

## TS 1: MONDAY MORNING, JULY 23

09:45 AM	10:05 AM	10:25 AM	10:45 AM	11:05 AM	11:25 AM
<b>FLR 7: Hudson</b>	<b>#MS701</b>	<b>Computational Heat Transfer, Chair(s): Darrell Pepper</b>			
Compressible Flow and Conjugate Heat Transfer Using Blended RBF Interpolation  <i>Michael Harris*, Alain Kassab, Eduardo Divo</i>		An Efficient and Accurate Method for the Transient Heat Conduction in 2D Periodic Structures  <i>Qiang Gao*, Haichao Cui, Ying Feng</i>	On the Use of the Adjoint Method to Evaluate Sensitivities in Adsorbed Natural Gas Storage Systems  <i>Bruno Galelli Chieragatti*, João de Sá Brasil Lima, Ernani Vitillo Volpe, Marcelo Tanaka Hayashi</i>	Adjoint Based Optimization of a Supersonic Separator  <i>Jairo Paes Cavalcanti Filho, Ulisses Adonis Silva Costa, Ernani Vitillo Volpe*, Marcelo Tanaka Hayashi</i>	
<b>FLR 9: Marquis-Salon A</b>	<b>#MS705</b>	<b>Computational Methods for Kinetic Collisional Transport, Chair(s): Jeff Haack</b>			
Title: A Collision-Based Hybrid Method for Linear Transport  <i>Cory Hauck*</i>	Comparison of Accuracy and Computational Cost of Different Numerical Boltzmann Solvers  <i>Erik Torres*, Jeff Haack, Irene Gamba, Thierry Magin</i>	A Deterministic-stochastic Method for Computing the Boltzmann Collision Integral in O(MN) Operations  <i>Alexander Alekseenko, Truong Nguyen*, Aihua Wood</i>	Evaluating High Order Discontinuous Galerkin Discretizations of the Boltzmann Collision Integral in O(N <sup>2</sup> ) Operations Using the Discrete Fourier Transform  <i>Alexander Alekseenko, Jeffrey Limbacher*</i>	Hierarchical Boltzmann Simulations and M(odel)-refinement  <i>Manuel Torrilhon*</i>	
<b>FLR 7: Chelsea</b>	<b>#MS714</b>	<b>Numerical Modeling of Granular and Multiphase Flows, Chair(s): Prof Wei Wang</b>			
Discrete Element Simulation for Industrial Applications  <i>Mikio Sakai*</i>		Simulation of Dilute and Dense Non-Spherical Particle Laden Flows: Movement and Orientation Behaviour  <i>Miguel A. Romero-Valle*, Hermann Nirschl, Christoph Goniva</i>	Modeling and Prediction of Particle Size Distribution in Milling Process using Discrete Element Method  <i>Yuki Tsunazawa*, Chiharu Tokoro</i>	Coarse Graining DEM for a Non-spherical Particle System  <i>Kazuya Takabatake*, Mikio Sakai</i>	
<b>FLR 7: Gotham</b>	<b>#MS804</b>	<b>Novel Mathematical Models and Computational Methods, Chair(s): N. R. Aluru</b>			
A One-dimensional Model for Large Deformation and Materially Nonlinear Analysis of 3-D Structures  <i>Archana Arbind*, J N Reddy, Arun Srinivasa</i>	Large Deformation Analysis with Connecting Shell and Solid Elements by Using Nitsche's Method  <i>Isao Saiki, Takahiro Yamada, Kazumi Matsui, Takeki Yamamoto*</i>	Schwarz Alternating Implicit Enrichment Methods for Analysis of Kirchhoff-Love Plate Model with Angular Corners  <i>Birce Palta*</i>	Parameterized Grillage Model and Computational Method of Steel-concrete Composite Waffle Floor Systems Based on Numerical Simulation  <i>Yu-Tao Guo*, Mu-Xuan Tao, Xin Nie, Jian-Sheng Fan</i>		
<b>FLR 9: Marquis-Salon B</b>	<b>#MS807</b>	<b>Numerical Simulation of Engineering and Science, Chair(s): Siwen Gao</b>			
Numerically Efficient Microstructure-based Calculation of Internal Stresses in Superalloys  <i>Siwen Gao*, Umaaran Gogilan, Anxin Ma, Alexander Hartmaier</i>		Response Analysis of Moving Load on Stepped Cantilever Beam  <i>Bo Zhang*, Yunxuan Gong</i>	Impact Characteristics Analysis and Fatigue Life Estimation of Recoil Spring  <i>Zhifang Wei*, Yechang Hu</i>	Dynamic Meshing Analysis of Spur Gear Based on the Modified Vector Form Intrinsic Finite Element (VFIFE) Method  <i>Xiangying Hou*, Zongde Fang, Jinke Jiang</i>	



