



**PROCEEDINGS OF THE 5TH WORLD
CONGRESS
ON MECHANICAL, CHEMICAL, AND
MATERIAL ENGINEERING (MCM'19)**

AUGUST 15 - 17, 2019 | 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 5th World Congress on Mechanical, Chemical, and Material Engineering (MCM'19).

MCM is aimed to become one of the leading international annual congresses in the fields of mechanical, chemical, and material engineering. 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.

While each conference consists of an individual and separate theme, the 4 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.

We thank you for your participation and contribution to the 5th World Congress on Mechanical, Chemical, and Material Engineering (MCM'19). We wish you a very successful and enjoyable experience.

Dr. Yuyuan Zhao

*Congress Chair and Proceedings Editor
MCM'19*

Dr. Huihe Qiu

*Congress Chair
MCM'19*

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ABOUT MCM'19

MCM is aimed to become one of the leading international annual congresses in the fields of mechanical, chemical, and material engineering.

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 4 conferences included in the MCM Congress:

HTFF'19 - 6th International Conference on Heat Transfer and Fluid Flow

ICMIE'19 - 8th International Conference on Mechanics and Industrial Engineering

MMME'19 - 6th International Conference on Mining, Material and Metallurgical Engineering

ICCPE'19 - 5th International Conference on Chemical and Polymer Engineering

While each conference consists of an individual and separate theme, the 4 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.

MCM is an acronym for **M**echanical, **C**hemical and **M**aterial Engineering.

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 [Scopus](#) and [Google Scholar](#)

The proceedings is permanently archived in [Portico](#) (one of the largest community-supported digital archives in the world)

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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 MCM'19 Congress:



Dr. Yuyuan Zhao
University of Liverpool, United Kingdom
Congress Chair



Dr. Huihe Qiu
Hong Kong University of Science & Technology, China
Congress Chair

Scientific Committee Members for HTFF'21

- Dr. Thomas Adams, Rose-Hulman Institute of Technology, USA
- Dr. Zeyad Alwahabi, University of Adelaide, Australia
- Dr. Jose Carlos Arcos Hernandez, Instituto Politecnico Nacional, Mexico
- Dr. Chamil Abeykoon, The University of Manchester, UK
- Dr. Jalel Azaiez, The University of Calgary, Canada
- Dr. Chang Kyoung Choi, Michigan Technological University, USA
- Dr. Frank Gerner, University of Cincinnati, USA
- Dr. Louis Gosselin, Université Laval, Canada
- Dr. Bella Gurevich, Shamoon College of Engineering, Israel
- Dr. Mohamed Hamed, McMaster University, Canada
- Dr. Iqbal Husain, Luther College-University of Regina, Canada
- Dr. Tomáš Hyhlík, Czech Technical University in Prague, Czech Republic
- Dr. Tassos G. Karayiannis, Brunel University, UK
- Dr. Fotini Labropulu, University of Regina, Canada
- Dr. Yang Liu, The Hong Kong Polytechnic University, Hong Kong
- Dr. Marco Marengo, University of Brighton, UK
- Dr. Omar K. Matar, Imperial College London, UK
- Dr. Artur Miros, Institute of Mechanised Construction and Rock Mining, Poland
- Dr. Marc Miscovic, Université Paul Sabatier, France
- Dr. Yulia Plaksina, Moscow State University, Russia
- Dr. Huihe Qiu, The Hong Kong University of Science & Technology, Hong Kong
- Dr. Subrata Roy, University of Florida, USA
- Dr. Ziad Saghir, Ryerson University, Canada
- Dr. Ahmet Selamet, The Ohio State University, USA
- Dr. Juan Pedro Solano, Polytechnic University of Cartagena, Spain
- Dr. Pavel Strizhak, National Research Tomsk Polytechnic University, Russia
- Dr. Aldo Tamburrino, University of Chile, Chile
- Dr. Liqiu Wang, University of Hong Kong, Hong Kong
- Dr. Yuwen Zhang, University of Missouri, USA

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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 MCM'19 Congress:

