

Sunday, July 26th 2009

12:00 PM

ICLASS - Americas Board Meeting (Blue Sky Room)

5:00 PM

Registration (Registration Desk)

6:00 PM

Opening Reception / Exhibitors / Poster Session (Grand Ballroom A-F)

Monday, July 27th 2009

7:30 AM		<b>Registration</b>			
8:30 AM		ICLASS 2009 Opening Remarks			
8:45 AM		Plenary Lecture: <b>Current progress in atomization and spray technology for medical applications</b> Muh-Rong Wang, Professor INSTITUTE OF AERONAUTICS AND ASTRONAUTICS NATIONAL CHENG KUNG UNIVERSITY Tainan, Taiwan, ROC			
9:45 AM		<b>Mini-Symposium on Cavitation</b>	<b>Mini-Symposium on Diesel Sprays</b>	<b>Mini-Symposium on Simulation &amp; Validation</b>	<b>Droplets &amp; Turbulence I</b>
		<b>Session Chairs: Akira Sou and Sadegh Dabiri</b> <b>Grand Ballroom (Salon G-J)</b>	<b>Session Chairs: Scott Parrish and Vince Mc Donnell</b> <b>Grand Ballroom (Salon F)</b>	<b>Session Chairs: Josette Bellan and Bret Van Poppel</b> <b>Blue Sky</b>	<b>Session Chairs: Madjid Boukra and Antonio Cavaliere</b> <b>Sun Down</b>
10:00 AM	Paper 1	Paper Number: 235  Paper Title: Modeling of Cavitation Phenomenon inside a Nozzle Under High Fuel Pressure Condition  Paper Authors: Y. Moriyoshi and K. Suga  Affiliation: Department of Mechanical Engineering Chiba University	Paper Number: 039  Paper Title: Modeling sub-grid scale mixing of vapor in diesel sprays using jet theory  Paper Authors: Neerav Abani and Rolf D. Reitz  Affiliation: Engine Research Center, University of Wisconsin-Madison	Paper Number: 091  Paper Title: Large Eddy Simulation of Fuel Sprays using the Eulerian Mesoscopic Approach. Validations in realistic engine conditions  Paper Authors: L. Martinez <sup>1</sup> , A. Vie <sup>1</sup> , S. Jay <sup>1</sup> , A. Benkenida <sup>1</sup> and B. Cuenot <sup>2</sup>  Affiliation: 1. IFP, France 2. CERFACS, France	Paper Number: 110  Paper Title: Effect of Combustion Air Temperature on Combustion Characteristics of New Type Combustor with Upward Swirl  Paper Authors: Tomohiko Furuhashi, Toru Sasaki and Masataka Arai  Affiliation: Department of Mechanical System Engineering, Gunma University
10:25 AM	Paper 2	Paper Number: 197  Paper Title: Comparison of Flow and Cavitation Processes in Conventional and Group-Hole Diesel Injector Nozzles using Numerical Simulations  Paper Authors: W. G. Lee and R. D. Reitz  Affiliation: Research Center, University of Wisconsin-Madison	Paper Number: 228  Paper title: Stochastic model of the near-to-injector spray formation in Diesel-like conditions  Paper authors: M. Gorokhovskii <sup>1</sup> and A. Chhab-Deshpande <sup>2</sup>  Affiliation: 1. Laboratory of Fluid Mechanics and Acoustics, UMR France. CD-Adapco, France	Paper Number: 302  Paper Title: An experimental investigation of spray formation as affected by sprinkler geometry  Paper Authors: Xiangyang Zhou and Hong-Zeng Yu  Affiliation: FM Global, Norwood, MA	Paper Number: 126  Paper Title: Interactions between evaporating droplets in a monodisperse stream  Paper Authors: Bruno Frackowiak <sup>1</sup> , Gérard Lavergne <sup>2</sup> , Cameron Tropea <sup>1</sup> , Alain Strzelecki <sup>2</sup>  Affiliation: 1: Technische Universität Darmstadt, Germany. 2: ONERA, DMAE, France
