

MONDAY August 11, 2008

7:00 – 8:00 am

Terrace Pavilion

Author's Breakfast
General Continental Breakfast

8:00 – 9:10 am

Grand Ballroom

Plenary: **The Role of Nuclear Energy in Our Future**
Dr. Kathryn A. McCarthy, Idaho National Laboratory

PARALLEL SESSIONS / 9:10 – 10:40 am

<u>City Terrace 4</u>	<u>City Terrace 5</u>	<u>City Terrace 6</u>
3-2-1 Single Phase Convection I (K-8)	2-1-1 Panel on Cyberinfrastructure for Heat Transfer	7-2-1 Multiphase Heat Transfer I (K-13)
<i>Chair:</i> Christopher Kobus, <i>Oakland University</i> ; <i>Co-Chair:</i> : Patrick Oosthuizen, <i>Queen's University</i>	<i>Chair::</i> Timothy Fisher, <i>Purdue University</i>	<i>Chair:</i> Jovica Riznic, <i>Canadian Nuclear Safety Commission</i> ; <i>Co-Chair:</i> Ali Siapush, <i>INL</i>
56033 Experimental and Computational Analysis of Natural Convection over Flat Plate Farhana Afroz, Chowdhury Md. Feroz and Sumon Saha	56064 Computational Research Tools Jennifer Lukes 56065 Computational Learning Tools Jayathi Murthy 56066 Online Lectures and Tutorials Costas Grigoropoulos 56067 Community Wiki Greg Walker 56068 Properties Database and Experimental Network Li Shi 56069 International Partnerships Pinar Menguc 56071 Industrial Partnerships Suresh Garimella 56072 NSF Opportunities in Cyberinfrastructure Patrick Phelan	56057 Numerical Simulation on Melting and Solidification of a Phase-change Material in an Aluminum Plate-fin Thermal Storage Minhui Lv, Hao Peng and Xiang Ling
56091 Applied Pulsed Flow for Single-Phase Convective Heat Transfer Enhancement in a Laminar Flow Cooling System Bolaji O. Olayiwola, Gerhard Schaldach and Peter Walzel		56080 CFD Modeling Analysis of Mechanical Draft Cooling Tower Si Y. Lee, Alfred J. Garrett, James S. Bollinger and Larry D. Koffman
56190 Natural Convective Heat Transfer from an Inclined Narrow Isothermal Flat Plate Patrick H. Oosthuizen and Abdulrahim Kalendar		56113 Experimental and Numerical Investigation of Heat Characteristics of Liquid Flow with Micro-Encapsulated Phase Change Material Rami Sabbah, Jamal Yagoobi and Said Al Hallaj
56193 The Effect of Partitions on the Laminar Natural Convection in a Square Cavity Wenjiang Wu and Chan Y. Ching		56015 On The Critical Flows of Pressurized Pipe Systems Moon-Sun Chung and Sung-Jae Lee
56472 Experimental Aero-Thermal Characterization of a Circular Jet Impinging a Plate; Influence of Impingement Flow Mach Number on Convective Heat Exchange Radial Distribution Gildas Lalizel, Christophe David, Matthieu F'Enot and Ea Dorignac		56349 Vibration/Shock-Tolerant Capillary Two-Phase Loop Technology for Vehicle Thermal Control Xudong Tang, Chanwoo Park and Jeffrey Perez

10:40 – 11:00 am

Break

MONDAY August 11, 2008

PARALLEL SESSIONS / 9:10 – 10:40 am

<i>City Terrace 7</i>	<i>City Terrace 8</i>	<i>City Terrace 9</i>
13-2-1 Heat and Mass Transfer in the Natural and Built Environment (K-19)	5-3-1 Experiments and Modeling of Fire and Fire Suppression-1 (K-11)	9-1-1 Transport Phenomena in Materials Processing and Manufacturing I (K-15)
<i>Chair:</i> R Figliola, <i>Clemson University</i> ; <i>Co-Chairs:</i> Fotouh Al-Raqom, <i>University of Florida</i> and Sandra Boetcher, <i>University of North Texas</i>	<i>Chair:</i> Ofodike A. Ezekoye, <i>The University of Texas at Austin</i>	<i>Chair:</i> : Ronghui Ma, <i>University of Maryland, Baltimore County</i>
56326 Numerical Investigation on Thermal and Fluid Dynamic Behaviors of Air Conditioning in Aircraft Cabin G. Balducci, V. Bianco, O. Manca, S. Nardini and M. Roma	56074 Carbon Monoxide Transport through Water Curtain W.K. Chow and Mabel K.K. Ip	56103 Measurement of Cooling Curves in Centrifugal Casting of a Ferrous Alloy Romulo Heringer, Marcelo A. Martorano and Mário Boccalini Jr.
56101 Transient Human Thermal Comfort Response in Convective and Radiative Environments Mohamad Al-Othmani, Nesreen Ghaddar and Kamel Ghali	56085 One-Dimensional Smoke Movement in Vertical Open Shafts at Steady State: Theoretical Prediction and Experimental Verification Xiaoqian Sun, Yuanzhou Li, Ran Huo, Wanki Chow, Naikong Fong and Cheheng Gigi Lui	56296 Experimental Study on Double-Diffusive Convection during Solidification of NH₄Cl-H₂O Hypereutectic Solution in Cylindrical Cavity Bofeng Bai, Jun Lu, Lei Zhang and Heng Li
56470 Experimental Model to Characterize the Evaporative Cooling of Horizontal Roofs Margarita Gil Samaniego Ramos and Héctor Enrique Campbell Ramírez	56270 Direct Radiation from Wildfires through Square Screens Ahmad Sharifian and David R Buttsworth	56294 Thermosolutal Convection and Solute Segregation of HgCdTe Alloy during the Vertical Bridgman Single Crystal Growth Jun Lu, Bofeng Bai, Zhixiang Wen and Liejin Guo
56162 Evaluation of Convective Heat and Mass Transfer in Open Sun and Green House Drying S.K.Shukla	56424 The Double-Diffusive Convection in the Process of Water Mist Fire Suppression Kai Xu and Wen-Qiang Lu	56395 Accumulated temperature measurement of transparent material induced by high-repetition-rate femtosecond laser pulses (presentation only) Moosung Kim

10:40 – 11:00 am

Break

MONDAY August 11, 2008

PARALLEL SESSIONS / 11:00 – 12:30 am

<i>City Terrace 4</i>	<i>City Terrace 5</i>	<i>City Terrace 6</i>
3-2-2 Single Phase Convection II (K-8)	10-1-1 Micro/Nano-Scale Heat Transfer in Electronic Equipment (K-16)	7-2-2 Multiphase Heat Transfer II (K-13)
<i>Chair:</i> Christopher Kobus, <i>Oakland University</i> ; <i>Co-Chair:</i> : Patrick Oosthuizen, <i>Queen's University</i>	<i>Chair:</i> Jayathi Murthy, <i>Purdue University</i> <i>Co-Chair:</i> Suresh Garimella, <i>Cooling Technologies Research Center</i>	<i>Chair:</i> Glen Thorncroft; <i>Co-chair:</i> Jovica Riznic, <i>Canadian Nuclear Safety Commission</i>
56093 Development of a Heat Transfer Correlation for the Transitional Flow in a Horizontal Tube Using Support Vector Machines L. M. Tam, A. J. Ghajar, H. K. Tam and S. C. Tam	56001 Thermal Conductivity Measurements of SI-SIO2-SI Sandwich Structures for Micro/Nano Electronics Christina Royce, Mehmet Arik, Stanton Weaver, J. W. Bray, Victor Ovsyuk, Anatoly Klimenko and Andrey Yarts	56142 Thermal Homogenization in Spherical Reservoir by EHD Conduction Phenomenon Miad Yazdani and Jamal Seyed-Yagoobi
56094 Development of a Flow Regime Map for a Horizontal Pipe with the Multi-Classification Support Vector Machines L. M. Tam, A. J. Ghajar, H. K. Tam and S. C. Tam	56037 Enhanced Mini-Channel Forced Convection with Phase-Change Particles Fatemeh Hassanipour and Jose' Lage	56206 Numerical and Experimental Investigation of Melting in Vertical Circular Tubes H. Shmueli, G. Ziskind and R. Letan
56201 Numerical Simulation of the Impact of Both Air Conditioning System and Train's Movement on Platform Air Temperature Distribution Hui Yang, Li Jia and Lixin Yang	56195 An Analysis of the Flow Fields within Geometrically-Similar Miniature Scale Centrifugal Pumps Daniel Kearney, Jeff Punch and Ronan Grimes	56232 Heat Transfer Performance during Condensation of R-134A M. H. Al-Hajeri and A. M. Koluib
56274 Transient Heat Transfer from Single Horizontal Heaters in Forced Flow of Helium Gas at Exponentially Increasing Heat Inputs Qiusheng Liu and Makoto Shibahara	56483 Carbon Nanotube Array Thermal Interfaces Enhanced with Paraffin Wax Baratunde A. Cola, Stephen L. Hodson, Xianfan Xu and Timothy S. Fisher	56246 Numerical Investigation on Bubbly Flow and Heat Transfer Characters in a Liquid-Reactor Lixin Yang
56025 Natural Convective Heat Transfer from an Isothermal Vertical Square Cylinder Mounted on a Flat Adiabatic Base Patrick H. Oosthuizen		56392 Bubble Coalescence and Break-up Studies using a Three-Dimensional Lattice Boltzmann Method (presentation only) Amit Gupta