Scientific Committee Members for ICMIE'19

Dr. Alvaro Aguinaga, Escuela Politécnica Nacional, Ecuador
Dr. Carlos Avila, California Institute of Technology (Caltech), USA
Dr. Felix Chan, The Hong Kong Polytechnic University, Hong Kong
Dr. Satyandra Gupta, University of Southern California, USA
Dr. Aslan Deniz Karaođlan, University of Balikesir, Turkey
Dr. Youngbok Kim, Pukyong National University, Korea
Dr. Awadhesh Kumar, Malaviya National Institute of Technology, India
Dr. Monica Sharma, Malaviya National Institute of Technology, India
Dr. Marton Takacs, Budapest University of Technology and Economics, Hungary
Dr. Chih-Cheng Yang, Kao Yuan University, Taiwan
Dr. Jun Yang, University of Western Ontario, Canada
Dr. Dan Zhang, York University, Canada

Scientific Committee Members for MMME'19

Dr. Zdzislaw Adamczyk, Silesian University of Technology, Poland
Dr. Pura Alfonso, Escola Politècnica Superior d'Enginyeria de Manresa (EPSEM), Spain
Dr. Naci Emre Altun, Middle East Technical University, Turkey
Dr. Corby Anderson, Colorado School of Mines, USA
Dr. Marc Bascompta, Polytechnic University of Catalonia, Spain
Dr. Chris Bowen, University of Bath, UK
Dr. Tung-Han Chaung, National Taiwan University, Taiwan
Dr. Frank Cheng, University of Calgary, Canada
Dr. Ioanna Giannopoulou, National Technical University of Athens, Greece
Dr. Kim Ill-Soo, Mokpo National University, South Korea

SCIENTIFIC COMMITTEE

Scientific Committee Members for MMME'19

- Dr. Zi-Kui Liu**, The Pennsylvania State University, USA
- Dr. Pavel Lukáč**, Univerzita Karlova, Czech Republic
- Dr. Fernanda Margarido**, Instituto Superior Técnico, Portugal
- Dr. Paul Mayrhofer**, Technische Universiaet Wien, Austria
- Dr. Katarzyna Nowińska**, Silesian University of Technology, Poland
- Dr. Emmanuel De Moor**, Colorado School of Mines, USA
- Dr. Willie Nheta**, University of Johannesburg, South Africa
- Dr. Joohyun Park**, Hanyang University, South Korea
- Dr. Thawatchai Plookphol**, Prince of Songkla University, Thailand
- Dr. Andre Carlos Silva**, Universidade Federal de Goiás, Brazil
- Dr. Maria Sinche Gonzalez**, University of Oulu, Finland
- Dr. Hong Yong Sohn**, University of Utah, USA

Scientific Committee Members for ICCPE'19

- Dr. Farhang Abbasi**, Sahand University of Technology , Iran
- Dr. Marianna Halász**, Budapest University of Technology and Economics, Hungary
- Dr. Hendrik Heinz**, University of Colorado-Boulder, USA
- Dr. Amr Henni**, University of Regina, Canada
- Dr. Mohd Halim Shah Ismail**, Universiti Putra Malaysia, Malaysia
- Dr. Yung-Chih Kuo**, National Chung Cheng University, Taiwan
- Dr. Masami Okamoto**, Toyota Technological Institute, Japan
- Dr. Christian Paulik**, Johannes Kepler University Linz, Austria
- Dr. Behzad Pourabbas**, Sahand University of Technology, Iran
- Dr. Maria Soria Sanchez**, Institute of Material science of Barcelona (ICMAB), CSIC, Spain
- Dr. Dimitrios Sidoras**, University of Piraeus, Greece
- Dr. Mat Uzir Wahit**, Universiti Teknologi Malaysia, Malaysia

KEYNOTE SPEAKERS

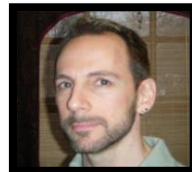
The keynote information for the 5th World Congress on Mechanical, Chemical, and Material Engineering (MCM'19) is as follows:

