PROGRAM

8th International Symposium on
ADVANCES IN COMPUTATIONAL HEAT TRANSFER – CHT-21
August 15 – 19, 2021
PROMOTED BY:

ICHMT

SPONSORED BY:

ABGM

ASTFE - American Society of Thermal and Fluids Engineers

Engenharia Mecânica - COPPE - UFRJ

CNPq - Conselho Nacional de Desenvolvimento Científico e Tecnológico

Begell House, Inc. Publishers

Springer Nature
# PROGRAM AT A GLANCE

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<td>9:00-10:00</td>
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<td>10:00-11:00</td>
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<td>12:00-13:00</td>
<td>PL1</td>
<td>SC-CFD</td>
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<td>13:00-14:00</td>
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<td>15:00-16:00</td>
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<td>Closing and Awards Ceremony</td>
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<td>Institution</td>
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<td>August 15</td>
<td>12:00-13:00</td>
<td>PL1</td>
<td>Past, present and future of CFD</td>
<td>Akshai K. Runchal &amp; Madhukar M. Rao</td>
<td>CFD Virtual Reality Institute</td>
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<td>August 16</td>
<td>10:00-11:00</td>
<td>PL2</td>
<td>Advances in experimental and computational analysis of the neonate’s brain cooling process</td>
<td>Andrzej Nowak</td>
<td>Silesian University of Technology, Poland</td>
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<td>August 16</td>
<td>11:00-12:00</td>
<td>PL3</td>
<td>Pore scale analysis of thermal and fluid dynamics behaviors in open metal foams</td>
<td>Oronzio Manca</td>
<td>Università degli Studi della Campania “Luigi Vanvitelli”, Italy</td>
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<td>August 16</td>
<td>13:00-14:00</td>
<td>PL4</td>
<td>Modeling of liquid metal flows during assembly operations and characterization of the properties of these metals at high temperatures</td>
<td>Philippe Le Masson</td>
<td>Université Bretagne Sud, France</td>
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<td>August 17</td>
<td>10:00-11:00</td>
<td>PL5</td>
<td>Computational methods of design and identification of thermal protection of spacecraft</td>
<td>Aleksey Nenarokomov</td>
<td>Moscow Aviation Institute, Russia</td>
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<td>August 17</td>
<td>11:00-12:00</td>
<td>PL6</td>
<td>Cost-effective approaches to predictions of thermo-fluid phenomena in engineering systems</td>
<td>Bantwal R. (Rabi) Baliga</td>
<td>McGill University, Canada</td>
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<td>August 17</td>
<td>13:00-14:00</td>
<td>PL7</td>
<td>Inverse methods in heat transfer through modelling and machine learning</td>
<td>Perumal Nithiarasu</td>
<td>Swansea University Bay Campus, Swansea SA1 8EN, UK</td>
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<td>August 18</td>
<td>10:00-11:00</td>
<td>PL8</td>
<td>Direct numerical simulations of heat transfer from a cylinder immersed in the production and decay regions of grid turbulence</td>
<td>George Papadakis</td>
<td>Imperial College London, UK</td>
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<td>August 18</td>
<td>11:00-12:00</td>
<td>PL9</td>
<td>Minimization procedures for thermal parameters identification from the experiment to the physical model</td>
<td>Jean-Luc Battaglia</td>
<td>Université Bordeaux 1, France</td>
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<td>August 18</td>
<td>13:00-14:00</td>
<td>PL10</td>
<td>Lattice Boltzmann method for multi-phase flows</td>
<td>Abdulmajeed Mohamad</td>
<td>The University of Calgary, Canada</td>
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<td>August 19</td>
<td>10:00-11:00</td>
<td>PL11</td>
<td>Nonlinear computation: future of numerical simulation</td>
<td>L. Q. “Rick” Wang</td>
<td>The University of Hong Kong, Hong Kong</td>
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<td>August 19</td>
<td>11:00-12:00</td>
<td>PL12</td>
<td>Growth and dynamics of vapor bubbles in various regimes of boiling with and without external electric field</td>
<td>Gautam Biswas</td>
<td>Indian Institute of Technology Kanpur, India</td>
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<td>August 19</td>
<td>13:00-14:00</td>
<td>PL13</td>
<td>Mutual interactions of evaporative heat transfer phenomena and wetting phenomena: numerical simulation and experimental validation</td>
<td>Peter Stephan</td>
<td>Technische Universität Darmstadt, Germany</td>
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**SHORT COURSE - ROOM COPACABANA**

