVERSITY OF MANCHESTER, UK & DR. YINGQING ZU, FUDAN UNIVERSITY, CHINA

Titles: Portable PCM-Based Heat Exchanging Thermal Energy Storage System: Performance Testing Using Numerical Model

ENFHT 220

Time: 12:20 - 12:35

Presenter:Benoît Boulay, University of Guelph, Canada

Authors: Benoît Boulay, Syeda Tasnim, Shohel Mahmud

Titles: Numerical Studies of Hydrogen and LPG Turbulent Premixed Flames

ICMFHT 129

Time: 12:35 - 12:50

Presenter: Mohamed Elshimy, Loughborough University, Uk

Authors: Mohamed Elshimy, Salah Ibrahim, Weeratunge Malalasekera

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SESSION

HEAT TRANSFER ENHANCEMENT

APRIL 09| 11:00 AM - 11:50 AM | SESSION CHAIR: DR. PANAGIOTIS THEODORAKIS, INSTITUTE OF PHYSICS, POLISH ACADEMY OF SCIENCES, POLAND

Titles: Effect of Air Flow Direction on Forced Convection Over a Single Fin
ENFHT 217
Time: 11:00 - 11:15
Presenter: Mohammad Hamdan, American University of Sharjah, UAE
Authors: Mohammad O. Hamdan

Titles: Numerical Analysis of Heat Transfer within Two Anisotropic Coaxial Mediums in Cylindrical Geometry
ENFHT 240
Time: 11:15 - 11:30
Presenter: El hady Zakaria, University Hassan II, Morocco
Authors: El hady Zakaria, Hamza Hamid, Jawad Lahjomri, Abdelaziz Oubarra

Titles: Influence of Material Properties and Water Pressure on the Boundary Condition of Heat Transfer during Jet Cooling
ENFHT 200
Time: 11:30 - 11:45
Presenter:Elżbieta Jasiewicz, AGH University of Science and Technology, Poland
Authors: Elżbieta Jasiewicz, Beata Hadała, Dawid Denkowski

Titles: Experimental Investigation of Quenching Of Moving Hot Metal Plate with Water Using Flat Spray Nozzles
ENFHT 101
Time: 11:45 - 11:50
Presenter: Bilal Mehdi, Otto von Guericke University Magdeburg, Germany
Authors: Bilal Mehdi, Suresh Gopalkirshna, Stephan Ryll, Eckehard Specht, N. M. Narayan, U. Fritsching

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ICMFHT'22 KEYNOTE LECTURE

APRIL 09 | 01:40 PM - 2:25 PM | SESSION CHAIR: DR. LIXIN CHENG, SHEFFIELD HALLAM UNIVERSITY, UK

Titles: Optimizing the Next Generation of Heat Sinks for Immersion Cooling: Think, Print and Test

Dr. Simone Mancin, University of Padova, Italy

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Simone Mancin graduated with distinction in Mechanical Engineering at the University of Padova (2005) where he also gained the PhD on Industrial Engineering (Applied Thermodynamics and Heat Transfer) (2009). He is Associate Professor at the Dept. of Management and Engineering of the University of Padova, where he teaches Applied Physics, Thermo-Fluid Dynamics, and Thermal Management of Electronic Devices. He is also Visiting Prof. at Brunel University London (UK) and Associate scientist at the National Institute of Nuclear Physics (IT).

In 2015, he founded the Nano Heat Transfer lab (NHT-lab), which is mainly focused on experimental and numerical analyses on nano-PCMs and nano-dispersions, optimized LTES, single and two-phase heat transfer in micro and nano structures, thermal management of CERN experiments and ITER, AI and additive manufacturing applied to thermal problems. At NHT, he developed a novel coating technique for surface functionalization that can be used for, among those, anti-fouling, anti-icing, enhanced heat transfer, and for medical applications. Recently, at in collaboration with Purdue University, we are exploring the next generation of optimized heat sinks for electronics thermal management via immersion cooling.

ENFHT'22 KEYNOTE LECTURE

APRIL 09 | 02:25 PM - 3:10 PM | SESSION CHAIR: DR. LIXIN CHENG, SHEFFIELD HALLAM UNIVERSITY, UK

Titles: Spectral Tuning Of Solar Irradiation with Water-Based Nanofluid for Energy Collection and Natural Illumination

Dr. Zhixiong Guo, The State University of New Jersey, 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.