Keynote Speakers



Dr. Huihe Qiu

Hong Kong University of Science & Technology, Hong Kong
HTFF'19 Keynote Speaker



Dr. Thomas Adams

Rose-Hulman Institute of Technology, USA
HTFF'19 Keynote Speaker



Dr. Louis Gosselin

Université Laval, Canada
HTFF'19 Keynote Speaker



Dr. Michal Kazimierz Budzik

Aarhus University, Denmark
ICMIE'19 Keynote Speaker



Dr. Carlos Escobedo

Queens University, Canada
ICCPE'19 Keynote Speaker



Dr. Corby Anderson

Colorado School of Mines, USA
MMME'19 Keynote Speaker



Dr. Pura Alfonso

University of Barcelona, Spain
MMME'19 Keynote Speaker



Dr. Vincent Moraes

Institute of Materials Science and Technology, Austria
MMME'19 Keynote Speaker

KEYNOTE SPEAKERS



Titles: A Interfacial Dynamics and Heat Transfer of Microdroplets on Biphilic Micro/Nanostructured Surfaces
Dr. Huihe Qiu, Hong Kong University of Science & Technology

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Professor Huihe Qiu is currently Head of Department of Mechanical and Aerospace Engineering at The Hong Kong University of Science & Technology (HKUST) and Director of the Building Energy Research Center (BERC) of the HKUST Nansha Fok Ying Tung Graduate School. Professor Qiu received his Ph.D. degree from Institute of Fluid Mechanics, LSTM, at the University of Erlangen, Germany in 1994. Professor Qiu's research areas are in, multiphase flow and heat transfer, fluid dynamics, optical diagnostics, nano- and microfluids and flapping wing aerodynamics. Professor Qiu is Editor-in-Chief/Editor/Associate Editor of four international journals and a member of the editorial board for more than 10 international journals, such as the members of Editorial Advisory Board of Experiments in Fluids.



Titles: Microscale Thermal-Fluids: Still Plenty of Room at the Bottom
Dr. Thomas Adams, Rose-Hulman Institute of Technology, USA

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Thom Adams is currently Professor of Mechanical Engineering at Rose-Hulman Institute of Technology, USA. He earned his BS in Mechanical Engineering from Rose-Hulman Institute of Technology, and his MS and PhD in Mechanical Engineering from Georgia Institute of Technology. Having won multiple best paper awards for his work in technical research as well as engineering education, he is one of only a handful of faculty ever to have received both the Institute's Outstanding Scholar Award and Outstanding Teaching Award. His early work in single-phase and two-phase heat transfer in microchannels represents some of the seminal work in the field. He has since become a leading educator in the field of micro-electro-mechanical systems (MEMS) and has authored a first of its kind textbook on the subject aimed at an audience of undergraduate technical majors regardless of specific discipline.

KEYNOTE SPEAKERS



Titles: Role of Heat Transfer R&D Community in Addressing Interdisciplinary Energy Challenges

Dr. Louis Gosselin, Université Laval, Canada

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Louis Gosselin is currently a professor of mechanical engineering at Université Laval in Quebec City, Canada. He received his bachelor's degree in physics from Université de Sherbrooke (Canada) and his master's degree in chemical engineering from the same institution. He obtained his Ph.D. in mechanical engineering at Duke University (USA) in 2004. Professor Gosselin has been involved in a number of collaborative research projects with the industry on energy efficiency and energy management in buildings and in industrial processes. His research interests include the modeling and optimization of heat transfer and thermodynamics systems. Recently, he worked on geothermal energy, waste heat recovery, primary production of aluminum, smart control of thermal systems, advanced building envelopes, demand-side management, solid-liquid phase change, impact of humans on energy efficiency, thermal storage, and energy issues in the high north. From 2012 to 2019, he held the Chair in educational leadership on sustainable engineering at Université Laval. Louis Gosselin is a registered P. Eng. in the province of Québec.



Titles: Length scales of interfacial fracture toughness

Dr. Michal Kazimierz Budzik, Aarhus University, Denmark

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Michal K. Budzik received PhD degrees in Mechanical Engineering from Laboratory for Mechanics and Physics, University of Bordeaux (France) and in Materials Engineering from Materials Science Division, Gdansk University of Technology (Poland) - both awarded in 2010. He was a post-doctoral fellow at The National Centre for Science and Research (CNRS, France), The National Centre for Space Studies (CNES, France), and within a joint Danish Technical University Risø (DTU)/Aarhus University (AU) Innovation Fund (IFD) project in Denmark. At the present he holds an Associate Professor position at the Department of Engineering (ENG), Mechanical Engineering section (ME) of Aarhus University.