August 16 - 19  
12:00-13:00 and 14:00-15:00  
SC-CFD  
Introduction to Modern CFD  
Akshai Kumar Runchal

**WORKSHOP - ROOM MARACANÁ**

August 18 - 19  
8:00-9:00  
WP  
Publishing your Research  
Swati Meherishi

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August 15, Sunday

Room MARACANÃ

11:00-12:00  Opening Ceremony

12:00-13:00  Plenary Lecture PL1: Past, present and future of CFD, Akshai K. Runchal

13:00-15:00  Sessions in honor of Brian Spalding


CHT-21-BS-102  Computational-analytical integral transforms in transport phenomena, by Renato Machado Cotta

CHT-21-BS-103  Direct numerical simulation of evaporating falling films in laminar gas streams, by Avijit Karmakar and Sumanta Acharya

CHT-21-BS-104  Recent developments in modelling of polymer electrolyte cells, by Steven Beale, Shidong Zhang, Steffen Hess, Uwe Reimer, Norbert Weber, Holger Marschall and Werner Lehner

CHT-21-BS-105  Examples of computational fluid dynamics models for nuclear industry applications, by Milorad Dzodzo
**August 16, Monday**

**Room MARACANÃ**

10:00-11:00  **Plenary Lecture PL2**: Advances in experimental and computational analysis of the neonate’s brain cooling process, *Andrzej Nowak*

11:00-12:00  **Plenary Lecture PL3**: Pore scale analysis of thermal and fluid dynamics behaviors in open metal foams, *Oronzio Manca*

13:00-14:00  **Plenary Lecture PL4**: Modeling of liquid metal flows during assembly operations and characterization of the properties of these metals at high temperatures, *Philippe Le Masson*

**Room COPACABANA**

12:00-13:00  **Short Course SC-CFD**: Introduction to Modern CFD – Lesson 1, *Akshai Kumar Runchal*

14:00-15:00  **Short Course SC-CFD**: Introduction to Modern CFD – Lesson 2, *Akshai Kumar Runchal*

**Room IPANEMA**

9:00-10:00  **Technical Session BIOLOGICAL HEAT TRANSFER**

**CHT-21-144**  Design under uncertainties of the thermal ablation of tumors with high-intensity focused ultrasound, *Rodrigo L. S. Silva, Mohsen Alaeian and Helcio R. B. Orlande*

**CHT-21-145**  Thermal transport within porous biological tissue for thermal therapeutics, *Amit Kumar Shaw and Sanjeev Soni*

**CHT-21-161**  Numerical analysis of radiofrequency ablation in a tumour tissue bounded by healthy tissue, *Claudio Tucci, Macarena Trujillo, Enrique Berjano, Marcello Iasiello, Assunta Andreozzi and Giuseppe Peter Vanoli*

**CHT-21-163**  A concise and accurate solution for radiative transfer problems relevant in hyperthermia models, *Fernando Groff, Liliane Basso Barichello and Esequia Sauter*

**CHT-21-282**  Finite difference solution of bio-magnetic flow of heat transfer over moving horizontal plate by the presence variable viscosity and temperature, *Sadia Anjum Jumana, M. Ferdows and E.E. Tzirtzilaki*

15:00-16:00  **Technical Session SINGLE AND MULTIPHASE FLOW**

**CHT-21-102**  Flow and heat transfer inside a rotating annular space, *Ahmed M. Teamah and Mohamed S. Hamed*

The adaptive PLIC-VOF method in cavitating flow simulations, by Dezhi Dai and Albert Y. Tong

Particle-laden multiphase flows: a finite element analysis on biofuel particle emissions, by Joao P. I. Souza and Gustavo R. Anjos

Numerical investigation of cavitating flow in a horizontal converging-diverging nozzle, by Mohammed Zamou, Rachid Boucetta and Mohand Kessal

Room LEBLON

9:00-10:00 Technical Session INTERNAL FLOW AND HEAT TRANSFER

Transient three-dimensional conjugated heat transfer with integral transforms and single domain formulation, by Adam H. R. Sousa, Kleber M. Lisboa, Carolina P. Naveira-Cotta and Renato M. Cotta