Terrace Pavilion

12:05 – 1:00 pm

Lunch

Grand Ballroom 4&5

Plenary: Thirty years of Naval Propulsor Hydrodynamic Research At the Naval Surface Warfare Center, Carderock Division
Dr. Stuart Jessup, Naval Surface Warfare Center

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MONDAY August 11, 2008

PARALLEL SESSIONS /11:00 – 12:30 pm

<i>City Terrace 7</i>	<i>City Terrace 8</i>	<i>City Terrace 9</i>
	<i>Topic Organizer: Alexander L Brown, Sandia National Labs</i>	
17-1-1 Heat Transfer Education (K-21)	5-3-2 Experiments and Modeling of Fire and Fire Suppression-II (K-11)	9-1-2 Transport Phenomena in Materials Processing and Manufacturing III (K-15)
<i>Chair: Fotouh Al-Raqom, University of Florida; Co-Chairs: Ayyoub Mehdizadeh, University of Florida; Alain Kassab, University of Central Florida; Eduardo Divo, University of Central Florida</i>	<i>Chair W.K. Chow, The Hong Kong Polytechnic University:</i>	<i>Chair: Calvin Li, University of Toledo; Co-Chair: Roop L. Mahajan, Virginia Tech</i>
56073 Josef Stefan and His Contributions to Heat Transfer John Crepeau	56177 Experimental Study of Thermal Response of LPG Tanks Subjected to External Fire Zhi Xiang Xing and Xiao Fang Zhao	56124 Transport Processes Governing the Drawing of a Hollow Optical Fiber Jing Yang, Rutgers and Yogesh Jaluria
56433 An Active Learning Approach for Teaching Undergraduate Heat Transfer Michael B. Pate	56184 Study of the Gas Combustion LP in an Atmospheric Burner Armando Gallegos-Muñoz, Armando Balderas-Bernal and Alejandro Ramirez-Barrón	56499 Investigation on Heat Transfer and Its Effect on Titanium Hot Forging Process K. Davami, M. K. Besharaty, A. Mellat and B. Serajzadeh
56451 Upwinded Localized Collocation Meshless Method (ULCMM) for Thermo-Fluids Modeling (presentation only) Eduardo Divog	56370 Plume Rise Calculations Using a Control Volume Approach and the Damped Spring Oscillator Analogy Alexander L. Brown and Nathan E. Bixler	56334 Heat Transfer Experiments and Process Development Measurements in the Production of Aerospace Wire Guillermo Varela, Joshua Whitley, Daniel Cox and Tom Roy
	56456 Effects of Exit Vent Location on Fire Room Conditions during PPV Colin M. Beal and Ofodike A Ezekoye	56455 Investigation of Potential Benefits of Using Bricks of High Thermal Capacity and Conductivity in a Rotating Calcining Kiln Zhao Lei, Ting Wang and Robert T. Tonti

MONDAY August 11, 2008

PARALLEL SESSIONS /2:10 – 3:40 pm

<i>City Terrace 4</i>	<i>City Terrace 5</i>	<i>City Terrace 6</i>
3-2-3 Single Phase Convection III (K-8)	10-2-1 Modeling, Optimization and Characterization of Electronic Packages (K-16)	7-3-1 Microchannel Boiling and Condensation I (K-13)
<i>Chair : Patrick Oosthuizen, Queen's University; Co-Chair:</i>	<i>Chair: Justin Wodrich, Motorola, Inc.</i>	<i>Chair: M. Erol Ulucakli, Lafayette College; Co-Chairs: Yassin Hassan, Texas A&M University; Vinod Narayanan, Oregon State University</i>
56228 An Investigation of the Physical Mechanism of Heat Transfer Augmentation in Stagnating Flows Subject to Freestream Turbulence Andrew R. Gifford, Thomas E. Diller and Pavlos P. Vlachos	56170 Characterization of Microstructures for Heat Transfer Performance in Passive Cooling Devices Ram Ranjan, Suresh V. Garimella and Jayathi Y. Murthy	56084 Characteristics of Two-Component Two-Phase Flow and Heat Transfer in a Flat Microchannel Matthew L Roesle and F A Kulacki
56302 An Investigation of the Physical Mechanism of Heat Transfer Augmentation in Boundary Layer Flows Subject to Freestream Turbulence David O. Hubble, Thomas E. Diller and Pavlos P. Vlachos	56012 Numerical Analysis of a Hybrid Heat Sink with using a Phase Change Material: Application to a Cooling of an Electronic Component Mustapha Faraji and Hamid El Qarnia	56116 Two-Phase Heat Transfer and Bubble Dynamics in a Microchannel Array T. P. Lagus and F. A. Kulacki
56329 Numerical Investigation on Forced Convection in Circular Tubes with Septa D. Corrente, O. Manca, S. Nardini, D. Ricci and G. Masullo	56056 Multidisciplinary Placement Optimization of Heat Generating Semiconductor Logic Blocks Tohru Suwa and Hamid Hadim	56176 Convective Boiling Between 2D Plates: Shear Flow Influence on Bubbles Growth, Detachment and Evolution D. Serret, D. Brutin, O. Rahli, C. Le Niliot and L. Tadrist
56359 Transient Natural Convection Slip Flow in a Vertical Microchannel Heated at Uniform Heat Flux Bernardo Buonomo and Oronzio Manca	56454 CFD Analysis of a Notebook Computer Thermal Management Solution Fidan Seza Yalçın, Cüneyt Sert and İlker Tari	56253 Local Wall Temperature Measurements in Microchannel Flows Using Infrared Thermography Daniel Krebs, Vinod Narayanan, James Liburdy and Deborah Pence
56024 Three-Dimensional Natural Convective Flow in a Rectangular Enclosure with a Rectangular Heated Section on One Vertical Wall and with the Other Vertical Walls Cooled Patrick H. Oosthuizen, Abdulrahim Kalendar and Thomas M. Simko	56401 Numerical Prediction of Heat Transfer Enhancement in a Semiconductor Device with a Swivelled Module Board Srinivas Bhatt	

MONDAY August 11, 2008

PARALLEL SESSIONS /2:10 – 3:40 pm

<i>City Terrace 7</i>	<i>City Terrace 8</i>	<i>City Terrace 9</i>
16-3-1 Forum on Heat Transfer Visualization I (K-22)	5-4-3 Hydrocarbon Combustion I (K-11)	9-2-1 Heat and Mass Transfer in Nanomanufacturing (K-15)
Chair: David Pratt, <i>USAF, AFRL/RBS</i> ; Co-Chair: Kenneth Kihm, <i>University of Tennessee</i>	Chair: Chenn Zhou, <i>Purdue University Calumet</i>	Chair: Ben Li, <i>University of Michigan</i> ; Co-Chair: Yuwen Zhang, <i>University of Missouri</i>
56352 The Visualization of Thin Film Evaporation on Thin Micro Sintered Copper Mesh Screen Chen Li, G. P. Peterson, Ji Li and Nikhil Koratkar	56083 Pyrolysis Modelling in a Woodstove Rajesh Gupta	56242 Impact of Thermophoresis on Carbon Nanotube Growth by Chemical Vapor Deposition Andrew C. Lysaght and Wilson K. S. Chiu
56459 Near-Field Imaging Using Surface Plasmon Resonance (SPR) Reflectance (presentation only) Kenneth Kihm	56255 Heat and Mass Transfer from Platinum-Coated Cylinders in Axisymmetric Hydrogen-Air Boundary Layers Timothy W. Tong, Mohsen M. Abou-Ellail and Yuan Li	56180 Reverse Monte Carlo Modeling of Signal Transport in Light-Pipe Radiation Thermometers Hakan Erturk, Ofodike A Ezekoye and John R Howell
56219 Natural Convection around a Horizontal Heated Square-Section Cylinder in an Enclosure: Visualization and Dynamic Characterization of Instabilities by Particle Image Velocimetry Gillian Leplat, Philippe Barricau, Philippe Reulet and Pierre Millan	56286 Simulation of s CO-H2-Air Turbulent Diffusion Flame by the Chemical Equilibrium Method with a Few Chemical Reactions Kazui Fukumoto and Yoshifumi Ogami	56489 Experimental and Theoretical Analysis of the Nanoscale Laser Ablation with a Near Field Scanning Optical Tip Sy-Bor Wen
	56304 Flame Holding and Combustion Characteristics of a Geometrical Flame Holder K. A. Ahmed and D. J. Forliti	56096 Dual Pump Femtosecond Laser Induced Plasma Meg Mahat, Tae Y. Choi, Nasrasadani Seifolah and Arup Neogi
	56466 Ignition and Combustion Characteristics of Liquid Fuel Droplets Containing Metal Nanoparticles Tae-Woo Lee, Himanshu Tyagi, David Sonenschein, Patrick E. Phelan, Ravi Prasher Robert Peck and Paul Arentzen	