KEYNOTE SPEAKERS



Titles: The Selective Separation and Stabilization of Arsenic From Primary and Secondary Sources
Dr. Corby G. Anderson, Colorado School of Mines, USA

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Dr. Corby G. Anderson is a registered engineer with 39 years of global experience in industrial operations, management, engineering, design, consulting, teaching, research and professional service. He is a native of Butte, America. His career includes positions with Morton Thiokol, Key Tronic Corporation, Sunshine Mining and Refining Company, H. A Simons Ltd. and at CAMP-Montana Tech. He holds a BSc in Chemical Engineering from Montana State University and an MSc from Montana Tech in Metallurgical Engineering and PhD from the University of Idaho in Mining Engineering - Metallurgy. He is a Fellow of both the Institution of Chemical Engineers and of the Institute of Materials, Minerals and Mining. He shares 12 international patents and 5 new patent applications covering several innovative technologies, 2 of which were successfully reduced to industrial practice. He currently serves as the Harrison Western Professor in the Kroll Institute for Extractive Metallurgy as part of the George S. Ansell Department of Metallurgical and Materials Engineering at the Colorado School of Mines.



Titles: Valorization of Mining Wastes as Raw Materials to the Production of Glasses and Glass-Ceramics
Dr. Pura Alfonsom, University of Barcelona, Spain

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Pura Alfonso is doctor in Geology from the University of Barcelona. She is associate professor in The Department of Mining, Industrial and ICT Engineering at the Universitat Politècnica de Catalunya and Director of the Museum of Geology Valentí Masachs of this university. Her research interests are mainly in areas of geochemistry, environmental engineering and mineral processing and, with special emphasis on process mineralogy. She has a wealth experience in research of critical materials, specially indium and tantalum. She participated in the Optimore European project (Increasing yield on Tungsten and Tantalum ore production). She is editorial board of member of the journal Minerals and editor of two special issues, one on process mineralogy of critical materials and the other about Mineral Liberation

KEYNOTE SPEAKERS

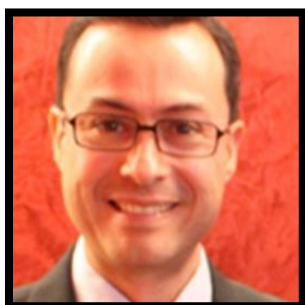


Titles: Transition Metal Diborides: Combining Computational And Experimental Materials Science
Dr. Vincent Moraes, University of Barcelona, Spain

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Vincent Moraes currently holds a University position at the Department of Material Science and Technology at the Faculty of Mechanical and Industrial Engineering, TU Wien. After finishing his BSc Degree in technical chemistry (focusing on cathode materials for Solid Oxide Fuel Cells), he completed his Master of Science in Materials Technology and Materials Analytics in 2015 (focusing on thermal conductivity of ceramic thin films). Within the framework of the Christian Doppler Laboratory for Application Oriented Coating Development, he received his PhD in Mechanical Engineering with the thesis entitled “Ab initio guided design of boride-based coatings” in 2018. Therefore, he was awarded with the Gold Medal Student Award at the International Conference on Metallurgical Coatings and Thin Films in San Diego. Since spring 2019 he is intensifying his knowledge on different Ion-beam based material characterization techniques at the Tandem Laboratories located at Uppsala University, Sweden.



Titles: Ultrasensitive Detection of Water Contaminants, Biomarkers and illegal Drugs Using Active 3D Metallic Nanostructures

Dr. Carlos Escobedo, University of Colorado-Boulder, USA

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Carlos Escobedo joins Queen’s University in 2013 as an Assistant Professor of Chemical Engineering. He received a B.Sc. from the National University of Mexico, MSc from University of Toronto, and PhD from University of Victoria, and was an NSERC postdoctoral fellow in the Bioengineering Laboratory at ETH Zürich, Switzerland. Carlos has published papers in different scientific journals related to micro- and nanotechnology, including Lab-on-a-Chip, Analytical Chemistry, Nature Communications, Small and Nano Letters, some of them featured in Optics and Photonics News, Nanowerk and Nature Photonics. He received the prestigious Early Researcher Award and the TD Most Influential Hispanic Canadian Award in 2018, and serves as Technical Chair for MEMS and Nanotechnology in the Canadian Society for Mechanical Engineering.