10:50 AM	Paper 3	Paper Number: 112  Paper Title: Effect of Cavitation inside Nozzle on Liquid Jet  Paper Authors: M. Daikoku <sup>1</sup> and S. Ogasawara <sup>2</sup>  Affiliation: 1. Department of Mechanical Engineering, Hachinohe Institute of Technology, 2. Department of Intelligent Machines and System Engineering, Hiroshima University	Paper Number: 057  Paper Title: Computed and Measured Fuel Vapor Distribution in a Full-Cone Spray at High Chamber Pressure and Temperature  Paper Authors: John Abraham <sup>1,2</sup> , Lyle M. Pickett <sup>2</sup>  Affiliation: 1. Purdue University 2. Sandia National Laboratories, Livermore, CA	Paper Number: 051  Paper Title: Discharge and Dispersion in Water-Mist Sprays: Experimental and Numerical Analysis  Paper Authors: Paolo E. Santangelo <sup>1</sup> , Paolo Tartarini <sup>1</sup> , Beatrice Pulvirenti <sup>2</sup> , Paolo Valdiserri <sup>2</sup>  Affiliation: 1. Università degli Studi di Modena e Reggio Emilia, Italy, 2. Alma Mater Studiorum – Università di Bologna, Italy	Paper Number: 230  Paper Title: Thermal and Evaporative Spray Plume Characteristics Using Computational Fluid Dynamics  Paper Authors: W. Kalata, K. Brown, K. M. Bade and R. J. Schick  Affiliation: Spray Analysis and Research Services Spraying Systems Co.
11:15 AM	Paper 4	Paper Number: 180  Paper Title: Investigating the Effect of the Injector Length/Diameter ratio on the Primary Breakup of Liquid Jets using X-ray Diagnostics  Paper Authors: Anu R. Osta <sup>1</sup> , Jaiho Lee <sup>1</sup> , Khaled A. Sallam <sup>1</sup> , and Kamel Fezzaa <sup>2</sup>  Affiliation: Mechanical and Aerospace Engineering, Oklahoma State University, 2. Advanced Photon Source, Argonne National Laboratory, Argonne, Illinois.	Paper Number: 155  Paper Title: Single-Shot Ultra-Fast Phase-Contrast X-ray Imaging of High-Pressure Diesel Fuel Sprays  Paper Authors: Zunping Liu <sup>1</sup> , Kyoung-Su Im <sup>1</sup> , Xingbin Xie <sup>2</sup> , Yujie Wang <sup>1</sup> , Kamel Fezzaa <sup>1</sup> , Ming-Chia Lai <sup>2</sup> , and Jin Wang <sup>1</sup>  Affiliation: <sup>1</sup> X-Ray Science Division, Argonne National Laboratory, 9700 South Cass Ave., Argonne, IL 60439-4800; <sup>2</sup> Department of Mechanical Engineering, Wayne State University, 5050 Anthony Wayne Dr, Detroit, MI 48202.	Paper Number: 005  Paper title: Validation and Initial Application of a Novel Spray Combustion Chamber Representative of Large Two-Stroke Diesel Engine Combustion Systems  Paper authors: K. Herrmann <sup>1</sup> , A. Kyrtatos <sup>1</sup> , R. Schulz <sup>1</sup> and G. Weisser <sup>1</sup>  B. von Rotz <sup>2</sup> , B. Schneider <sup>2</sup> and K. Boulouchos <sup>2</sup>  Author affiliation: 1. Wärsilä Switzerland 2. Aerothermochemistry and Combustion Systems Laboratory Zurich, Switzerland	Paper Number: 090  Paper Title: Validation of the Eulerian Mesoscopic Approach in Particle-Charged Homogeneous Isotropic Decaying Turbulence in the scope of Large Eddy Simulation of Fuel Sprays  Paper Authors: A. Vie <sup>1</sup> , L. Martinez <sup>1</sup> , S. Jay <sup>1</sup> , A. Benkenida <sup>1</sup> and B. Cuenot <sup>2</sup>  Affiliation: 1 IFP, Cedex – France 2. CERFACS, Cedex 1 - France
11:40 AM	<b>Lunch (Colorado Ballroom) / Exhibitors (Grand Ballroom)</b>				

Monday, July 27th 2009 continued AFTER LUNCH...