Numerical analysis of a MHD generator with helical geometry, by Tomas S. Quirino, Gabriel L. Veríssimo and Marcelo J. Colaço

Decoupled mesh method for finite element simulation of two-phase systems, by Daniel B. V. Santos and Gustavo R. Anjos

Laminar flow heat transfer through a square duct with combined transverse ribs and helical screw tape inserts, by Hrishiraj Ranjan and Sujoy Kumar Saha

Overheating in compressible heat transfer near the thermodynamic critical point due to non-normality, by Luiz Ricardo C. de Almeida and Leonardo S. de B. Alves

Heat transfer performance of a supercritical CO₂ based microchannels recuperator including thermal buoyancy, by Janhavi Chitale and George S. Dulikravich

15:00-16:00 Technical Session RADIATION

An improved solution for shielding of thermal radiation of fires using mist curtains of pure water or sea water, by Leonid A. Dombrovsky and Siaka Dembele

The \( \omega \)-absorption line distribution function for rank correlated SLW model prediction of radiative transfer in non-uniform gases, by Frédéric André, Vladimir P. Solovjov and Brent W. Webb

Enhancement of the RC-SLW model for prediction of gas radiation in non-uniform media, by Brent W. Webb, Vladimir P. Solovjov and Frédéric André

Study of radiative heat transfer in nucleate boiling under microgravity conditions, by M. Naarendharan and Ankit Bansa

Optical properties and thermal conductivity of heat-insulating material based on mesoporous silica with various thermal radiation absorbers, by Roman A. Mironov, Olga V. Tomchani, Viktoria O. Guydenko and Maxim O. Zabezhalov

Room URCA

9:00-10:00  Technical Session INVERSE PROBLEMS 1

CHT-21-117  Critical assessment of the moisture distribution in existing building walls, by Ainagul Jumabekova, Julien Berger, Rafik Belarbi and Jean-Claude Krapez

CHT-21-125  Heat transfer characteristics and effective thermal conductivity for ceramic matrix composites, by Anshul Suri and Ankit Bansal

CHT-21-138  Numerical solving of geometry-radiative inverse problem, by Aleksey V. Nenarokomov, Evgeny V. Chebakov and Dmitry L. Reviznikov

CHT-21-158  Identification of impulse responses in heat transfer: Dirac comb parameterization, cumulated doses and partial time moments, by Denis Maillet and Benjamin Rémy

CHT-21-210  An inverse analysis of the brain cooling process in neonates using the particle filter method, by Felipe S. Nunes, Helcio R. B. Orlande and Andrzej J. Nowak

CHT-21-223  Modeling and identification of mathematical model of high-temperature superconducting coil, by Oleg M. Alifanov, Aleksey V. Nenarokov, Aleksey G. Vikulov, Alena V. Morzhukhina, Sergey A. Budnik and Vladislav V. Ilyin

15:00-16:00  Technical Session INVERSE PROBLEMS 2

CHT-21-131  Particle filter-model predictive control for oil reservoir management, by Carlos Eduardo Rambalducci Dalla, Tarsis Baia Fortunato, Julio Cesar Sampaio Dutra, Wellington Betencurte da Silva, Jose Mir Justino da Costa and Marcelo Jose Colaço

CHT-21-168  Estimation of thermal contact conductance on irregular interfaces using the reciprocity functional approach, by Guilherme C. de Freitas and Marcelo J. Colaço

CHT-21-175  Heat transfer dissipation estimation in extrusion processes, by Carlos E. L. Nóbrega

CHT-21-228  A particle-filter based framework for inverse problems using ANSYS Fluent and Python, by Bruno Henrique Marques Margotto, Carlos Eduardo Polatschek Kopperschmidt, Marcelo José Colaço, Wellington Betencurte da Silva, Julio Cesar Sampaio Dutra and Luiz A. Silva de Abreu

CHT-21-242  Sequential boundary heat flux estimation using the method of Fundamental Solutions and Bayesian filters, by Carlos Eduardo Polatschek Kopperschmidt, Bruno Henrique Marques Margotto, Carlos Eduardo Rambalducci Dalla, Marcelo Jose Colaço, Wellington Betencurte da Silva and Julio C. Sampaio Dutra