3:40 – 4:00 pm Break

MONDAY August 11, 2008

PARALLEL SESSIONS /4:00 – 5:30 am

<i>City Terrace 4</i>	<i>City Terrace 5</i>	<i>City Terrace 6</i>
3-3-1 Heat Transfer in Porous Media I (K-8)	10-3-1 Heat Sinks and Two-Phase Heat Transfer in Electronic Packaging (K-16)	7-3-2 Microchannel Boiling and Condensation II (K-13)
<i>Chair: Patrick Oosthuizen, Queen's University; Co-Chair: Erik R. Bardy, Grove City College</i>	<i>Chair: Mark North, Thermacore, Inc.; Co-Chair: Pradip Majumdar, Northern Illinois University</i>	<i>Chair: M. Erol Ulucakli, Lafayette College; Co-Chairs: Vinod Narayanan, Oregon State University; Yassin Hassan, Texas A&M University</i>
56158 A Compact Thermal Resistance Model for Determining Effective Thermal Conductivity in the Fibrous Gas Diffusion Layers of Fuel Cells E. Sadeghi, M. Bahrami and N. Djilali	56205 Pin-Fin Heat Sink with Horizontal Base and Blocked Edges D. Sahray, H. Shmueli, N. Segal, G. Ziskind and R. Letan	56389 Characterization of the Micro-Scale of Boiling Processes for FC-72 in a Confined Space Anthony J. Fernandez, Sergio Escobar-Vargas, Drazen Fabris, Jorge E. Gonzalez, Ratnesh Sharma, Cullen Bash and Orlando E. Ruiz
56171 The Effect of Pore Shape to the Effective Thermal Conductivity of Thermal Barrier Coatings Ozge Altun and Y. Erhan Böke	56492 An Analytical Hierarchical Processing Based Heat Sink Selection and CFD Simulation for Porous Heat Sink (presentation only) Manish Attal	56463 Dimensionless Transition Criteria for Condensation in Microchannels (presentation only) Srinivas Garimella
56477 Thermal Radiation in a Packed Bed with Internal Heat Generation Jaap E Hoffmann	56187 Modeling and Testing of an Integrated Evaporator-Condenser Device for CPU Cooling Mark Aaron Chan, Christopher R. Yap and Kim Choon Ng	56465 Heat Transfer Model for Near-Critical Pressure Condensation of Refrigerant Blends in Microchannels (presentation only) Srinivas Garimella
56110 Transient Natural Convection from a Vertically Embedded Heat Source in a Thermally Stratified Porous Layer J. Zhang and F. C. Lai	56337 Stability Analysis and Network Design of Evaporative Micro-Channels Hee Joon Lee and Shi-Chune Yao	56342 Two Phase Analysis of Heat Transfer and Dispersion of Nano Particles in a Microchannel S.M.M Nayinian, M. Shams, H. Afshar and G. Ahmadi
56111 Prediction of Natural Convection Heat Transfer in Layered Porous Cavities by Homogeneous Anisotropic Model R. L. Marvel and F. C. Lai		56291 Dryout during Flow Boiling in a Single Circular Minichannel: Experimentation and Modelling Davide Del Col, Alberto Cavallini, Stefano Bortolin, Marko Matkovic and Luisa Rossetto

6:00-7:30

Grand Ballroom 4 and 5 Max Jacob Memorial Award

MONDAY August 11, 2008

PARALLEL SESSIONS /4:00 – 5:30 am

<i>City Terrace 7</i>	<i>City Terrace 8</i>	<i>City Terrace 9</i>
16-3-2 Forum on Heat Transfer Visualization II (K-22)	5-4-5 Hydrocarbon Combustion II (K-11)	9-4-1 Materials Processing Issues in Energy Systems (K-15)
<i>Chair: David Pratt, USAF, AFRL/RBS; Co-Chair: Kenneth Kihm, University of Tennessee</i>	<i>Chair: Cheng-Xian Lin, The University of Tennessee</i>	<i>Chair: Wilson K. S. Chiu, University of Connecticut</i>
56443 Tomographic Reconstruction of Unsteady Fields Using Proper Orthogonal Decomposition Dhruv Singh, Atul Srivastava and K Muralidhar	56310 Spectral Radiation Properties of a Turbulent Ethylene Pool Fire Kaushik Biswas, Yuan Zheng and Jay Gore	56283 Simultaneous Production of Hydrogen and CNTs by In-Liquid Plasma, and Its Discharge Characteristics Shinfuku Nomura, Hiromichi Toyota, Shinobu Mukasa, Yoshiaki Hattori, Yoshiyuki Takahash, Naoharu Ueda, Hiroshi Yamashita, Hiroaki Tsuruno and Muneo Tanaka
56179 Measurements of Bubble Nucleation Characteristics in Pool Boiling of a Wetting Liquid on Smooth and Roughened Surfaces John P. McHale and Suresh V. Garimella	56420 A Combined Experimental and Numerical Study of Heat Transfer Characteristics for Methane/Air Flame Impinging Normally on a Flat Surface Subhash Chander and Anjan Ray	56354 Performance of Dense Vertical Cracked Air Plasma Spray Processed Thermal Barrier Coatings: Thermo-Physical Properties Measurements, and Effects Of Thermal Stress on Thermal Cycling Failure Patrick F. Mensah, Nalini Uppu and Ravinder Diwan
56402 PIV Measurements in the Condenser Region of a Gas-Loaded Thermosyphon Martin Cleary, Ronan Grimes, Marc Hodes and Mark T. North	56151 A Numerical Investigation on Soot Formation from Laminar Diffusion Flames of Ethylene/Methane Mixture Hongsheng Guo, Stephanie Trottier, Matthew R. Johnson and Gregory J. Smallwood	56500 Heat Flux Estimation in Direct Chill Casting Using Experimental and Inverse Finite Element Method Ashok Kumar Nallathambi, Umair Alam and Eckehard Specht
56196 Edge Detection Based on Wavelet Analysis with Gaussian Filter and Application in Multiphase Flow Bin Chen, Fude Guo and Tao Ning	56104 Evaporating Meniscus in a Capillary Tube with High Heat Flux Induced by Micro Diffusion Flame J. Chen and X. F. Peng	56097 Electron and Focused Ion Beams in Thermal Science and Engineering Tae-Youl Choi and Dimos Poulikakos
	56108 Calibration of Chemical Kinetic Models Using Simulations of Small-Scale Cookoff Experiments Aaron P. Wemhoff, Richard Becker and Alan K. Burnham	

TUESDAY August 12, 2008

7:00 – 8:00 am

Terrace Pavilion

Author's Breakfast
General Continental Breakfast

8:00 – 9:10 am

Grand Ballroom

Plenary: **The Carbon Journey – The Nation's Need to Reduce Emissions and Increase Energy Security**
J. Michael Davis, Pacific Northwest National Laboratory

PARALLEL SESSIONS / 9:10 – 10:40 am

<i>City Terrace 4</i>	<i>City Terrace 5</i>	<i>City Terrace 6</i>
3-3-2 Heat Transfer in Porous Media II (K-8)	10-5-1 Jets, Fluid Cooling and Channel Flow (K-16)	7-4-1 Boiling and Condensation Heat Transfer I (K-13)
<i>Chair: Erik R. Bardy, Grove City College; CoChair: Feng Lai, University of Oklahoma</i>	<i>Chair: Alfonso Ortega</i>	<i>Chair: Debjyoti Banerjee, Texas A&M University; Co-Chairs: Abhijit Mukherjee, MTU; Ali Siapush, INL</i>
56248 Numerical Simulation of Laminar Confined Impinging Jet in a Composite Channel Marcelo J.S. de Lemos	56220 An Investigation of Thermal and Velocity Fields for a Confined Jet over the RE Range of 1,000-24,000 N. Jeffers, J. Punch and E. Walsh	56039 A Visual Study of Two-Phase Change Heat Transfer in Horizontal Bottom Heating Beads Packed Porous Structures Calvin Hong Li
56249 Mathematical Modeling of Flow and Heat Transfer in a Moving Bed Reactor Marcelo J.S. de Lemos	56474 Experimental Study of Non-Boiling Spray Cooling Heat Transfer for Inclined Sprays Yongxian Guo, Jianyuan Jia, Weidong Wang and Shaorong Zhou	56131 Scaling of Passive Condenser System Separate Effect Facility Shripad T. Revankar, Seungmin Oh, Wenzhong Zhou and Gavin Henderson
56250 Turbulent Flow in s Composite Channel with a Wavy Interface Marcelo J.S. de Lemos	56230 Immersion Cooling of Power Electronics in Segregated Hydrofluoroether Liquids Cindy M. Barnes and Philip E. Tuma	56204 Approximate Solution for the Heat Transfer Controlled Growth of a Steadily Translating Vapor Bubble Michael Shusser
56375 Permeability and Thermal Transport in Compressed Open-Celled Foams S. Ravi Annapragada, Jayathi Y. Murthy and Suresh V. Garimella		56010 Experimental Observation of the Dynamic Micro- and Macro-Layer during Pool Boiling Craig Gerardi, Jacopo Buongiorno, Linwen Hu and Thomas McKrell
		56013 Two-Phase Friction Factor Obtained from Various Void Fraction Models during Condensation of R134A in Vertical Downward Flow At High Mass Flux Ahmet Selim Dalkilic, Suriyan Laohalertdecha and Somchai Wongwises