		<b>Mini-Symposium on Cavitation</b>	<b>Mini-Symposium on Diesel Sprays</b>	<b>Mini-Symposium on Simulation &amp; Validation</b>	<b>Droplets &amp; Turbulence I</b>
		<b>Session Chairs: Masataka Arai and Jim Drallmeier</b> <b>Grand Ballroom (Salon G-J)</b>	<b>Session Chairs: Terry Parker and Sage Kokjohn</b> <b>Grand Ballroom (Salon F)</b>	<b>Session Chairs: Olivier Desjardins and Matt Opgenorth</b> <b>Blue Sky</b>	<b>Session Chairs: Eva Gutheil and Kyle Bade</b> <b>Sun Down</b>
12:40 PM	Paper 5	Paper Number: 086 Paper Title: The Performance of a Pressure Atomizer with Upstream Flow Obstructions Paper Authors: P. A. Corber and S. Tavoularis Affiliation: Institute for Aerospace Research, University of Ottawa	Paper Number: 109 Paper Title: Spray Development for Low Temperature Combustion in an HSDI Optical Diesel Engine using Multiple Injection Strategies Paper Authors: Tiegang Fang <sup>1</sup> , Robert E. Coverdill <sup>2</sup> , Chia-foh Lee <sup>2</sup> , and Robert A. White <sup>2</sup> Affiliation: 1. North Carolina State University 2. University of Illinois at Urbana-Champaign	Paper Number: 303 Paper Title: Lagrangian Spray Drift Ground Exposure Modeling With Wind Tunnel Droplet Size and Flux Source Data Paper Authors: Andrew Hewitt, <sup>1</sup> Rob Connel, <sup>1</sup> Harold Thistle, <sup>2</sup> Paul Miller, <sup>3</sup> Milton Teske, <sup>4</sup> Ewing, NJ <sup>5</sup> , and Gary Dorr <sup>5</sup> Affiliation: 1. Lincoln Ventures, New Zealand 2. USDA Forest Service, Morgantown, WV 3. TAG, Silsoe, UK 4. Continuum Dynamics, Inc. 5. The University of Queensland, Gatton, Australia	Paper Number: 210 Paper title: Binary water droplet collision study under conditions typical for nuclear reactors Paper authors: Christophe Rabe <sup>1</sup> , Jeanne Malet <sup>1</sup> , François Feuillebois <sup>2</sup> Author affiliation: 1: IRSN, Institut de Radioprotection et de Sécurité Nucléaire France. 2: *LPMHM - UMR CNRS France
1:05 PM	Paper 6	Paper Number: 019 Paper Title: Dimensionless Numbers on Cavitation in a Nozzle of a Plain Orifice Atomizer Paper Authors: Akira Sou, Shigeo Hosokawa and Akio Tomiyama Affiliation: Kobe University	Paper Number: 222 Paper Title: Experimental and Numerical Analysis of Marine Diesel Engine Injection Sprays under Cold and Evaporative Conditions Paper Authors: C. Fink, M. Frobenius, E. Meindl, H. Harndorf Affiliation: Rostock University, Deutschland	Paper Number: 028 Paper Title: APPROPRIATE DATA FOR VALIDATION OF LARGE EDDY SIMULATION OF FLOWS WITH EVAPORATING DROPS Paper Authors: S. Radhakrishnan <sup>1</sup> and J. Bellan <sup>1,2</sup> Affiliation: 1. Jet Propulsion Laboratory 2. California Institute of Technology 3. Mechanical Engineering Department 4. California Institute of Technology	Paper Number: 081 Paper Title: Dispersion of a fuel spray in a heated channel with controlled turbulence: characterization of droplet temperature and fuel vapour distribution. Paper Authors: V. Deprédurand <sup>1</sup> , A. Delcon te <sup>1</sup> , M. Orain <sup>2</sup> , B. Rossow <sup>2</sup> , F. Grisch <sup>2</sup> , F. Lemoine <sup>2</sup> Affiliation: 1 LEMTA, CNRS, 2. ONERA, PALAISEAU CEDEX
1:30 PM	Paper 7	Paper Number: 178 Paper Title: Cavitation Bubbles in Shear Flow Paper Authors: Dabin <sup>1</sup> , William A. Sirignano <sup>1</sup> , Daniel D. Joseph <sup>1,2</sup> Affiliation: 1. University of California, Irvine, 2. University of Minnesota	Paper Number: 006 Paper Title: Theoretical and Experimental Analysis of the Fuel Stream in GDI Engine Paper Authors: Mariusz Cygnar <sup>1</sup> , Karina Janisz <sup>1</sup> , Marek Aleksander <sup>1</sup> , Grzegorz Budzik <sup>2</sup> Affiliation: 1. State Higher Vocational School, Poland. 2. Rzeszow University of Technology, Poland	Paper Number: 064 Paper Title: Improvement of the grid dependency of the momentum coupling and the droplet collision modeling in the Arbitrary Lagrangian-Eulerian method for spray simulations Paper Authors: Sayop Kim and Chang Sik Lee Affiliation: Department of Mechanical Engineering, Graduate School of Hanyang	Paper Number: 209 Paper Title: Flow Field and Mass Flux Measurements Near the Exit Plane of Spray Jets Paper Authors: J. D. Gounder and A. R. Masri Affiliation: School of Aerospace, Mechanical and Mechatronic Engineering The University of Sydney Australia
1:55 PM	Paper 8	Paper Number: 083 Paper Title: Effects of Cavitation in a Nozzle Hole on Atomization of Spray and Development of High-Efficiency Atomization Enhancement Nozzle Paper Authors: N. Tamaki Affiliation: Department of Mechanical Engineering, Kinki University	Paper Number: 015 Paper Title: Investigation of the fuel influence on the injection and mixture process for short injection periods under different diesel engine conditions Paper Authors: Diana Martin, Manuel Reddemann, Reinhold Kneer Affiliation: Institute of Heat and Mass Transfer, RWTH Aachen University, Germany	Paper Number: 053 Paper Title: Detailed numerical investigation of turbulent atomization of liquid jets Paper Authors: Olivier Desjardins Affiliation:	Paper number: 134 Paper title: Experimental investigation of evaporating bi-component droplets in a turbulent channel flow Paper authors: Virginie Bodoc <sup>1</sup> , Florian Moreau <sup>2</sup> , Yves Biscos <sup>1</sup> , Rudy Basile <sup>2</sup> and Gerard Lavergne <sup>1</sup> Author affiliation: 1. Département Modèles pour l'Aérodynamique et l'Energétique, ONERA, France 2. Institut de Mécanique des Fluides de Toulouse France
2:20 PM	<b>Break</b>				