CHT-21-266  Inverse heat transfer problem for the characterization of a palladium nanofluid, by Nilton P. Silva, Cláudia C. R. Cruz, Henrique M. Fonseca, Leonardo A. B. Varon, Claudio L. Cesar, Dilson S. Dos Santos and Helcio R. B. Orlande
August 17, Tuesday

Room MARACANÃ

10:00-11:00  Plenary Lecture PL5: Computational methods of design and identification of thermal protection of spacecraft, Aleksey Nenarokomov

11:00-12:00 Plenary Lecture PL6: Cost-effective approaches to predictions of thermofluid phenomena in engineering systems, Bantwal R. (Rabi) Baliga

13:00-14:00 Plenary Lecture PL7: Inverse methods in heat transfer through modelling and machine learning, Perumal Nithiarasu

Room COPACABANA

12:00-13:00 Short Course SC-CFD: Introduction to Modern CFD – Lesson 3, Akshai Kumar Runchal

14:00-15:00 Short Course SC-CFD: Introduction to Modern CFD – Lesson 4, Akshai Kumar Runchal

Room IPANEMA

9:00-10:00 Technical Session MICRO AND NANOSCALE HEAT TRANSFER

CHT-21-124 Metal-insulator-metal selective emitter design with an emissivity matching with GaSb thermophotovoltaic cell, by Eslem Enis Atak, Elif Begüm Elcioğlu and Tuba Okutucu-Özyurt

CHT-21-127 Spectral analysis on heat transfer between liquid and structured surface based on molecular dynamics, by Kunio Fujiwara, Shogo Nakata and Masahiko Shibahara

CHT-21-130 Thermal performances of cross-flow microchannel heat sinks, by Carlo Nonino and Stefano Savino

CHT-21-135 Molecular dynamic study of local interfacial thermal resistance of solid-liquid and solid-solid interfaces: water and nanotextured surface, by Yoshitaka Ueki, Satoshi Matsuo and Masahiko Shibahara

CHT-21-196 Heat transfer enhancement in a two-phase immiscible flow in microchannel, by V. C. Teixeira, A. G. B. da Cruz, G. M. Guerra and F. P. Duda

CHT-21-219 Molecular dynamics study on interactions between wall surface and solidification interface of water molecules, by Uchida Shota, Kunio Fujiwara and Masahiko Shibahara

15:00-16:00 Technical Sessions SOLIDIFICATION AND MELTING and MATERIALS PROCESSING AND MANUFACTURING

CHT-21-101 A study of the melting of n-octadecane in horizontal cylindrical annuli: onset of convection and global melting, by Mohammad Azad and Dominic Groulx
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<td>Numerical analysis of explosive solidification under the effect of different boundary conditions</td>
<td>Çiğdem Susantez, Bruna R. Loiola and Aldélio B. Caldeira</td>
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<td>CHT-21-167</td>
<td>Optimized design of phase change packed beds</td>
<td>Carlos E.L. Nobrega and Sérgio L. Braga</td>
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<td>CHT-21-195</td>
<td>Experimental and numerical study of the effect of composition on GaN thin films grown by deposition</td>
<td>Omar Dhannoon Jumaah and Yogesh Jaluria</td>
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<td>CHT-21-240</td>
<td>Numerical study of latent heat thermal energy storage based on an innovative hexagonal heat exchanger: Performance evaluation</td>
<td>Imad Ait Laasri, Zakaria Elmaazouzi, Abdelkader Outzourhit, Mustapha El Alami and El Ghali Bennouna</td>
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<td>CHT-21-249</td>
<td>Dynamic GMAW process model for layer geometry control in wire arc additive manufacturing</td>
<td>Rafael M. Bendia, Fernando Lizarralde, Augusto V. Passos and Victor H.P.M. Oliveira</td>
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Room LEBLON