SESSION

EXPERIMENTAL FLOW AND HEAT TRANSFER II

APRIL 09| 03:20 PM - 4:20 PM | SESSION CHAIR: DR. PANAGIOTIS THEODORAKIS, INSTITUTE OF PHYSICS, POLISH ACADEMY OF SCIENCES, POLAND

Titles: Classic PIV and Stereo-PIV Techniques in the Analysis of Turbulent Flow in a Stirred Tank
ICMFHT 152
Time: 3:20 - 3:35
Presenter: Aline G. De Mitri, University of Campinas, Brazil
Authors: Aline G. De Mitri, Rodrigo de L. Amaral, Jenniffer S. Ayala, Helder L. de Moura, Guilherme J. de Castilho

Titles: Flow Structures of a Pseudoplastic Fluid in a Stirred Tank Using Particle Image Velocimetry
ICMFHT 153
Time: 3:35 - 3:50
Presenter: Jenniffer Ayala, University of Campinas, Brazil
Authors: Jenniffer Ayala, Aline Gallo De Mitri , Helder L. de Moura, Rodrigo de L. Amaral, Grazielle Espina, Guilherme J. de Castilho

Titles: Interaction of Cooling Lubricant Droplets with Hot Metal Surfaces
ICMFHT 154
Time: 3:50 - 4:05
Presenter: Kaissar de Oliveira Nabbout, Otto-von-Guericke-University Magdeburg, Germany
Authors: Kaissar Nabbout, Martin Sommerfeld, Eckart Uhlmann, Enrico Barth, Jörg Kuhnert

Titles: Developing Acoustic Emission Technique to Characterize Particles in Solid-Gas Flows
ICMFHT 146
Time: 4:05 - 4:20
Presenter: Fria Hossein, University College London, UK
Authors: Fria Hossein, Massimiliano Matterazzi, Matteo Errigo, Paola Lettieri, Panagiota Angeli

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CFD IV

APRIL 09| 03:20 PM - 4:25 PM | SESSION CHAIR: DR. GUIDO SACCONE, ITALIAN AEROSPACE RESEARCH CENTRE - CIRA, ITALY

Titles: Improvements on a Direct-ALE Scheme for Multiphase Flows with Thermodynamic Consistency
ICMFHT 130
Time: 3:20 - 3:25
Presenter: Vazquez-Gonzalez Thibaud, CEA, DAM/DIF, France
Authors: Vazquez-Gonzalez Thibaud

Titles: Modeling the Carbon Black Production in Enclosed FSP Reactor
ICMFHT 148
Time: 3:25 - 3:40
Presenter: Pedro Bianchi Neto, University of Campinas, Brazil
Authors: Fabio Henrique Bastiani, Pedro Bianchi Neto, Lizoel Buss, Udo Fritsching, Dirceu Noriler

Titles: Gas-Liquid Flow Regime Variation along a Pipeline Riser
ICMFHT 141
Time: 3:40 - 3:55
Presenter: Graeme Hunt, University of Glasgow, UK
Authors: Alexander J Elliott , Graeme Hunt, Andrea Cammarano, Gioia Falcone

Titles: The Effect of Locations of Inlet and Outlet Manifolds on Thermal Performance of a Lithium-Ion Battery Thermal Management System
ENFHT 222
Time: 3:55 - 4:10
Presenter: Kuuku-Dadzie Botchway, University of the District of Columbia, USA
Authors: Kuuku-Dadzie Botchway, Mohammad Reza Shaeri

Titles: Investigating the Effect of Particle Size on Erosive Wear in Industrial Coal Pneumatic Transport Using Computational Fluid Dynamics
ICMFHT 123
Time: 4:10 - 4:25
Presenter: Paul Ogunlela, University of Nottingham, UK
Authors: Paul T Ogunlela, Donald Giddings, Chris Bennett, Stefan Born, Margot Klaassen, Isaac Gennissen

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CFD IV

APRIL 09| 03:20 PM - 4:30 PM | SESSION CHAIR: DR. GUIDO SACCONE, ITALIAN AEROSPACE RESEARCH CENTRE - CIRA, ITALY

Titles: The Effect of Locations of Inlet and Outlet Manifolds on Thermal Performance of a Lithium-Ion Battery Thermal Management System
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