Monday, July 27th 2009 continued AFTER BREAK...

		<b>Mini-Symposium on Cavitation</b>	<b>Mini-Symposium on Diesel Sprays</b>	<b>Mini-Symposium on Simulation &amp; Validation</b>	<b>Agricultural Sprays</b>
		<b>Session Chairs:</b> David Schmidt and Andrew Hewitt <b>Grand Ballroom (Salon G-J)</b>	<b>Session Chairs:</b> Mikhael Gorokhovski and Chris Powell <b>Grand Ballroom (Salon F)</b>	<b>Session Chairs:</b> Mario Trujillo and Senthilkumaran Radhakrishnan <b>Blue Sky</b>	<b>Session Chairs:</b> Ken Giles and Zbigniew Czaczkyk <b>Sun Down</b>
2:45 PM	Paper 9	Paper Number: 102 Paper Title: Thermal and Inertial Equilibrium in Small, High-Speed, Cavitating Nozzle Simulations Paper Author: David P. Schmidt Sukanta Rakshit, and Kshitij Neroorkar Affiliation: Department of Mechanical and Industrial Engineering, University of Massachusetts	Paper Number: 055 Paper Title: Effect of Extreme Compression on Diesel Spray Penetration and Dispersion Paper Author: M. N. Svrcek, S.L. Miller, and C. F. Edwards Affiliation: Department of Mechanical Engineering, Stanford University	Paper Number: 020 Paper Title: Spray characterization of pneumatic concentric nebulizer used in Inductively Coupled Plasma – Mass Spectrometry (ICP-MS) Paper Authors: A. Kashani, D. Bandura, J. Mostaghimi Affiliation: Department of Mechanical and Industrial Engineering, University of Toronto	Paper Name: 040 Paper Title: Effect of Surfactants and Their Concentrations Against Phalaris Minor Control in Wheat (Triticum aestivum) Paper Authors: A.S.Tomar and V.R.Thakre Affiliations: Division of Bioscience, Institute of Pesticide Formulation Technology
3:10 PM	Paper 10	Paper Number: 132 Paper Title: Experimental Study about internal Cavitating Flow and Primary Atomization of a Large-Scaled VCO Diesel Injector with Eccentric Needle Paper Authors: T. Oda, Y. Goda, S. Kanaike, K. Aoki and K. Ohsawa Affiliation: Tottori University Japan, Mitsubishi Motors Corporation, West Japan Railway Company	Paper Number: 082 Paper Title: A Modeling Study of Charge Preparation in an HCCI Engine Using a Variable Pressure Pulse (VPP) Injection System and Optimized PRF Blends Paper Authors: Sage L. Kokjohn and Rolf D. Reitz Affiliation: Engine Research Center, University of Wisconsin - Madison	Paper Number: 131 Paper Title: Dynamics of Droplets Impulsively Accelerated by Gaseous Flow: A Numerical Investigation Paper Authors: Shaoping Quan Affiliation: Large-Scale Complex Systems, Institute of High Performance Computing, Singapore, 138632	Paper number: 088 Paper title: Development of a Protocol for Characterizing Sprays Generated Under Simulated Aerial Conditions Paper authors: B. R.Collett, J. P. Fife, M. J. Shaw, M. C. Shell, and C. L. Scott Author affiliation: Battelle Memorial Institute, Columbus, Ohio