9:00-10:00 Technical Session COMPUTATIONAL METHODS 1

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<td>Asymptotic properties of the radiation deep in an atmosphere</td>
<td>Menekse Senyigit and Ayse Kaskas</td>
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<td>CHT-21-118</td>
<td>Real-time estimation of the heat transfer coefficient of Pitot Tubes undergoing freezing</td>
<td>Steve B. Diniz and Cesar C. Pacheco</td>
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<td>CHT-21-229</td>
<td>Systems based CFD modelling of package steam boilers</td>
<td>Peter Klein, Marinus Potgieter and Bianca Ferreira</td>
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<td>CHT-21-232</td>
<td>CHT modeling of an electronics cabinet using multi-scale meshing</td>
<td>Ilker Tari and Yanki Cobanoglu</td>
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<td>CHT-21-274</td>
<td>Development and verification of meshless diffuse approximate method for simulation of single phase, compressible flow in axisymmetry</td>
<td>Khush Bakhat Rana, Rizwan Zahoor, Boštjan Mavrič and Božidar Šarler</td>
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15:00-16:00 Technical Session COMPUTATIONAL METHODS 2

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<td>CHT-21-154</td>
<td>Approximate semi-analytical method for solving of diffusion problems with variable properties</td>
<td>Isabela Florindo Pinheiro and Leandro Alcoforado Sphaier</td>
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<td>CHT-21-179</td>
<td>A comparison of two approaches to extend nodal integral methods for heat and mass transfer to arbitrary geometries</td>
<td>Ibrahim Jarrah, Sundar Namala and Rizwan-uddin</td>
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<td>CHT-21-181</td>
<td>CFD analysis of the thermal performance of a Trombe wall system</td>
<td>Aref Laribi, Yacine Ait-Oumeziane, Valérie Lepiller, Sylvie Begotand Philippe Desevaux</td>
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<td>CHT-21-183</td>
<td>Numerical studies on underexpanded jet flows using commercial and open source CFD packages</td>
<td>Jonathan Ribeiro Martins, João Victor Barbosa, Luiz Fernando Lopes Rodrigues Silva, Fabio Pereira dos Santos</td>
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Al-Machine learning algorithms for the simulation of combustion thermal analysis, by Arunim Bhattacharya and Pradip Majumdar


Room URCA

9:00-10:00 Technical Session NATURAL CONVECTION 1

Computational modeling of magnetoconvection in a lately heated cube, by Alexander Gelfgat and Oleg Zikanov

Onset of low-frequency shear-driven instability in differentially heated cavities, by Krishna R. Maryada and Stuart E. Norris

Computational study of natural convection flow in an open-ended channel coupled with a room: application to building-integrated photovoltaic (BIPV) systems, by S. Tkachenko, H. Ahmadi Moghaddam, J. Reizes, R. Raja, C. Menezo, S. Giroux-Julien and V. Timchenko

Thermal and fluid dynamic behaviors of a slightly horizontal ventilated roof under variable climatic condition, by Bernardo Buonomo, Lucia Capasso, Oronzio Manca and Sergio Nardini

Numerical comparison of three different pin fin heat sink orientations, by Eyub Canli, Mukaddes Ozdemir and Ahmet Ali Sertkaya

15:00-16:00 Technical Sessions NATURAL CONVECTION 2 and COMBUSTION

Soot prediction in flames using a data-based machine learning approach, by Joseph N. Squeo and Xinyu Zhao

Numerical study of natural convective heat transfer from a horizontal two-dimensional two-sided plate having either a central gap or an adiabatic center section, by Santiago del Rio Oliveira and Patrick H. Oosthuizen

A computational study on hydrous ethanol flame development in a spark ignition engine, by Fabiano Alves dos Santos and Albino José Kalab Leiroz

RANS based numerical simulations of turbulent diffusion flame using OpenFOAM®, by Amit Makhija and Krishna Sessa Giri

Modeling of conjugate heat transfer within thermal barrier coatings for combustion environments, by Nicolas Tricard and Xinyu Zhao

Convergence analysis of steady-state natural convection in an annular cavity filled with porous medium and heated by the inner wall, by Beatriz Machado dos Santos, Ludimila Silva Salles de Sá and Jian Su
Room MARACANÃ

8:00-9:00 Workshop WP: Publishing your Research, *Swati Meherishi*

10:00-11:00 Plenary Lecture PL8: Direct numerical simulations of heat transfer from a cylinder immersed in the production and decay regions of grid turbulence, *George Papadakis*

11:00-12:00 Plenary Lecture PL9: Minimization procedures for thermal parameters identification from the experiment to the physical model, *Jean-Luc Battaglia*