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Mineral Processing

[Microwave Assisted Chloride Leaching of Zinc Plant Residues](#)

Authors: Thomas Abo Atia, Jeroen Spooren

[Controlling Calcium Sulphate Scale Formation In Acid Mine Waters](#)

Authors: Max Fazel, Stephen Chesters, Gregory Gibson

[Cleaning Calcium Sulfate in Mine Water Membranes](#)

Authors: Gregory Gibson, Max Fazel, Stephen Chesters

[Marble Wastes as a Calcareous Sorbent for SO₂ Control in Thermal Power Plants](#)

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[Quantification of the Effect of Circumferential Repeated 3D Features on Radial Displacement of a Compressor Casing Focusing Model Simplification: Part I](#)

Authors: Tobias Schmidt, Volker Gümmer, Marco Konle

[Buckling of Mechanically Coupled Microbeam Resonators](#)

Authors: Bashar Hammad, Ali Nayfeh

[Improving CAD/CAM Process Chains in Forging Industries in the Era of Digitalization Based On a Case Study](#)

Authors: Juan Calejero Martinez, Markus Brillinger, Johannes Schmid

[A Study on the Bead Geometry with Offset based Image Processing Algorithm](#)

Authors: Gang Zhang, Tae-Jong Yun, Won-Bin Oh, Bo-Ram Lee, Byeol Lim, Ill-Soo Kim

[Study of Micro Cantilever Beam Sizes Effect on Pull-In Voltage](#)

Authors: Meng-Ju Lin, Wei Jing Chiu

[Novel Techniques for Saving Energy Consumption in Air Conditioning Systems](#)

Authors: Amal El Berry

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[How to Attain Regenerator Effectiveness Greater Than 50% in Stirling Engines](#)

Authors: Anders Nielsen, Brayden York, Brendan MacDonald

[Innovative Solution for Harvesting Energy in Marine Vessels](#)

Authors: George Nerubenko, Dmytriy Gurevych

Industrial Engineering

[How to Attain Regenerator Effectiveness Greater Than 50% in Stirling Engines](#)

Authors: Anders Nielsen, Brayden York, Brendan MacDonald

[Innovative Solution for Harvesting Energy in Marine Vessels](#)

Authors: George Nerubenko, Dmytriy Gurevych

Heat Transfer Enhancement

[Boiling Heat Transfer Enhancement Using Engineered Surfaces](#)

Authors: Gurpyar Dhadha, Mohamed Hamed, Philip Koshy

[Heat Transfer Enhancement In a Cylindrical Finned Heat Exchanger: Superior Blocks Positions](#)

Authors: Sara Touzani, Abdelkhalek Cheddadi, Mohammed Touhami Ouazzani

[Effects of Electric Field on Interfacial Thermal Resistance Between Silicon and Water at Nanoscales](#)

Authors: Onur Yenigun, Murat Barisik

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Multiphase Flow and Heat Transfer

Numerical Simulation on Breakup of Droplets from Vibrating Liquid Films

Authors: Yusuke Ohta, Suguru Shiratori, Itsuhei Kohri, Susumu Degawa, Koichi Nishibe, Akemi Ito, Nishimura Akinori, Hideaki Nagano, Kenjiro Shimano

On the Double Peak Structure of Thermosyphon Geysering

Authors: Agnieszka Kujawska, Bartosz Zajackowski, Matthias H. Buschmann

Modeling of Heat Transfers during Dropwise Condensation: Analyses of the Influential Parameters

Authors: Jeremie Lethuillier, Marc Miscevic, Pascal Lavieille

An Investigation of Condensation Heat Transfer of Dowtherm-A in Polymer Solidification

Authors: Bora Yazgan, Erdem Gorgun, Mert Patkavak Murat Gokten

Modeling of Liquid Droplet Impingement onto Ti-6Al-4V Substrate

Authors: Mason Marzbali, Ali Dolatabadi

High-speed Droplet Impingement in Compressible Regime

Authors: Mason Marzbali, Ali Dolatabadi

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[Application of a Wet Resonance Grille in a Ventilating Shaft and a Model for Calculating the Efficiency of Dust Removal](#)

Authors: Haiqiao Wang, Fangxing Chen, Shiqiang Chen

[Simulation of Gas Emission Rate on Spontaneous Combustion Zone in Gob](#)