3:35 PM	Paper 11	Paper Number: 089 Paper Title: Evaluation of New Criteria for Cavitation Inception in Diesel Injectors Paper Authors: S. Som <sup>1</sup> , A.I. Ramirez <sup>1</sup> , Alejandro M. Briones <sup>2</sup> , and S. K. Aggarwal <sup>1</sup> Affiliation: 1.Department of Mechanical and Industrial Engineering University of Illinois at Chicago, 2.University of Dayton Research Institute Dayton, OH	Paper Number: 234 Paper Title: Effect of High Ambient Pressure on Behavior and Structure of Diesel Spray Paper Authors: Yuta Manaka, Takayuki Ohta, Masahiro Saito, Tomohiko Furuhashi and Masataka Arai Affiliation: Department of Mechanical System Engineering, Gunma University	Paper Number: 059 Paper Title: Optimization of a 2D Particle Separator – 2009 Paper Authors: M. J. Opgenorth, W. E. McDermott and C. S. Lengsfeld Department of Mechanical and Materials Engineering, University of Denver	Paper Number: 154 Paper Title: Atomization Modeling for an Agricultural Hollow Cone Nozzle Paper Authors: A. Belhadeif, A. Vallet Affiliation: Cemagref, Agricultural and Environmental Engineering Research Centre
4:00 PM	Paper 12	Paper Number: 080 Paper Title: Integrated Computation of Micro-Cavitation in Gasoline Injector Atomization Paper Authors: Jun Ishimoto Affiliation: Institute of Fluid Science, Tohoku University	Paper number: 221 Paper title: Liquid Spray Penetration Under HCCI Conditions Paper authors: S. L. Post <sup>1</sup> , R. J. Stocker <sup>2</sup> and S. Dara <sup>3</sup> Author affiliation: 1. Bradley University, 2.Caterpillar, 3. Bradley University	Paper Number: 114 Paper Title: Numerical Simulations of Spontaneous Ignition of Mono-disperse Fuel Spray in Lean Premixed Gas Paper Authors: O. Morieu, Y. Kawaida, H. Kato and E. Murase Affiliation: Department of Mechanical Engineering, Kyushu University	Paper Number: 256 Paper Title: Vibrational Excitation and Analysis of Fluids to Predict Atomization Characteristics Paper Authors: D.K. Giles and R.L. Stocker Affiliation: Department of Biological and Agricultural Engineering, University of California-Davis
4:25 PM	Paper 13	Paper Number: 168 Paper Title: Effects of Internal Cavitation on Breakup of High-Pressure Diesel Sprays Paper Authors: Kyoungsu IM, Seong-Kyun Cheong, Christopher F. Powell, Xin Liu, and Jin Wang Affiliation:	Paper Number: 118 Paper Title: Investigation on the cavitating flow of biodiesel fuel within the nozzle passage according to the nozzle geometry Paper Authors: Su Han Park <sup>1</sup> , Bong Woo Ryu <sup>1</sup> , Hyung Jun Kim <sup>1</sup> , and Chang Sik Lee <sup>2</sup> Affiliation: 1. Department of Mechanical Engineering, Graduate School of Hanyang University 2. Department of Mechanical Engineering, Hanyang University	Paper Number: 218 Paper Title: An algorithm to evaluate interfacial area and sharp surface tension force in unstructured meshes for level-set method in multiphase flow modeling Paper Authors: Amir Pourmoussa, Hanif Montazeri, Javad Mostaghimi Affiliation: University of Toronto, Canada	Page Number: 041 Paper Title: Effect of Adjuvant on the Rainfastness and Herbicidal Activity of Glyphosate Against Cynodon dactylon and Cyperus rotundus Weeds Paper Authors: A.S.Tomar and S.P.Singh Affiliations: Division of Bioscience, Institute of Pesticide Formulation Technology
4:50 PM	Paper 14	No Paper Scheduled	No Paper Scheduled	No Paper Scheduled	Paper: 054 Paper Title: Drift reducing nozzle systems for space cultures Paper Authors: Zb. Czaczkyk <sup>1</sup> and G. Bäcker <sup>2</sup> Affiliations: 1Institute of Agricultural Engineering, Poznań University of Life Sciences Poland, 2Department of Viticultural Engineering, Geisenheim Research Center, Germany.
6:00 PM	<b>ICLASS International Board Meeting</b>				

