

ThermaComp2016 - Draft Conference Program

Fourth International Conference on Computational Methods for Thermal Problems

July 6-8, 2016, Georgia Tech, Atlanta, USA

Wednesday 6 July 2016

Morning

08:10-09:00	Registration		
08:30-09:00	ThermaComp 2016 Opening		
9:00-10:00	Plenary Lecture: Topology Optimization For Thermal-Fluid Problems Using Unstructured Finite Volume Methods Speaker: Jayathi Y. Murthy , <i>University of California, Los Angeles</i> Chairman: TBA Venue:		
10:00-10:30	Coffee Break		
10:30-11:20	Keynote Lecture: Thermal transport by phonons and electrons from first principles calculations Speaker: Alan McGaughey , <i>Carnegie Mellon University, Pittsburgh, Pennsylvania, USA</i> Chairman: TBA Venue:		
11:20-12:40	SS-1:Conduction, convection and radiation Chairman: TBA Venue:	SS-2:Heat and mass transfer in porous media Chairman: TBA Venue:	SS-3:Boiling and condensation Chairman: TBA Venue:
11:20-11:40	A one-dimensional numerical model to determine thermal and optical performance of a PCM-filled double glazing unit, Li Dong, Zheng Yumeng, Liu Changyu, Liu Xiaoyan, Qi Hanbing, Wu Guozhong.	Effects of permeability on two-dimensional transpiration cooling, Dong Wenjie, Wang Jianhua, Shen Lin.	Saturated film boiling in reduced gravity with applied electric field, Biswas Gautam, Pandey Vinod, Dalal Amaresh.
11:40-12:00	Heat transfer enhancement in PCM storage tanks through topology optimization of finning material distribution, Pizzolato Alberto, Sciacovelli Adriano, Verda Vittorio.	Macro-scale modelling of heat sinks with highly conductive periodically arranged fins, Buckinx Geert, Baelmans Martine.	Nucleate boiling performance evaluation of different cavities at mesoscale level, Mu Yutong, Chen Li, Kang Qinjun, He Yaling, Tao Wenquan.
12:00-12:20	Thermal radiation effects on two-phase dusty fluid past a vertical wavy surface, Siddiq Sadia, Begum Naheed, Hossain Md. Anwar.	Examination of two approaches for determining interfacial conduction coefficient in porous media, Cimmino Massimo, Baliga Bantwal R. (Rabi) .	CFD modeling of high-speed condensation in supersonic nozzles, part I: steam, Giacomelli Francesco, Mazzelli Federico, Milazzo Adriano.
12:20-12:40	A numerical investigation on aero-thermodynamic characteristics of a nose cone in wind tunnel and near space flight environment, Shen Lin, Wang Jianhua, Dong Wenjie.	Using flow obstructions in electro-osmotic systems for fluid flow enhancement, Di Fraia Simona, Massarotti Nicola, Mauro Alessandro, Nithiarasu Perumal.	CFD modeling of high-speed condensation in supersonic nozzles, part II: R134a, Biferi Giulio, Mazzelli Federico, Little Adrienne, Garimella Srinivas, Bartosiewicz Yann.
12:40-13:40	Lunch		