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[NMR Study on Microscopic Pore Characteristics of Coals of Different Coal Ranks](#)

Authors: Liu Jiajia, Gao Jianliang, Yang Ming

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Impact of a Non-Phthalate Based Internal Donor on the Polymerization Behaviour of a Novel Ziegler - Natta Catalyst

Authors: Jingbo Wang, Markus Gahleitner, Peter Denifl, Pauli Leskinen, Johanna Lilja

Novel Ternary Polymer Blend Membranes Doped with SO₄/PO₄-TiO₂ for Low Temperature Fuel Cells

Authors: Marwa Gouda, Wilson Gouveia, Mónica Afonso, Biljana Šljukić, Noha El Essawy, Diogo Santos

Development of Bio-Based Chitosan Films with Incorporated Chestnut Extract

Authors: Marijan Bajić, Uroš Novak, Blaž Likozar

Effect of Ligands in MMA AGET ATRP in 2L Stirred Tank Emulsion Reactor

Authors: Mohammed Awad, Thomas Duever, Ramdhane Dhib

The Role of Deep Eutectic Solvents and Flavonoids in Chitosan Films Properties

Authors: Ewelina Jakubowska, Jacek Nowaczyk, Magdalena Gierszewska, Ewa Olewnik-Kruszkowska, Agnieszka Richert

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Experimental Fluid and Heat Transfer

Investigation of Thermal Stability of Non-Newtonian Melt Flows

Authors: Chamil Abeykoon, Adrian L. Kelly, Arthur Wilkinson

Fast Energy Transport in Droplet Evaporation

Authors: Long Li, Wenyuan Xie, Guang Zhang

Flow Boiling Pressure Drop Characteristics in a Rectangular Metallic Microchannel

Authors: Mehmed Rafet Özdemir, Mohamed M. Mahmoud, Tassos G. Karayiannis

Characteristics of Geladart-B Particles in Fluidized Beds

Authors: Li Dai, Zhulin Yuan

Experimental Evaluation of a Heat Transport System for a High-Temperature Storage Unit

Authors: Tim Lanz, Veronika Jilg, Werner Kraft, Peter Vetter, Benedikt Sebastian Volk

Influence of Cross-Sectional Area Ratio between Shaft and Tunnel and Heat Release Rate on the Plug-Holing Phenomenon in Natural Ventilated Tunnel Fire

Authors: Ki Bea Hong, Junyoung Na, Hong Sun Ryou

Experiments and Modeling of Thermal Quenching in a Pilot Scale Delayed Coker

Authors: Keith Wisecarver

Testing of Polymeric Hollow Fibre Heat Exchanger with Crossed Hollow Fibres

Authors: Erik Bartuli, Tereza Kroulikova

Experimental Study on Emulsion Formation in Buoyancy-Driven Microfluidics Devices

Authors: Yingying Chen, Cheng Yu, Xiangdong Liu, Liangyu Wu

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Experimental Fluid and Heat Transfer

Experimental Study on Self-propelled Motion of Leidenfrost Droplets

Authors: Cuiping Xu, Jiayu Zhang, Fan Zhang, Chengbin Zhang

Natural Convection Heat Transfer between Multiple-Vertical Cylinders

Authors: Tetsuya Teramoto, Takehiko Yokomine, Zensaku Kawara

A Study on Heat Transfer Performance Characteristics of a Binary Refrigerant Mixture

Authors: DongChan Lee, ChangUk Jo, Yongchan Kim

Additive Technologies for Heat Transfer Enhancement

Authors: Vyacheslav Cheverda, Karapet Eloyan, Fedor Ronshin

Experimental Study of Flow Boiling Using R134a in Multi Microchannels

Authors: Rand Al-Janabi, Francesco Coletti, Mohamed Mahmoud, Tassos Karayiannis

Liquid Rise in Uniform Screens under Normal Gravity and Microgravity Conditions

Authors: Weng Ning, Qinggong Wang, Wei Yao, Rong Ma, Yuying Wang, Jingdong Li

Effect of Leading Edge Pressure on the Flow Structures in the Flat Plate Boundary Layer under High Level of Freestream Disturbances