13:00-14:00 Plenary Lecture PL10: Lattice Boltzmann method for multi-phase flows, *Abdulmajeed Mohamad*

Room COPACABANA

12:00-13:00 Short Course SC-CFD: Introduction to Modern CFD – Lesson 5, *Akshai Kumar Runchal*

14:00-15:00 Short Course SC-CFD: Introduction to Modern CFD – Lesson 6, *Akshai Kumar Runchal*

Room IPANEMA

9:00-10:00 Technical Session FORCED CONVECTION

CHT-21-114 Convective heat transfer in open-cell foams: the effects of porosity and velocity on representative volume element size, *by Marcello Iasiello, Assunta Andreozzi, Nicola Bianco, Wilson K. S. Chiu and Vincenzo Naso*

CHT-21-115 Numerical simulation of Al₂O₃-isopropanol nanofluid flows in a tube of circular cross-section, *by Pedro Romão and Pedro J. Coelho*

CHT-21-226 Effect of various deposition configurations on film cooling characteristics of laidback fan shape hole, *by Ashutosh Kumar Singh, Dushyant Singh and Niranjan Sahoo*

CHT-21-270 Viscoelastic fluid and Dean flow effects on flow and heat transfer characteristics of serpentine channel, *by Kazuya Tatsumi, Yousuke Tanaka, Reiko Kuriyama and Kazuyoshi Nakabe*

CHT-21-281 Impulsion of space and temperature dependent internal heat generation/absorption on MHD boundary layer slip flow of a nanofluid over a moving plate with induced magnetic field, *by Shahina Akter and M. Ferdows*

15:00-16:00 Technical Session OPEN FORUM 1

CHT-21-112 Numerical simulation of a fixed bed gasifier using two fluid model (TFM), *by Massoud Farid, Andreas Richter*
Numerical studies on the effects of different convex particle shapes and polydispersity on the heat transfer in Fixed Beds, by Shreyas Rohit Srinivas, Massoud Massoudi Farid, Andreas Richter

Heat transfer through shadowed droplets in dropwise condensation, by George Memos, George Kokkoris, Vassilios Constantoudis, Athanassios Milionis, Dimos Poulakakos, Evangelos Gogolides

Estimation of thermal contact conductances between different materials by the reciprocity functional using heat flux and transient temperature measurements, by Inoussa Tougri, Luiz Abreu and Marcelo Colaço

The GeTe thermal conductivity, from experimental measurement to DFT simulation, by Jean-Luc Battaglia, Kanka Gosh, Clément Chassain, Andrzej Kusiak, Pierre Noé and Helcio Orlande

State estimation problem in nano-enhanced phase change materials for thermal energy storage, by Bruno dos Reis Jaccoud, Helcio Orlande, Marcelo Colaço, Ryszard Bialecki, Zbigniew Buliński and Ziemowit Ostrowski

Room LEBLON

9:00-10:00  Technical Session ENERGY 1

Modeling the process of solid fuel conversion in multi-stage gasification plants, by A. Levin and A. Safarov

Orthogonal array optimization of the operational parameters for air-cooled cylindrical lithium-ion battery module, by Dinesh Kumar Sharma and Aneesh Prabhakar

Electrochemical thermal modelling of Li-Ion battery cell at different discharge rates, by Arundas Odungat and Samarjeet Chanda

Improving efficiency of a micro-thermophotovoltaic power generator with various recuperator configurations, by Seok-Beom Yun, Sung Yeon Kim and Youn-Jea Kim

Influence of dimpled-wall tubes on the thermal performance of the plate-fin-tube heat exchanger, by Sung Yeon Kim, Seok-Beom Yun and Youn-Jea Kim

15:00-16:00  Technical Session ENERGY 2

Transient response of different refrigerants used in single-pass dual chiller, by Sambhaji T. Kadam, Anaya Bara, Ibrahim Hassan, Mohammad Azizur Rahman, Athanasios I. Papadopoulos and Panos Seferlis

A thermochemical energy storage reactor model – code formulation, verification, and experimental validation, by Michael Wild and Aldo Steinfeld