10:40 – 11:00 am

Break

TUESDAY August 12, 2008

PARALLEL SESSIONS / 9:10 – 10:40 am

<i>City Terrace 7</i>	<i>City Terrace 8</i>	<i>City Terrace 9</i>
14-1-1 Advances in Computational Heat Transfer I (K-20)	5-4-1 Industrial Reacting Flows I (K-11)	8-1-1 Gas Turbine Heat Transfer (K-14)
<i>Chair: Laila Guessous, Oakland University; Co-Chairs: Robert Spall, Utah State University; Sumanta Acharya, Louisiana State University</i>	<i>Chair: T-W. Lee, Arizona State University</i>	<i>Chair: Srinath Ekkad, Virginia Tech; Co-Chair: William E. Lear, University of Florida</i>
56038 Modeling Flash Diffusivity Experiments in Two Dimensions for Thick Samples Robert L. McMasters	56200 Numerical Study on High Temperature Air Combustion in U-Type Tube Xing Li, Li Jia, Tiantian Zhang and Lixin Yang	56155 Effects of Syngas Ash Particle Size on Deposition and Erosion of a Film Cooled Leading Edge Ali Rozati, Danesh K. Tafti and Sai Shrinivas Sreedharan
56076 Simulation of Radiation Heat Transfer of Three Dimensional Participating Media by Radiative Exchange Method Mohammad Hadi Bordbar and Timo Hyppänen	56229 Computation of Nitrogen Oxides in Radiant Porous Burner Flows Timothy W. Tong, Mohsen M. Abou-Ellail, Yuan Li and Karam R. Beshay	56280 Validation of Mist/Steam Cooling CFD model in a Horizontal Tube T. S. Dhanasekaran and Ting Wang
56145 An Unstructured Reacting Flow Solver with Coupled Implicit Solution of the Species Conservation Equations Ankan Kumar and Sandip Mazumder	56245 Numerical Simulation of Reactive Turbulent Flows over Bluff Body Flame Holders: A Parametric Study Richard Holder and Cheng-Xian (Charlie) Lin	56347 Characteristics of Cooling of the Leading Edge with a Row of Dual Impinging Jets X. C. Li
56199 Numerical Computation of Compressible Laminar Flow with Heat Transfer in the Entrance Region of a Pipe M. Ziaei Rad, A. Nouri- Broujerdi and J. Seume	56256 Study of Co-Injection of Natural Gas and Pulverized Coal in Blast Furnace under Pure Oxygen Environment Mingyan Gu and Jiaxin Li	
	56366 CFD Analysis of Batch-Type Reheating Furnace with Regenerative Burners Bin Wu, Tom Roesel, Andrew M. Arnold, Zhaojiang Xu, Eugene Arnold, George Downey III and Chenn Q. Zhou	

10:40 – 11:00 am

Break

TUESDAY August 12, 2008

PARALLEL SESSIONS /11:00 – 12:30 pm

<u>City Terrace 4</u>	<u>City Terrace 5</u>	<u>City Terrace 6</u>
3-4-1 Fluid-Solid Interfacial Phenomena (K-8) <i>Chair: Alan McGaughey, Carnegie Mellon University; Co-Chair: Jennifer Lukes, University of Pennsylvania</i>	2-3-1 US-India Panel on Joint Workshops and Research Cooperation <i>Chair: Srinath Ekkad, Virginia Tech</i>	7-4-2 Boiling and Condensation Heat Transfer II (K-13) <i>Chair: Abhijit Mukherjee, MTU; Co-Chairs: Debjyoti Banerjee, Texas A&M University; Ali Siapush, INL</i>
56089 Mean-Field Bounds and the Classical Nature of Thermal Conduction in Nanofluids Jacob Eapen	56506 Overview of ISHMT/ASME Joint Heat Transfer Conferences and Workshops , Srinath Ekkad 56507 Overview of Electronic Cooling Workshop and Sabbatical Experience in India , Timothy Fisher 56510 Keynote Address and Workshop Experience , Tom Shih 56508 Workshops in Nuclear Heat Transfer, Heat Exchangers, and Fuel Cells , Shripad Revankar 56509 Past Workshops and Experience of US Faculty in India , Suresh Garimella 56511 Heat Exchanger Workshop - Successes and Future Directions , Arun Muley	56223 Modeling of Two-Phase Flow Structure Evolution in Subcooled Nucleate Convective Boiling with Coupling of Bubble-Tracking and Two-Fluid Models Ivo Kljenak, Boštjan Končar and Borut Mavko
56390 Effect of Polymer Chains on Heat Transfer on Nanofins Navdeep Singh and Debjyoti Banerjee		56272 Transient Pool Boiling CHF in FC-72 P.F. Sutopo, Katsuya Fukuda and Qiusheng Liu
56444 Effect of Brownian and Thermophoretic Diffusions of Nanoparticles on Nonequilibrium Heat Conduction in Nanofluids Yuwen Zhang, Ling Li and H.B. Ma		56378 Determination of Dimensionality of Pool Boiling on a Thin Horizontal Disk under Subcooled Conditions Using Thin – Film Thermocouples Vijaykumar Sathyamurthi and Debjyoti Banerjee
56043 Molecular Dynamics Simulations of Translational Thermal Accommodation Coefficients for Time-Resolved LH K. J. Daun, G. J. Smallwood and F. Liu		56397 Forced Convection Film Boiling Heat Transfer from Single Horizontal Cylinders in Saturated and Subcooled Liquids: Part 1- Experimental Data and Its Correlation for Saturated Liquids Qiusheng Liu and Katsuya Fukuda
		56446 Formulation of Film Theory Equations for Modeling of Condensation of Steam-Air Mixtures in a Shell and Tube Condenser Yousef Haseli, Ibrahim Dincer and Greg Frank Naterer

Terrace Pavilion

12:05 – 1:00 pm Lunch

Grand Ballroom 4&5

1:00 – 2:00 **Plenary: Energy for Sustainability**
Trung Van Nguyen, National Science Foundation

Orlando

1:00 – 2:00 **Plenary: Energy Research: Opportunities and Challenges**
Mildred Dresselhaus, Massachusetts Institute of Technology

TUESDAY August 12, 2008

PARALLEL SESSIONS / 11:00 – 12:30 am

<i>City Terrace 7</i>	<i>City Terrace 8</i>	<i>City Terrace 9</i>
14-1-2 Advances in Computational Heat Transfer II (K-20)	5-4-4 Combustion Synthesis (K-11)	8-1-2 Computation of Turbine Cooling and Heat Transfer (K-14)
<i>Chair: : Robert Spall, Utah State University; Co-Chairs: Laila Guessous, Oakland University; Sumanta Acharya, Louisiana State University</i>	<i>Chair: Aaron Wemhoff, Lawrence Livermore National Laboratory; Co-Chair: Robert McMasters, Virginia Military Institute</i>	<i>Chair: Richard Rivir, AFRL/RZ; Co-Chair William E. Lear, University of Florida:</i>
56265 A Novel Finite Difference Method for Flow Calculation on Co-located Grids Z. Z. Xia, P. Zhang and R. Z. Wang	56313 Computational Study of Reactive Flow in Halide Chemical Vapor Deposition of Silicon Carbide Epitaxial Film Rong Wang and Ronghui Ma	56422 Large Eddy Simulation of the Heat Transfer Due to Swirling and Non-Swirling Jet Impingement Naseem Uddin, S. O. Neumann and B. Weigand
56117 Investigation of a Split-Dimple Fin Geometry for Heat Transfer Augmentation Mohammad A. Elyyan and Danesh K. Tafti	56363 Methodology for the Numerical Simulation of Natural Gas, Coal, and Coke Combustion in a Blast Furnace William Walker, Mingyan Gu, Naresh Selvarasu, John D'Alessio, Neil Macfadyen and Chenn Zhou	56382 Tip Leakage Flow and Heat Transfer Characteristics on Shroud and Rotor Blade Tip in an Axial Gas Turbine Engine: Steady Analysis Md Hamidur Rahman, Ibrahim Hassan and Sung In Kim
56222 Unsteady Heat Transfer from a Spherical Particle in Turbulent and Oscillating Ambient Flows Prosenjit Bagchi and Kirit Kottam	56002 Observations on Flame Stretching in a Scale Room Model with Natural Vent W.K. Chow and C.K. Law	56194 Effect of Upstream Step on Flat Plate Film Cooling Effectiveness Using PSP Akhilesh P Rallabandi, Joshua Grizzle and Je Chin Han
	56251 The Developmental Research of Regeneration Ladle Heater with Gas Backflow Technology Linjiang Zou and Lin Cheng	