Authors: Yasar Arafath Udhuman, Alakesh Chandra Mandal

Optical and Thermal Techniques for Analyzing Evaporation of Methanol Sessile Droplet

Authors: Rafik Lankri, Mahfoudh Cerdoun, Salah Chikh, Mabrouk Ait Saada, Lounes Tadrst

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Electrochemistry and Electrochemical Engineering

Production and Characterization of Metal Oxide Loaded Reduced Graphene Oxide Nanocomposites

Authors: Şeyma Dombaycıoğlu, Hilal Köse, Hatem Akbulut Ali, Osman Aydın

Free-Standing S-CNT-rGO Nanocomposite Paper Cathodes for Li-S Batteries

Authors: Büşra Şahin, Hilal Köse, Şeyma Dombaycıoğlu, Ali Osman Aydın

Molecular Dynamic Simulations (MDS)

Molecular Dynamics Study of the Thermal Conductivity of Graphene Coated Copper

Authors: Kasim Toprak, Gizem Ersavas

Stokes-Einstein-Debye Relation: A Check of Validity for Proteins in Nanoconfinements

Authors: Navaneeth Haridasan, Sridhar Kumar Kannam, Santosh Mogurampelly, Sarith P Sathian

Effect of Uniaxial Strain on Thermal Conductivity of Graphene

Authors: Dheeraj Kavuri Venkata Sai, Sridhar Kumar Kannam, Sarith P Sathian

The Effect of Water Models on Desalination Through Graphene Nanopores

Authors: Vishnu Prasad Kurupath, Sridhar Kumar Kannam, Remco Hartkamp, Sarith Plasseril Sathian

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Numerical Fluid Flow, Heat and Mass Transfer

Natural Convection from Locally Heated Horizontal Rectangular Plate-Fin Heat Sinks

Authors: Shwin-Chung Wong, Yi-Cheng Lin, Hong-Jyun Liou

Numerical Simulation of Aqueous Flow in Laser Iridotomy

Authors: Bin Chen, Yibo Zhao, Dong Li

Investigation of the Solid-Liquid Phase Change in the Presence of Gas Phase: Numerical Modeling and Validation

Authors: Ravi Govindram Kewalramani, Sebastian Pose, Ingo Riehl, Tobias Fieback

Numerical Study of Influence of Fluid Distribution over Heat Storage into Porous Media

Authors: Grégoire Bellenot, Fabrice Bentivoglio, Philippe Marty

Numerical Modeling of Heat and Water Transport with Heat Exchange in Unsaturated-Saturated Porous Media Including Heat Influence on Flow

Authors: Jozef Kačur, Patrik Mihala

A Numerical Study On The Performance And Energy Efficiency Improvement Opportunity Of Transport Refrigeration Vehicles In Bangladesh

Authors: Md Mehran Islam, Asif Kabir, Arnab Mustafi Arka, Md Ashiqur Rahman

Effectiveness Of Air Curtains As Thermal And Smoke Barrier Against High Gradients Of Flow Parameters

Authors: Md Arif Mahmud Shoshe, Md Ashiqur Rahman

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Finned Space Radiator Performance Analysis Using Computational Methods

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Prediction for Heat Loss in Reheating Furnace Due To Partition Wall Installed At Soaking Zone

Authors: Seungjin Lee, Seongkyu See

Preliminary Design of Axial Flow Turbine for a Small Jet Engine

Authors: Ana Adalgiza Garcia Maia, Janaina Ferreira da Silva, Jesuíno Takachi Tomita, Cleverson Brighenti

Applying a Preconditioning Technique to the Euler Equations to Accelerate the Convergence Rate for Low-Speed Flows

Authors: Ana Adalgiza Garcia Maia, Janaina Ferreira da Silva, Jesuíno Takachi Tomita, Cleverson Brighenti

The Influence of Surface Deformation on Thermocapillary Flow Instabilities in Low Prandtl Melting Pools with Surfactants

Authors: Amin Ebrahimi, Ian M. Richardson, Chris R. Kleijn

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Heat Exchangers, Other Heat Transfer Devices

Improving Greenhouse Insulation through Multilayer Thermal Screens Using the Hot Box Method

Authors: Helena Vitoshkin, Avraham Arbel, Vitaly Haslavsky

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Authors: Tereza Brozova, Tereza Kroulikova

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