## TS 2: MONDAY AFTERNOON, JULY 23

02:00 PM	02:20 PM	02:40 PM	03:00 PM	03:20 PM	03:40 PM
<b>FLR 7: Gramercy</b>	<b>#MS603</b>	<b>Smart Materials across the Scales: Modeling, Experiment and Simulation, Chair(s): Stephan Lange</b>			
Multiscale Study on Origin of Magnetoelectric Effect in Multiferroic Composite Materials	The Magneto-electric Coupling in Multiferroic Composites: Magnetostrictive Preisach and Ferroelectric Switching Model	Imperfect Interfaces in Magnetoelectric Composites and Their Impact on Coupling Coefficients	On Relaxed Energy Potentials in Magnetomechanics	Insights on Constitutive Modeling of Magnetic Shape Memory Alloys	
<i>Yasutomo Uetsuji*, Takeshi Wada</i>	<i>Matthias Labusch*, Jörg Schröder</i>	<i>Alexander Schlosser*, Andreas Ricoeur</i>	<i>Bjoern Kiefer*, Thorsten Bartel</i>	<i>Heidi Feigenbaum*, J. Lance Eberle, Constantin Ciocanel, Glen Dsilva</i>	
<b>FLR 7: Herald</b>	<b>#MS614</b>	<b>Materials Genomics, Chair(s): James Saal &amp; Gilad Kusne</b>			
Materials Genomics and the Future of Structural Alloy Design and Application		ICME Design of High Performance Ni-based and High-Entropy Turbine Alloys	Autonomous Materials Research Systems: Phase Mapping	Linking High-Throughput Binary Calculations to Phase Evolution in Multicomponent Alloys	
<i>David Furrer*</i>		<i>James Saal*, Jiadong Gong, Ricardo Komai, Greg Olson</i>	<i>A. Gilad Kusne*, Brian DeCost, Jason Hatrick-Simpers, Ichiro Takeuchi</i>	<i>James R. Morris*, Louis Santodonato, M. Claudia Troparevsky, Raymond R. Unocic, Peter K. Liaw</i>	
<b>FLR 9: Marquis-Salon A</b>	<b>#MS705</b>	<b>Computational Methods for Kinetic Collisional Transport, Chair(s): Thierry Magin, VKI</b>			
A Conservative, Entropic Multispecies BGK Model	A Heterogeneous Multiscale Method Connecting Kinetic Theory and Molecular Dynamics	Interfacial Mixing in High-energy-density Matter with Multiphysics Kinetic and Molecular Dynamics Models			
<i>Jeff Haack*, Michael S. Murillo, Cory Hauck</i>	<i>Gil Shohet*, Jake Price, Jeff Haack, Mathieu Marcianti, Michael S. Murillo</i>	<i>Michael S. Murillo*, Liam Stanton, Jeff Haack</i>			
<b>FLR 7: Chelsea</b>	<b>#MS714</b>	<b>Numerical Modeling of Granular and Multiphase Flows, Chair(s): Prof Mikio Sakai</b>			
Bridging Between EMMS and Nonequilibrium Thermodynamics: Structure-Dependent Analysis of Energy Dissipation and CFD Validation		Meso-scale Nonequilibrium Features in a Gas-Fluidized Bed	DEM Simulations for the Investigations of the Mechanochemical Activation of Copper Ores	Modelling of the Interaction of a Gas-particle Mixture with a Detached Shock	
<i>Yujie Tian*, Wei Wang</i>		<i>Haifeng Wang, Yanpei Chen, Wei Wang*</i>	<i>Masaya Minagawa*, Shosei Hisatomi, Tatsuya Kato, Giuseppe Granata, Chiharu Tokoro</i>	<i>Gentien Marois*, Philippe Villedieu, Julien Mathiaud</i>	
<b>FLR 7: Gotham</b>	<b>#MS804</b>	<b>Novel Mathematical Models and Computational Methods, Chair(s): N. R. Aluru</b>			
A Point Dipole CG Model and Quasi-Continuum Treatment of Confined Water	Molecular-mechanical Modeling of Fluid Structure at the Solid-fluid Interface and Transport under Nanoconfinement	Constrained Relative Entropy for Coarse-Grained Force Field Development of Room Temperature Ionic Liquids	Novel Kinetic Model and Kinetic Consistent Algorithm of Magneto Hydro Dynamics	Simulation of Lipid Membrane Rupture via Cellular Automation	
<i>Mohammad Motevaselian*, Sikandar Mashayak, Narayana Aluru</i>	<i>Gerald Wang*, Nicolas Hadjiconstantinou</i>	<i>Alireza Moradzadeh*, Hossein Motevaselian, Sikandar Mashayak, Narayana Aluru</i>	<i>Valeri Saveliev*, Boris Chetverushkin, Andrey Saveliev</i>	<i>Abhay Gupta*, Irep Gozen, Michael Taylor</i>	