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TUESDAY August 12, 2008

PARALLEL SESSIONS /2:10 – 3:40 pm

<i>City Terrace 4</i>	<i>City Terrace 5</i>	<i>City Terrace 6</i>
3-4-2 Transport in Nanostructures, Thin Films and Across Interfaces (K-8)	10-6-1 Electronic Cooling and Design (K-16)	7-6-1 Heat Pipes I (K-13)
<i>Chair: Jennifer Lukes, University of Pennsylvania; Co-Chair: Alan McGaughey, Carnegie Mellon University</i>	<i>Chair: Ali Heydari, Sun Microsystems; co-Chair: : James Petroski, GE Lumination</i>	<i>Chair: Hongbin Ma, University of Missouri; Co-Chairs: Ali Siapush, INL; Rathinam Selvam, University of Aarkansas</i>
56146 Argon Thermal Conductivity by Anharmonic Lattice Dynamics Calculations J.E. Turney, A.J.H. McGaughey and C.H. Amon	56210 Optimization of Thermoelectric Modules for Computer System Thermal Management and Infrastructure Energy Efficiency Amip Shah, Anita Rogacs and Chandrakant Patel	56105 Transient Thermal and Hydrodynamic Performances of Flat Heat Pipe Subjected to Heating with Multiple Electronic Components R. Sonan Ocho, S. Harmand, J. Pellé, D. Leger and M. Fakès
56473 Designing Si/Si_{1-x}Ge_x Superlattices with Tailored Thermal Transport Properties E. S. Landry and A.J.H. McGaughey	56292 Thermal Analysis of a Micro-Electro-Mechanical Deformable Thin Film Package and Development of the Temperature Control System Using Transient Testing Method Jae Choon Kim, Jin Taek Chung, Jae Hong Min, Dong Jin Lee, Ji-Hyuk Yu, JuHwan Lim, Byeong-Kwon Ju and SungWoo Hwang	56128 Performance of a Flexible Evaporator for Loop Heat Pipe Applications James F. Klausner and Mukta S. Limaye
56328 Thermal Transport Measurements of Nanowire-Substrate Interfaces Monalisa Mazumder and Theodorian Borca-Tasciuc	56405 Piezoelectric Fans: Heat Transfer Enhancements or Electronics Cooling James Petroski, Mehmet Arik and Mustafa Gursoy	56160 Heat Transport Capability and Fluid Flow Neutron Radiography of a Three-Dimensional Oscillating Heat Pipes B. Borgmeyer, C. Wilson, R. A. Winholtz and H. B. Ma
56427 Modeling of Subcontinuum Thermal Transport across Semiconductor-Gas Interfaces Dhruv Singh, Xiaohui Guo, Alina Alexeenko, Jayathi Y. Murthy and Timothy S. Fisher	56458 Validation of Dynamic Models for an Air-Cooled CPU Chip Cooling Device R. Zhang, C. Zhang and J. Jiang	56147 Parametric Control of a Two-Phase Thermal Management System for Space Applications M.J. Brooks, L.C. Nortje, W.E. Lear and S.A. Sherif

3:40 – 4:00 pm Break

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TUESDAY August 12, 2008

PARALLEL SESSIONS /2:10 – 3:40 pm

<u>City Terrace 7</u>		<u>City Terrace 9</u>
14-4-1 Transport Phenomena in Fuel Cells (K-20)		11-1-1 Heat and Mass Transfer in Biotechnology –I (K-17)
<i>Chair:</i> Pradip Majumdar; <i>Co-Chairs:</i> Sandip Mazumder, <i>Ohio State University;</i> Yitung Chen		<i>Chair:</i> Malisa Sarntinoranont, <i>University of Florida;</i> <i>Co-Chair:</i> Deborah Pence, <i>Oregon State University</i>
56020 Computational Modeling of the Cathode Catalyst Layer of a PEMFC Sai Kamarajugadda and Sandip Mazumder		56063 Theoretical Evaporation Model of a Single Droplet in Laser Treatment of PWS in Conjunction with Cryogen Spray Cooling Zhifu Zhou, Hui Xin, Bin Chen and Guoxiang Wang
56408 Validation of a Computational Polymer Electrolyte Fuel Cell Model Richard S. Fu and Ugur Pasaogullari		56198 Thermal Modelling for Design Optimization of a Microfluidic Device for Continuous Flow Polymerase Chain Reaction (PCR) Sumeet Kumar, Todd Thorsen and Sarit Kumar Das
56425 Transient Modeling of Direct Internal Reforming Planar Solid Oxide Fuel Cells C. Ozgur Colpan, Ibrahim Dincer and Feridun Hamdullahpur		56396 Thermal Ablation of Mouse Skin Tissue Using Ultra-Short Pulsed 1552 nm Laser Amir Yousef Sajjadi, Ogugua Onyejekwe, Shreya Raje, Kunal Mitra and Michael Grace
56447 Effect of Reduced Temperature and Cathode Porosity on the Performance of Tubular Solid Oxide Fuel Cell A.K. Sleiti, University of Central Florida		56409 Transient Thermal Response of Skin Tissue Muge Pirtini Cetingul and Cila Herman
56362 A New Bipolar Plate of PEM Electrolysis Cell with Uniform Flow And Heat Transfer Fields J. H. Nie, K. M. Veepuri, Y. T. Chen and J. F. Wu		

3:40 – 4:00 pm Break

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TUESDAY August 12, 2008

PARALLEL SESSIONS /4:00 – 5:30 pm

<i>City Terrace 4</i>	<i>City Terrace 5</i>	<i>City Terrace 6</i>
3-4-3 Thermal Transport in Nanostructures, Thin Films and Across Interfaces – II (K-8)	4-1-1 Micro Heat Exchangers (K-10)	7-6-2 Heat Pipes II (K-13)
<i>Chair: Alan McGaughey, Carnegie Mellon University; Co-Chair: Jennifer Lukes, University of Pennsylvania</i>	<i>Chair: Amir Jokar</i>	<i>Chair: Hongbin Ma, University of Missouri; Co-Chair: Rathinam Selvam, University of Arkansas</i>
56207 Quantum Dots for Liquid-Phase Thermometry in Silicon Microchannels Myeongsu Kim and Minami Yoda	56305 Axial Heat Conduction in Counter Flow Microchannel Heat Exchangers B. Mathew and H. Hegab	56298 Thermal and Visual Observation of Water and Acetone Oscillating Heat Pipes C. Wilson, B. Borgmeyer, I. Yoon, R. A. Winholtz, H. B. Ma, D. L. Jacobson, D. S. Hussey and M. Arif
56244 Temperature Modeling for Carbon Nanofiber Breakdown Drazen Fabris, Hirohiko Kitsuki, Toshishige Yamada, Xuhui Sun, Jorge Gonzalez Cruz and Cary Y. Yang	56315 Effectiveness of Parallel Flow Microchannel Heat Exchangers with External Heat Transfer and Internal Heat Generation B. Mathew and H. Hegab	56387 Loop Heat Pipe Startup with Liquid Core Visualization B.P. d'Entremont, A.G. Kulakov, J.M. Ochterbeck, J. Perez and P.D. Rogers
56339 Curvature Effect on the Thermal Conductivity of Nanowires Liang-Chun Liu, Ronggui Yang and Mei-Jiau Huang	56150 A Novel Gas-Water Heat Exchanger with Minichannels Yang Chen, Per Lundqvist and Björn Palm	56047 Development of the Loop Heat Pipe (LHP) K. Tanaka
56341 Radiative Properties of GaAs from First Principles Calculations Hua Bao and Xiulin Ruan	56029 Experimental Apparatus for Measuring in Tube Condensation Heat Transfer Coefficient and Pressure Drop Using Smooth and Micro-Fin Tubes for HFC Refrigerants Pradeep A. Patil and S.N. Sapali	56203 Experimental Research on Heat Transfer Characteristic of Pulsating Heat Pipe Li Jia and Yan Li
56435 Longitudinal Thermal Conductivity of Silicon Nanowire Composites (presentation only) Dipali Pradhan		