13:40-14:30	Keynote Lecture: Non-Singular Method of Fundamental Solutions for Fluid and Solid Mechanics Problems Speaker: Božidar Šarler , <i>University of Nova Gorica, Slovenia</i> Chairman: TBA Venue:		
14:30-15:30	SS-1: Conduction, convection and radiation Chairman: TBA Venue:	SS-2: Heat and mass transfer in porous media Chairman: TBA Venue:	MS: Computational Bioheat Transfer Chairman: Perumal Nithiarasu Venue:
14:30-14:50	Numerical investigation of laminar Rayleigh-Bénard convection of power-law fluids in square cross-sectional cylindrical annular cavity, Yigit Sahin, Chakraborty Nilanjan.	Two-phase explicit CBS procedure for compressible viscous flow transport in porous materials, Cortellessa Gino, Arpino Fausto, Fernicola Vito.	Modelling an heat-related illness, Coccarelli Alberto, Hasan Hayder, Parhimos Dimitris, Nithiarasu Perumal.
14:50-15:10	Numerical modeling of convective flows structured at isothermal diffusion in vertical cylindrical channels at different pressures, Kosov Vladimir, Zhakebayev Dauren, Kosov Yevgeniy.	Design of compressed graphite/PCM thermal batteries, Mallow Anne, Graham Samuel, Gluesenkamp Kyle, Abdelaziz Omar.	Modelling energy transport in a human respiratory system, Perumal Nithiarasu.
15:10-15:30	Operating rooms: numerical modeling of heat and mass transfer phenomena, Sainas Domenico, Carotenuto Alberto, Massarotti Nicola, Mauro Alessandro.	Linear stability analysis of natural convection in partially porous tall annuli, Ciccolella Michela, Massarotti Nicola, Mauro Alessandro, Cortellessa Gino.	Investigation of thermofluid dynamics in a human eye. numerical modeling of aqueous humor flow in porous tissues, M. Salahudeen, A. Mauro, N. Massarotti, M.R. Romano, V. Romano, P. Nithiarasu.
15:30-16:00 Coffee Break			
16:00-16:40	SS-1: Conduction, convection and radiation Chairman: TBA Venue:	SS-3: Reactive heat and mass transport Chairman: Venue:	MS: Computational Bioheat Transfer Chairman: Perumal Nithiarasu Venue:
16:00-16:20	Heatline and entropy generation based analysis of natural convection in porous cavities with curved walls subjected to Rayleigh-Benard heating, Biswal Pratibha, Basak Tanmay.	Non-equilibrium framework applicable at all spatial and temporal scales using steepest-entropy-ascent quantum thermodynamics, Li Guanchen, von Spakovsky Michael.	State estimation problems in PRF-Shift magnetic resonance thermometry, Pacheco César, Orlande Helcio, Colaço Marcelo, Dulikravich George.
16:20-16:40	Influence of temperature dependent properties on dusty fluid, Siddiqa Sadia, Begum Naheed, Hossain Md. Anwar.	Non-equilibrium predictions of diffusion in closed and open systems at atomistic levels using steepest-entropy-ascent quantum thermodynamics, Younis Aimen M., von Spakovsky Michael R..	Numerical simulation of suprachoroidal shunts for treatment of glaucoma, Mauro Alessandro, Massarotti N., Romano M.R., Romano V., Nithiarasu P..