### TS 3: MONDAY EVENING, JULY 23

04:30 PM	04:50 PM	05:10 PM	05:30 PM	05:50 PM	06:10 PM
<b>FLR 7: Hudson</b>	<b>#MS701</b>	<b>Computational Heat Transfer, Chair(s): Dave Carrington</b>			
Study of Turbulent Flows in an Air-filled Differentially-heated Cavity of Aspect Ratio 4: A Comparison between DNS, LES and Experimental Results  <i>Nicolas Thiers*, Olivier Skurtys, Romain Gers</i>	Direct Numerical Simulation of Thermal Turbulence and Conjugated Heat Transfer in Film-cooling Structures  <i>Ting Yu*, Hongyi Xu, Duo Wang</i>	An Implicit Generalized Finite-Difference Method for Solving a Generalized Dual-Phase Lag Equation  <i>Lukasz Turchan*</i>	Microstructural Modeling of Thermal Energy Storage Phenomena in Cement Pastes Containing Microencapsulated Phase Change Materials (MPCM)  <i>Christoph Mankel, Antonio Caggiano*, Eddie Koenders</i>	A Random Choice Method for Modelling the Rubinstein and Stefan-like Problems  <i>Sabrina Carpy*, Hélène Mathis, Teodor Burghilea, Cathy Castelain, Gael Choblet, Anais Crestetto, Caroline Dumoulin, Olivier Grasset, Guy Moebs, Erwan Le Menn, Gabriel Tobie</i>	Numerical Simulations of the Ignition Dynamics in an Annular Combustor  <i>Yifan Xia*, Yao Zheng, Dongmei Zhao, Haiwen Ge, Gaofeng Wang</i>
<b>FLR 9: Marquis-Salon A</b>	<b>#MS705</b>	<b>Computational Methods for Kinetic Collisional Transport, Chair(s): TBA</b>			
A Numeric Algorithm for Solving Kinetic Equations Across All Flow Regimes  <i>Bo Kong*, Rodney Fox</i>	A Low-Mach Number Preconditioner for the 10-Moment Closure with Application to Non-Equilibrium Gas Flows  <i>James McDonald*, Fabien Giroux</i>	Application and Numerical Solution of 14-Moment Maximum-Entropy-Based Moment Closures for Describing Non-Equilibrium Gaseous Flows with Shocks  <i>Clinton Groth*, Lucie Freret</i>			
<b>FLR 7: Chelsea</b>	<b>#MS714</b>	<b>Numerical Modeling of Granular and Multiphase Flows, Chair(s): Dr Yuki Tsunazawa</b>			
Modeling of Locked Particle Behavior in Magnetic Separation Using DEM and FEM  <i>Yuki Tsunazawa, Takuma Tokoro, Giuseppe Granata, Masanori Kaneko*, Chiharu Tokoro</i>	Investigation of Relationship between Copper Liberation and Inner Force of High Pressure Grinding Roll by Applying DEM Simulation  <i>Yu Nagata*, Yukihiro Sawamura, Masaya Minagawa, Yuki Tsunazawa, Giuseppe Granata, Ryo Kawarabuki, Kohei Mitsuhashi, Kouji Tsukada, Takashi Misumi, Chiharu Tokoro</i>	Mathematical Modelling of Water-flooding Techniques in Heterogeneous Hydrocarbon Reservoirs  <i>Tufan Ghosh*, G. P. Raja Sekhar, Debasis Deb</i>			
<b>FLR 7: Gotham</b>	<b>#MS804</b>	<b>Novel Mathematical Models and Computational Methods, Chair(s): M. H. Motevaselian</b>			
Multiresolution Adaptive Wavelet Solver for Nonlinear Partial Differential Equations with Error Control  <i>Cale Harnish*, Karel Matouš, Daniel Livescu</i>	Computation of Incompressible Navier-Stokes Equations by Local Radial Basis Function Collocation Method  <i>Bing-Han Lin, Bang-Fuh Chen*, Chia-Cheng Tsai</i>	Fast Spectral Solvers without Linear Reference Medium  <i>Till Junge*</i>	The Strategy for Modeling and Solving Uncertainly Defined Boundary Value Problems  <i>Eugeniusz Zieniuk*, Marta Kapturczak, Agnieszka Boltuc</i>		