6:00 – 7:30

Grand Ballroom 4 and 5

Awards Banquet

TUESDAY August 12, 2008

PARALLEL SESSIONS /4:00 – 5:30 pm

<i>City Terrace 7</i>	<i>City Terrace 8</i>	<i>City Terrace 9</i>
14-5-1 Industrial Applications of Computational Heat Transfer – I (K-20)	1-6-1 Thermal Issues in Combined Heat and Power Systems (K-6)	11-1-2 Heat and Mass Transfer in Biotechnology – II (K-17)
<i>Chair: Kevin Dowding; Co-Chair: Stephen Webb, Sandia National Laboratories</i>	<i>Chair: Laura Schaefer, University of Pittsburgh; Co-Chairs: Wei Tong; S. A. Sherif, University of Florida</i>	<i>Chair: Malisa Sarntinoranont, University of Florida; Co-Chair: Deborah Pence, Oregon State University</i>
56081 A Study on the Optimal Design of Heating Chamber in Sputtering Process for Large-Sized LCD Panel Manufacturing Bin Hu and Kwang-Sun Kim	56062 Numerical Analysis for a Vapor Feed Miniature Direct Methanol Fuel Cell System Bin Xiao and Amir Faghri	56259 Numerical Prediction of the Temperature Distribution within a Human Eye during Laser Surgery Sandeep Singh Kushwaha and P.S.Ghoshdastidar
56078 Enhancement of Natural Convection Heat Transfer Rate in Internal Compressible Flows by Inserting Stationary Inserts Emad Y. Tanbour and Ramin K. Rahmani	56077 CFD Approach Analysis of Chemical Reactions Coupled Convective Heat Transfer in Reformer Ducts Jinliang Yuan, Guogang Yang and Bengt Sundén	56266 Errors in Skin Temperature Measurements M. V. Dugay, S. K. S. Boetcher and E. M. Sparrow
56303 An Efficient Software Architecture for Automated Coupling of Convection and Thermal Radiation Tools Christian Rauch, Thomas Hörmann, Sebastian Jagsch and Raimund Almbauer	56129 Thermal-economic Optimization of Combined Cycle Power Plant Sepehr Sanaye and Pourya Ahmadi	56493 Analysis of Temperature Response in Biological Tissue with Sinusoidal Temperature Oscillation on the Skin Ping Yuan, Hsueh-Erh LiuChih-Wei Chen and Hong-Sen Kou
56040 The Effect of Obstacle Geometry and Its Position on Thermal Stratification in Solar Powered Domestic Hot Water Storage Tanks Necdet Altuntop, Veysel Özceyhan, Yusuf Tekin and Sibel Gunes	56234 Optimum Flashing Pressure in Single and Double Flash Geothermal Power Plants Shahin Amiri, Ahmad Kahrobaian and Shayan Amiri	
	56141 Visual Investigation and Comparison of the Thermal Characteristics of Fluid <i>With</i> and <i>Without</i> Nanoparticles Flowing Over a Heated Flat Plate Dale A. McCants and Jamil A. Khan	

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WEDNESDAY August 13, 2008

7:00 – 8:00 am

Terrace Pavilion

Author's Breakfast
General Continental Breakfast

8:00 – 9:10 am

Grand Ballroom

Plenary: **Molecular Dynamic Simulation of Liquid Argon Film
Evaporation and Colloidal Adsorption Characteristics in a Nanochannel**
J. N. Chung, University of Florida

PARALLEL SESSIONS / 9:10 – 10:40 am

<i>City Terrace 4</i>	<i>City Terrace 5</i>	<i>City Terrace 6</i>
3-6-2 Fundamentals of Heat Conduction (K-8)	4-2-6 High Temperature Applications (K-10)	7-5-1 Enhancement Methods (K-13)
<i>Chair: Don Beasley; Co-Chair: Leslie Phinney, Sandia National Laboratories</i>	<i>Chair: Yaroslav Chudnovsky, Gas Technology Institute; Co-Chair: Vijayaraghavan Chakravarthy, Praxair Inc</i>	<i>Chair: : Keith Hollingsworth, University of Houston; Co-Chairs: Afshin Ghajar, Oklahoma State University; Abhijit Mukherjee, MTU</i>
56035 Inverse Solution to Steady Heat Conduction with Heat Generation in a Rectangular Solid Domain M. Mosaad	56079 Experimental Study of Natural Convection Heat Transfer in a Vertical Pipe with Stationary Inserts Emad Y. Tanbour and Ramin K. Rahmani	56275 Dependence of Heat Transfer Coefficient on Porous Structure in Porous Media Akira Matsui, Kazuhisa Yuki and Hidetoshi Hashizume
56121 On Relativistic Transformation of Coordinates and Exact Solution of Damped Wave Conduction and Relaxation Equation Kal Rengathan Sharma	56186 Thermal Model of a Gas Fired Generator for an Absorption GAX Cooling System Vidal, M.A. Barrera-Chavarría, V.H. Gómez, J. Cervantes and R. Best	56350 Direct Numerical Simulation of EHD-Enhanced Film Boiling Payam Sharifi and Asghar Esmaeeli
56123 Bessel Composite Function of the Third Order and First Kind Solution to Damped Wave Conduction and Relaxation Kal Rengathan Sharma	56469 Thermal Analysis of Radiator Core in Heavy Duty Automobile Srikanth Kolachalama, Kalyan Kuppa, Dhananjay Mattam and Mukul Shukla	56393 Subcooled and Saturated Pool Boiling on Nano-Finned Surfaces (presentation only) Debyoti Banerjee
56449 Heat Transfer from Solids with Variable Thermal Conductivity and Uniform Internal Heat Generation Using HPM Rahim Gu and W. A. Khan	56505 Designing Shell-and-Coil Mixed Convection Heat Exchangers Nasser Ghorbani Mianroudi and Hessam Taherian	56440 Modeling the Retention of Water Droplets on Topographically-Modified, Micro-Grooved Aluminum Andrew D. Sommers and Anthony M. Jacobi
56119 Transient Damped Wave Conduction and Relaxation in Human Skin and Thermal Wear During Winter Kal Renganathan Sharma	56125 Prediction of Bundle Shell Side Condensation Heat Transfer Coefficient Tailian Chen	56471 Experimental Investigation of an Evaporator Enhanced with a Micro-Porous Structure in a Two-Phase Thermosyphon Loop Richard Furberg, Rahmatollah Khodabandeh, Björn Palm, Shanhua Li, Muhammet Toprak and Mamoun Muhammed

10:40 – 11:00 am

Break

WEDNESDAY August 13, 2008

PARALLEL SESSIONS / 9:10 – 10:40 am

<i>City Terrace 7</i>	<i>City Terrace 8</i>	<i>City Terrace 9</i>
14-5-2 Industrial Application of Computational Heat Transfer – II (K-20)	1-1-1 Inverse Problems and Optimization in Heat Transfer (K-6)	18-1-1 Thermophysical Properties – I (K-7)
<i>Chair: Kevin Dowding; Co-Chair: Stephen Webb, Sandia National Laboratories</i>	<i>Chair: Kyle Daun, University of Waterloo; Co-Chairs: Matthew R. Jones, Brigham Young University; Kevin Dowding; Keith Woodbury, The University of Alabama</i>	<i>Chair: A.M. Mahmoud, University of Florida; Co-Chair: Ayyoub Mehdizadeh, University of Florida</i>
56109 Thermal-Structural Analysis of the Macarthur Maze Freeway Collapse Charles R. Noble, Aaron P. Wemhoff and Larry D. McMichael	56181 Reduced Order Modeling of Light Scattering by a Cloud of Particles James B. Hall, Travis J. Moore and Matthew R. Jones	56090 The Effects of Thermocouple Materials and Insulating Mica in an Erodable Surface Thermocouple Alan Grech, Tonio Sant and Mario Farrugia
56149 Experimental Validation of Passenger Car Underhood Simulation in the Presence of Convective and Radiative Heat Flux Daniele Suzzi, Bernhard Lechner, Sebastian Jagsch and Raimund Almbauer	56301 Accounting for Sensor Errors in Estimation of Surface Heat Flux by an Inverse Method Jonathan W. Woolley and Keith A. Woodbury	56197 Mid-Infrared Properties of Nanoscale Metallic Slit Arrays Y.-B. Chen, K. Fu, C.-H. Chen, P.-f. Hsu and Y.-C. Lee
56075 Heat Transfer Enhancement in a Tube Using Triangular Ribs Veysel Ozceyhan and Sibel Gunes	56335 Predicting System Performance and Estimating Parameters for Systems Burdened with Uncertainties and Noise using Bayesian Inference A. F. Emery and D. Bardot	53227 Variation of the Thermal Conductivity of Elastomeric Foam with Pressure Erik R Bardy and Joseph C Mollendorf
56460 Analytical Study of Heat and Mass Transfer in Porous Sheets during Contact Drying Process Mohammad R. Izadpanah and Amir R. Ansari Dezfoli		56418 Thermal Wave Based Measurement of Liquid Thermal Conductivities Zhefu Wang and Richard B. Peterson
56017 Numerical Simulation of Natural Convection Flow in a Cube with a Horizontal Heated Strip Esam M. Alawadhi		