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Thursday 7 July 2016

Morning

9:00-10:00	Plenary Lecture: Lattice Boltzmann Simulations of Boiling Heat Transfer Phenomena: A New Research Frontier for Numerical Heat Transfer Speaker: Ping Cheng , <i>Shanghai Jiao-tong University, Shanghai, China</i> Chairman: TBA Venue:		
10:00-10:30	Coffee Break		
10:30-11:20	Keynote Lecture: Macro-scale heat transfer modelling in devices with repetitive fin structures Speaker: Martine Baelmans , <i>University Leuven, Belgium</i> Chairman: TBA Venue:		
11:20-12:40	SS-4: Heat exchangers and fuel cells Chairman: TBA Venue:	MS: Multiscale Methods in Thermal Simulations Chairmen: Pratap Vanka, Yogendra Joshi Venue:	MS: Validation, verification and experimental uncertainty quantification for heat and fluid flow problems Chairman: Fausto Arpino Venue:
11:20-11:40	Molecular dynamics simulation of oxygen transport characteristics in the MEA of PEMFC, Fushinobu Kazuyoshi, Kato Mahiro, Henry Asegun, Graham Samuel, Hong Duc Doan.	Multi scale thermal modeling in GaN HEMTs, Vallabhaneni Ajit, Satish Kumar.	Numerical and experimental investigation of the performance of a car prototype for the Shell Eco Marathon, Scungio Mauro, Arpino Fausto, Iannetta Fabio, Frattolillo Andrea, Cortellessa Gino, Fuoco Lino.
11:40-12:00	Transitional fluid flow numerical modelling in sinusoidal heat exchanger channels, Greiciunas Evaldas, Borman Duncan, Summers Jon.	A comparison between different lifting relations from macroscopic variables to Lattice Boltzmann distribution functions, Tong Zi-xiang, Li Ming-Jia, He Ya-Ling, Tao Wen-Quan.	Schlieren and Mie Scattering techniques for the ECN "Spray G" characterization and 3D CFD model validation, Montanaro Alessandro, Allocca Luigi, Costa Michela, Lee Seong-Young, Piazzullo Daniele, Rocco Vittorio.
12:00-12:20	Experimental validation of quasy-3D CVFEM model of borehole heat exchangers, Vušanović Igor, Esad Tombarevic.	Multi-length scale electro-thermal simulations of GaN high electron mobility transistors, Hao Qing, Xiao Yue, Zhao Hongbo.	Numerical and experimental comparison of velocity derived quantities in rectangular cavity flows, Iannetta Fabio, Sciacchitano Andrea, Arpino Fausto, Scarano Fulvio.
12:20-12:40	Experimental set-up and thermo hydro mechanical model for an energy pile, Adinolfi Marianna, Mauro Alessandro, Maiorano Rossella, Massarotti Nicola, Aversa Stefano, Normino Gennaro, Marotta Pasquale.	Hierarchical multiscale simulations for data center cooling, Athavale Jayathi, Vanka Pratap, Joshi Yogendra, Yoda Minami.	Validation of thermal models of single phase thermal management flow loops, Joshi Yogendra, Spector Mark, Doty John, Eussen Bart, Cerza Martin.
12:40-13:40	Lunch		

13:40-14:30	Keynote Lecture: Numerical Analysis of Compact Plate-Fin Heat Exchangers for Aerospace Applications Speaker: C. Rangayanayakulu , <i>Numerical Analysis of Compact Plate-Fin Heat Exchangers for Aerospace Applications</i> Chairman: TBA Venue:		
14:30-15:30	SS-5:Energy conversion Chairman: TBA Venue:	SS-6:High performance computing Chairman: TBA Venue:	SS-7:Power plants and equipment Chairman: TBA Venue:
14:30-14:50	A one-dimensional steady model for downdraft biomass gasifiers, Costa Michela, La Villetta Maurizio, Massarotti Nicola, Piazzullo Daniele, Rocco Vittorio.	Adaptive cell-factor algorithm for unified direct simulation Monte Carlo approach of continuous, transitional and molecular flows, Henry Matthew, Andrei Fedorov.	Heat transfer analysis of a fluidized bed stripper ash cooler, Jassar Ravi Inder Singh, Ghule Karan.
14:50-15:10	Biomass small scale batch gasifier: an experimental and numerical analysis, Mulone Vincenzo, Cordiner Stefano, Manni Alessandro, Rocco Vittorio.	Rapid modelling tools for transient thermal response of modular data centers, Khalid Rehan, Yogendra Joshi, Aaron Wemhoff.	CAP1000 in-containment structure temperature analysis on DBA, Shanhu Xue, Ye Cheng, Tian Lin, Wang Minglu.
15:10-15:30	Energy piles: a new procedure for effective numerical prediction of thermal performance, Mauro Alessandro, Iodice Paola, Marotta Pasquale, Massarotti Nicola.	Single and multiphase flow computations on graphics processing units, Vanka Pratap, P. Kumar, K. Jin and B. G. Thomas.	Finite volume model of a flat plate photovoltaic cogenerative collector: thermodynamic and experimental analysis, Laura Vanoli, Rafal Damian Figaj, Francesco Calise.
19:00 Conference dinner			