Thermo-economic analysis of S-CO₂ power cycles for waste heat recovery applications, by Francisco M. Miller, Manuel E. C. Cruz and Marcelo J. Colaço
A new method based on artificial neural network for radiative heat transfer calculation: Comparison with benchmark numerical solutions in homogeneous media, by Alex Royer, Olivier Farges, Pascal Boulet and Daria Burot

Solar hybridization paths for cement production processes, by Ilker Tari and Onur Polat

Room URCA

9:00-10:00  Technical Session TURBULENCE

Numerical study of a wing section with a tangential blowing jet control system, by Bruno Goffert, Ricardo Galdino da Silva, Cayo Prado Fernandes Francisco, Evgeny Pigusov, Chuang Wei, Zhansen Qian, Maria Luísa Collucci da Costa Reis

Influence of solving the wall-region on heat transfer over a circular cylinder in crossflow, by Gabriel Rodrigues de Oliveira Anunciação and Tânia Suaiden Klein

Numerical simulation of liquid flow in a rotating and partially filled cylindrical cavity, by Sergio de Albuquerque Souza

Numerical analysis of turbulent heat transfer in rectangular duct, by Jan Kren, Blaz Mikuz and Iztok Tiselj

Large eddy simulation of jet-impingement on flat plate using sub-grid scale models, by Ashutosh Narayan Singh and Dushyant Singh

Influence of a flexible vortex generator on hydrodynamic and heat transfer characteristics of a pin-fin array, by Seyedmohsen Baghaei Oskouei and Özgür Bayer

15:00-16:00  Technical Session OPEN FORUM 2

Coupled Monte Carlo-CFD model of a solar air receiver for high-temperature industrial processing, by Vikas R. Patil and Aldo Steinfeld

Extreme (stochastic/random) boiling in the cryogenic zone, by Charles Janeke

Influence of particle shape on turbulence induced flow dynamics and heat transfer in packed beds, by Mona Al-Mqbas, Nico Jurtz and Matthias Kraume

Constrained optimization of microchannel cooling systems with and without uncertainty, by Yogesh Jaluria and Xiaobing Zhang

Numerical analysis of heat transfer and fluid flow performance in different microchannels heat sink geometries, by Isabelle Guimarães da Silva, João Batista Campos Silva and Elaine Maria Cardoso
Room MARACANÃ

8:00-9:00 Workshop WP: Publishing your Research, Swati Meherishi

10:00-11:00 Plenary Lecture PL11: Nonlinear computation: future of numerical simulation, L. Q. “Rick” Wang

11:00-12:00 Plenary Lecture PL12: Growth and dynamics of vapor bubbles in various regimes of boiling with and without external electric field, Gautam Biswas

13:00-14:00 Plenary Lecture PL13: Mutual interactions of evaporative heat transfer phenomena and wetting phenomena: numerical simulation and experimental validation, Peter Stephan

15:00-16:00 Closing and Awards Ceremony

Room COPACABANA

12:00-13:00 Short Course SC-CFD: Introduction to Modern CFD – Lesson 7, Akshai Kumar Runchal

14:00-15:00 Short Course SC-CFD: Introduction to Modern CFD – Lesson 8, Akshai Kumar Runchal

Room IPANEMA

9:00-10:00 Technical Session OPEN FORUM 3

CHT-21-276 Artificial neural network aided multipoint temperature measurement using a grid-shape electric circuit of resistance temperature detectors, by Runze Mao, Masashi Kishimoto and Hiroshi Iwai

CHT-21-280 Heat and fluid flow modelling of a high-temperature packed-bed reactor for solar thermochemical energy storage, by Bo Wang, Lifeng Li, Florian Schaefer, Apurv Kumar, Vicent M. Wheeler and Wojciech Lipinski

CHT-21-283 Radiative heat transfer in a polydispersion of ceramic particles under high-flux solar irradiation, by Jingjing Chen, Apurv Kumar, Joe Coventry, Jin-Soo Kim and Wojciech Lipinski

CHT-21-284 Heat transfer modelling of an isolated bubble in sodium pool boiling, by Siddharth Iyer, Apurv Kumar, Joe Coventry and Wojciech Lipinski

CHT-21-285 Prediction of tortuosity factor of sphere-packing porous media by three-dimensional convolutional neural network, by Yodai Matsui, Masashi Kishimoto and Hiroshi Iwai