10:40 – 11:00 am

Break

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WEDNESDAY August 13, 2008

PARALLEL SESSIONS /11:00 – 12:30 am

<i>City Terrace 4</i>	<i>City Terrace 5</i>	<i>City Terrace 6</i>
13-1-1 Panel on Future Directions in Renewable and Sustainable Energy Research (K-19)	4-2-8 Optimization and Efficiency (K-10)	6-1-1 High Heat Flux Cooling for Avionics (K-12)
<i>Chair: Jac Co-Chair: S.A. Sherif, University of Florida ob Chung, University of Florida;</i>	<i>Chair: Behnam Bahr; Co-Chair: Paul Rubas, ExxonMobil Research & Engineering</i>	<i>Chair: Julie Asfia, Boeing Company; Co-Chairs: M. Erol Ulucakli, Lafayette College; David Carrington, Los Alamos National Laboratory</i>
56512 Thermodynamic and Thermal Transport Challenges in Energy Technologies Enabling Sustainable Transportation, Andrei Fedorov	56114 Design of Fin Plate Heat Exchanger for Increasing Micro Turbine Efficiency and Introduction of Fin Plate Heat Exchanger Design Software (KhoshNasr) for this Purpose Mehdi Nasrabadi and Ramin Haghighi Khoshkhoo	56438 Aerothermal Analysis of Small Payloads Delivered into Low Earth Orbit from an Airborne Launch Platform Martin J. Guillot and Ian McNab
56513 Distributed Energy: Its Role in a Sustainable Energy Future, William E. Lear		
56514 Potential of Hydrogen Production using Wind Energy, Michael B. Pate		
56515 Some Research Needs for More Sustainable Transportation, Vernon Roan		
56516 Research Needs for the Thermal-Chemical Conversion of Biomass and Solid Waste to Energy, Jacob Chung		
56517 Solar Energy Research on new Thermodynamic Cycles and Advanced Working Fluids, D. Yogi Goswami		
	56407 Assessment f Heat Transfer Effectiveness -- Application to Shell Bitumen Plant, Takoradi, Ghana Anthony Simons	56208 Explorations of Carbon Nanotube Wick Structure for High Heat Flux Cooling Qingjun Cai, Chung-lung Chen, Guangyong Xiong and Zhifeng Ren
	56442 Design and Limitations of Conduction-Based Heat Exchangers for Thermoacoustic Systems (presentation only) Cila Herman	56318 Thermally Induced Flow Structures in Aircraft Wing Compartments D. Newport, V. Egan, M.Aguanno, V. Lacarac, T. Brown, B. Estebe and Y. Murer
	56258 Simulation and Optimization of Drying Of Wood Chips with Superheated Steam in a Rotary Kiln P.S.Ghoshdastidar and Ankit Agarwal	
	56504 Experimental Study of Mixed Convection Shell-and-Coil Heat Exchanger Nasser Ghorbani Mianroudi , Mofid Gorji and Hessem Taherian	

Terrace Pavilion
12:05 – 1:00 pm

Lunch

Grand Ballroom 4&5

Plenary: Energy for Sustainability
Trung Van Nguyen, National Science Foundation

WEDNESDAY August 13, 2008

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PARALLEL SESSIONS / 11:00 – 12:30 am

<i>City Terrace 7</i>	<i>City Terrace 8</i>	<i>City Terrace 9</i>
14-6-1 Micro/Nano Scale Applications of Computational Heat Transfer (K-20) <i>Chair: Jayathi Murthy, Purdue University; Co-Chair: Xiulin Ruan, Purdue University</i>		18-1-2 Thermophysical Properties – II (K-7) <i>Chair: Ayyoub Mehdizadeh, University of Florida; Co-Chair: A.M. Mahmoud, University of Florida; ; S.A. Sherif, University of Florida</i>
56233 Slip-flow and Conjugate Heat Transfer in Rectangular Microchannels H.D. Madhawa Hettiarachchi, Mihajlo Golubovic, William M Worek and WJ Minkowycz		56139 Chemical Kinetic Parameter Estimation for Ammonia Borane Hydrolysis Sumit Basu, Yuan Zheng and Jay P. Gore
56264 Modeling of Polarization-Specific Phonon Transmission Functions through Interfaces Zhen Huang, Jayathi Murthy and Timothy Fisher		56468 The Numerical Mirage Method for Photothermal Characterization of Materials Michael T. Demko, Stephen R. Hostler and Alexis R. Abramson
56288 Effects of Triangular Rough Elements on Flow And Heat Transfer in Micro-Channels Yan-hui Feng, Ai-guo Wang, Lin Lin, Xin-xin Zhang and Xin Liu		56487 Thermo-Physical Features of Extreme Activity of Metallic Nano-Particles Babak Shokri, Maziar S. Yaghmaee and M. Reza Rahimipour
56289 Modelization and Analysis of Natural Convection Heat Transfer in Nanofluids Pietro Marco Congedo, Stefano Collura and Paolo Maria Congedo		

WEDNESDAY August 13, 2008

PARALLEL SESSIONS /2:10 – 3:40 pm

<i>City Terrace 4</i>	<i>City Terrace 5</i>	<i>City Terrace 6</i>
3-6-3 Fundamentals of Heat Transfer – I (K-8)	4-3-1 CFD Modeling (K-10)	6-2-1 Heat Transfer in Novel Thermal Management System (TMS) for Aerospace (K-12)
<i>Chair: Leslie Phinney, Sandia National Laboratories; Co-Chair: Don Beasley</i>	<i>Chair: Arun Muley, Honeywell Aerospace; Co-Chair: Raj Manglik</i>	<i>Chair: M. Erol Ulucakli, Lafayette College; Co-Chair: Julie Asfia, Boeing Company; N.K. Anand</i>
56061 Numerical Prediction of Flow and Heat Transfer Rates in Metal Based Microchannels Using Lattice Boltzmann Method Pritish R. Parida and Srinath V. Ekkad	56216 Numerical Study on Forced Convective Heat Transfer in Porous Pin Fin Channels Jian Yang, Zen Ming and Qiuwang Wang	56284 Measurement of Transient Natural Convection in Non-Ventilated Aircraft Compartments V. Egan, T.W Confrey, D. Newport and V. Lacarac
56333 Turbulent Natural Convection in a Differentially Heated Vertical Channel Abolfazl Shiri and William K. George	56421 Three-Dimensional CFD Modelling and Analysis of the Thermal Entrainment in Open Refrigerated Display Cabinets Pedro Dinis Gaspar, L.C. Carrilho Gonçalves and R.A. Pitarma	56319 A Thermoregulatory Model for Cooling Garment Applications with Transient Metabolic Rates Johan K. Westin, Jayanta S. Kapa and Louis C. Chow
56413 Natural Convection Heat Transfer from Vertical Square Ducts Mohamed E. Ali	56452 CFD Modeling and Analysis of a Small Shell-and-Tube Heat Exchanger Ender Ozden and Ilker Tari	56320 An Analysis of Natural Convection in Leading Edge Wing Compartments V. Egan, D. Moore, D. Newport, V. Lacarac, T. Brown and B. Estebe
56008 Entropy-Based Loss Coefficients for Turbulent Channel Flow with Heat Transfer G. F. Naterer and O. B. Adeyinka	56217 Numerical Studies of a Novel Combined Multiple Shell-Pass Shell-and-Tube Heat Exchanger with Helical Baffles Qiuwang Wang, Guidong Chen, Qiuyang Chen, Min Zeng and Dahai Zhang	56321 Velocity Field Measurements in Leading Edge Wing Compartments V. Egan, D. T. Newport, V. Larcarac, T. Brown and B. Estebe
56028 Buoyant Convection Superposed Metal Foam and Water Layers V. Kathare, F. A. Kulacki and Jane H. Davidson	56011 A Dynamic Heat Transfer Analysis of a Three-Sided Pyramidal Fin of Scalene Triangular Cross-Sectional Area Richard G. Carranza	