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Friday 8 July 2016

Morning

9:00-10:00	Plenary Lecture: Numerical Modeling of Multiple Length and Time Scales in Thermal Transport Processes Speaker: Yogesh Jaluria , <i>Mechanical and Aerospace Engineering Department Rutgers University, Piscataway, USA</i> Chairman: TBA Venue:		
10:00-10:30	Coffee Break		
10:30-11:20	Keynote Lecture: Numerical simulation of near-field radiative heat transfer between nanostructures Speaker: Zhuomin Zhang , <i>Georgia Institute of Technology, Atlanta, USA</i> Chairman: TBA Venue:		
11:20-12:40	SS-8: Numerical methods Chairman: TBA Venue:	MS: Micro-Nano Scale Heat Transfer in Nano-structures and Devices Chairman: Satish Kumar Venue:	MS: Electronics cooling modeling Chairman: Krishna Kota Venue:
11:20-11:40	A novel reinitialization technique to conserve mass and enhance accuracy in VOF method, Bhat Sourabh, Mandal Jadav Chandra.	Interface conductance modal analysis across Si-Ge interfaces, Gordiz Kiarash, Henry Asegun.	Rack level transient CFD modeling of data center, Fulpagare Yogesh, Joshi Yogendra, Bhargav Atul.
11:40-12:00	Modeling of melting with solid bulk motion, Kozak Yoram, Ziskind Gennady.	Investigation of phonon transport and thermal boundary conductance at interface of functionalized SWCNT and Poly (Ether-Ketone), Huang Haoxiang, Kumar Satish, Varshney Vikas, Roy Ajit.	CFD study of variable pin fin density microgap heat sinks for 3D-stacked ICs, Lorenzini Daniel, Joshi Yogendra.
12:00-12:20	Convective pressure flux split scheme for computing incompressible flows on unstructured grids, Mandal Jadav Chandra, Kalamkar Shainath.	Perfect absorption in hBN/metal grating hybrid anisotropic structures, Zhao Bo, Zhuomin M. Zhang.	Liquid jet impingement with an angled confining wall, Maddox John, Knight Roy W., Bhavnani Sushil H..
12:20-12:40	Asymptotic approach and boundary element method for calculation of slow phase transitions, Brazaluk Iuliia, Yevdokymov Dmytro.	Conjugated heat transfer in complex geometries via total integral transformation and single domain formulation, Cotta Renato M., Zotin José Luiz Zanon, Knupp Diego Campos.	Three computational methods for analysing thermal airflow distributions in the cooling of data centers, Summers Jon, de Boer Greg, Delbosc Nicolas, Johns Adam, Burdett Daniel, Tatchell-Evans Morgan.
12:40-13:40	Lunch		

13:40-14:30	Keynote Lecture: Slot and Discrete Jets in Crossflow-The Role of External Perturbations Speaker: Sumanta Acharya , <i>University of Memphis, Tennessee</i> Chairman: P. Nithiarasu Venue:		
14:30-15:30	SS-8:Numerical methods Chairman: TBA Venue:	MS: Micro-Nano Scale Heat Transfer in Nano-structures and Devices Chairman: Satish Kumar Venue:	MS: Electronics cooling modeling Chairman: Krishna Kota Venue:
14:30-14:50	Unsteady temperature fields under detonation combustion on basis of strings method, Svetushkov Nikolay .	Thermal transport analysis of mini-channel heat sink partially filled with metal foam sandwiched on the fin sides, Gong Liang, Li YongTong, Minghai .	Assessment of flow distribution features in microgaps for 3D stacking of ICs, Lorenzini Daniel, Asrar Pouya, Woodrum Casey, Kottke Peter, Fedorov Andrei, Sitaraman Suresh, Joshi Yogendra .
14:50-15:10	Numerical simulation of energy harvesting eel in a viscous flow, Uddin Emad, Hyung Jin Sung .	Sensitivity of thermal conductivity calculations to errors in interatomic forces, Walker Greg, Brock Casey, Gerboth Matt .	Numerical modeling of energy-efficient liquid cooling using conducting-lubricating (CO-LUB) surfaces, Kota Krishna, Reyes Jessica .
15:30-16:00	Coffee Break		
16:00-16:30	Closure\End		