3:40 – 4:00 pm Break

WEDNESDAY August 13, 2008

PARALLEL SESSIONS /2:10 – 3:40 pm

<i>City Terrace 7</i>	<i>City Terrace 8</i>	<i>City Terrace 9</i>
2-2-1 General Papers - I	1-4-1 Integrated Modeling (K-6)	19-1-1 Low Temperature Heat and Mass Transfer (K-18)
<i>Chair: Jacob Chung, University of Florida; Co-Chairs: Shalabh Maroo, University of Florida; .M. Mahmoud, University of Florida; Ayyoub Mehdizadeh, University of Florida</i>	<i>Chair: Jennifer Batson, Lockheed Martin; Co-Chair: Ab Hashemi</i>	<i>Chair: Ayyoub Mehdizadeh, University of Florida; Co-Chairs: Peng Zhang, Shanghai Jiao Tong University; Fotouh Al-Raqom, University of Florida; S.A. Sherif, University of Florida</i>
56044 Heat Transfer Enhancement in Channel Flow Using an Inclined Square Cylinder Dong-Hyeog Yoon, Kyung-Soo Yang and Choon-Bum Choi	56191 Reverse Monte-Carlo Ray-Tracing Method Combined with Full Spectrum K-Distribution Method for Radiative Heat Transfer Xiaoqing Sun and Philip J. Smith	56163 Flow Boiling Patterns of Liquid Nitrogen in Micro-Tubes P. Zhang, X. Fu and R. Z. Wang
56172 The Effect of a Magnetic Field on Bouyancy-Driven LIN Differentially Heated Square Cavity with Two Insulated Baffles M. Ghassemi, M. Pirmohammadi and G. A. Sheikhzadeh	56236 Experimental and Numerical Determination of Thermal Radiative Properties of ZnO Particulate Media Patrick Coray, Wojciech Lipiński and Aldo Steinfeld	56316 Experimental and Computational Study of Nanoparticle Transport in Agarose Gel M. Salloum, D. Su, R. Ma and L. Zhu
56238 Numerical Study of Natural Convection in a Partitioned Cavity M. Ghassemi, M. Pirmohammadi and G. A. Sheikhzadeh	56332 Numerical and Experimental Study on Heat Transfer Process under Microwave Irradiation with Inserting Reflector to Enhance Energy Absorption Rate M Kumja, Ng Kim Choon and Christopher Yap	56436 Performance of Thermoacoustic Refrigerators: Cooling Load and Coefficient of Performance Cila Herman, Christopher Lavin and Zdenek Trávníček
56497 Integrated Gas Dynamic and Thermodynamic Computational Modeling of Multicylinder 4-stroke Spark Ignition Engine using Gasoline as Fuel J.V. Tirkey, H.N. Gupta and S.K.Shukla		
56254 Temperature and Concentration Simulations in the Methanol Steam Reformer Yen-Cho Chen, Rei-Yu Chein and Li-Chun Chen		

3:40 – 4:00 pm Break

WEDNESDAY August 13, 2008

PARALLEL SESSIONS /4:00 – 5:30 pm

<i>City Terrace 4</i>	<i>City Terrace 5</i>	<i>City Terrace 6</i>

3-6-4 Fundamentals of Heat Transfer II (K-8)	4-3-2 CFD Modeling – II (K-10)	7-1-1 Spray and Jet Heat Transfer (K-13)
<i>Chair: Don Beasley; Co-Chair: Leslie Phinney, Sandia National Laboratories</i>	<i>Chair: Arun Muley, Honeywell Aerospace; Co-Chair: Vijayaraghavan Chakravarthy, Praxair Inc</i>	<i>Chair: Vinod Narayanan, Oregon State University; Co-Chairs: Tailian Chen, Wolverine Tube Inc.; Jungho Kim, U. of Maryland</i>
56243 Validation of a Thermal Spreading/Constriction Resistance Model for a Convectively Cooled Plate with an Applied Heat Flux P.Y.C. Lee and W.H. Leong	56237 Developing Forced and Free Convection for Inclined Semicircular Ducts Yousef M. F. El. Hasadi	56034 Direct Simulation of Spray Cooling: Effect of Multiple Droplet Impact and Latent Heat of Vaporization of Coolant Liquid on Heat Transfer Mita Sarkar, R. Panneer Selvam and Rengasamy Ponnappan
56467 Solution of Heat Conduction Problem in Automotive Clutch and Brake Systems Abdullah M. Al-Shabibi	56268 Negatively Buoyant Plume Flow in a Baffle S. K. S. Boetcher and F. A. Kulacki	56148 Jet Impingement Melting with Vaporization: A Numerical Study Jayesh Jain, Subhrajit Dey, L. Muralidharan, Andrew M. Leach and Jan Henrik Ardenkjaer-Larsen
56448 Effect of Variable Thermal Conductivity on Heat Transfer From a Hollow Sphere with Heat Generation Z. H. Khan and W. A. Khan	56478 Heat Transfer Enhancement in Triangular Fin H.Shokouhmand, M.Moghaddami and H.Jafari	56003 Experimental Measurements and Numerical Modeling for the Air-Mist Cooling of a Heated Cylinder Roy J. Issa, Emily M. Hunt and Freddie J. Davis
56501 The Temperature Distributions of Trapezoidal Fin under Periodic Thermal Conditions H.Shokouhmand, N.Khabazi, S.M.Taghavi and H.Jafari	56213 Performance Comparison of Particle Swarm Optimization and Genetic Algorithm in Rolling Fin-Tube Heat Exchanger Optimization Design W.T.Han, L.H.Tang, G.N.Xie and Q.W.Wang	56371 Phenomenon Identification and Ranking Exercise and a Review of Large-Scale Spray Modeling Technology Alexander L. Brown, Sam S. Yoon and Richard A. Jepsen
56159 Analytic Solution of Thermal Spreading Resistance: Generalization To Arbitrary-Shape Heat Sources on a Half-Space E. Sadeghi, M. Bahrami and N. Djilali	56241 Artificial-Neural-Networks-based Correlating Heat Transfer and Friction of Three Kinds of Heat Exchangers having Large Tube-Diameter and Large Tube-Row Gongnan Xie, Bengt Sunden, Linghong Tang and Qiuwang Wang	56384 Hysteresis in Spray Cooling of Micro-Structured Surfaces Huseyin Bostanci, Daniel P. Rini, John P. Kizito and Louis C. Chow

WEDNESDAY August 13, 2008

PARALLEL SESSIONS /4:00 – 5:30 pm

<i>City Terrace 7</i>	<i>City Terrace 8</i>	<i>City Terrace 9</i>
2-2-2 General Papers II	1-3-1 Heat Transfr in Nanostructure and Naoporous Materials (K-6)	
<i>Chair:</i> Alpana Agarwal; <i>Co-Chairs:</i> Fotouh Al-Raqom, <i>University of Florida</i> Ayyoub Mehdizadeh, <i>University of Florida</i> ; A.M. Mahmoud, <i>University of Florida</i>	<i>Chair:</i> Ab Hashemi; <i>Co-Ch</i> Ingrid Cotoros, <i>Lockheed Martin air:</i>	
56441 Statistical Model of Operational Parameters Influence over the Thermal Contact Resistance on Bimetallic L-Type Finned Tubes Ignacio Carvajal-Mariscal, Florencio Sanchez-Silva, Georgiy Polupan and Yevgen Pysmenny	56306 Thermal Management in the Measurement of Metal Hydride Kinetics Tyler G Voskuilen, Yuan Zheng and Timothée Pourpoint	
56054 Comparison of Vacuum Glazing Thermal Performance Predicted Using Two and Three Dimensional Models and Their Experimental Validation Yueping Fang, Trevor J. Hyde, Neil Hewitt, Philip C. Eames and Brian Norton	56311 Transient Plane Source Method for Thermal Property Measurements of Metal Hydrides Scott Flueckiger, Yuan Zheng and Timothée Pourpoint	
56279 Single Impinging Slot Jet on a Concave Surface: Inlet/Outlet Influence L.-E. Brizzi, T.K.D. Hoang, E. Dorignac and M. Fénot	56385 Thermal Transport in Finite Sized Nanocomposites Dhruv Singh, Jayathi Y. Murthy and Timothy S. Fisher	
56323 Effects of Channel Height and Bulk Temperature Considerations on Heat Transfer Coefficient of Wetted Surfaces in a Single Inline Row Impingement Channel Mark Ricklick, Stephanie Kersten, V. Krishnan and J. S. Kapat	56403 Atomic-Scale Three-Dimensional Phononic Crystals with a Lower Thermal Conductivity than the Einstein Limit of Bulk Silicon Jean-Numa Gillet, Yann Chalopin and Sebastian Volz	
56173 An Analysis of a Direct Contact Ice Slurry Generator M.A.Wahed and M.N.A Hawlader	56412 Measurement of Near-Field Thermal Radiation between Two Closely-Spaced Glass Plates Lu Hu, Arvind Narayanaswamy, Xiaoyuan Chen and Gang Chen	
56369 Experimental Analysis of Backward Facing Step Flow in Microchannels using Micro Particle Imaging Velocimetry (presentation only) Ranganathan Kumar	56450 Performance of Thermal Enhancement Materials in High Pressure Metal Hydride Storage Systems Timothée L Pourpoint, Aaron Sisto, Kyle C Smith, Tyler G Voskuilen, Milan K Visaria, Yuan Zheng and Timothy S Fisher	

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