Tuesday, July 28th 2009

7:30 AM		<b>Breakfast/Exhibitors</b>			
8:30 AM		Plenary Lecture: Elongational viscosity effects in spraying processes Robert K. Prud'homme, Department of Chemical Engineering, Princeton University			
9:30 AM		<b>Break/Exhibitors</b>			
		<b>Mini-Symposium on Impact/Wetting</b>	<b>Atomization Device</b>	<b>Industrial Sprays</b>	<b>Mini-Symposium on Atomization</b>
		<b>Session Chairs: Milind Jog and Ana Moita</b> <b>Grand Ballroom (Salon G-J)</b>	<b>Session Chairs: Mousa Tembely and Jian Gao</b> <b>Grand Ballroom (Salon F)</b>	<b>Session Chairs: Charles Lipp and J. Enrique Julia</b> <b>Blue Sky</b>	<b>Session Chairs: William Sirignano and Chris Bolszo</b> <b>Sun Down</b>
9:45 AM	Paper 1	Paper Number: 021 Paper Title: Extreme Impact Events for Glycerin Provide new Insights for Splash Dynamics Paper Authors: Alexander L. Brown and Richard A. Jepsen Affiliation: Sandia National Laboratories	Paper Number: 113 Paper Title: Analytical and Experimental Study of Small Droplet Formation in a Pneumatic Drop-on-Demand Generator Paper Authors: A. Amirzadeh Goghari <sup>1</sup> and S. Chandra <sup>2</sup> Affiliation: 1.Department of Mechanical and Industrial Engineering, University of Toronto	Paper Number: 046 Paper Title: Study of the drying behavior of high load multiphase droplets in an acoustic levitator at high temperature conditions Paper Authors: Rosa Mondragon <sup>1</sup> , Leonor Hernandez <sup>2</sup> , J. Enrique Julia <sup>2</sup> , Sergio Chiva <sup>2</sup> , Juan Carlos Jarque <sup>3</sup> and Vicent Cantavella <sup>1</sup> Affiliation: 1.Instituto de Tecnología Cerámica, Asociación de Investigación de las Industrias Cerámicas. Universitat Jaume. Spain 2.Departamento de Ingeniería Mecánica y Construcción. Universitat Jaume, Spain	Paper Number: 194 Paper Title: Multiscale simulations of primary atomization using Gerris Paper Authors: G. Tomar <sup>1,2</sup> , D. Fuster <sup>1,3</sup> , S. Zaleski <sup>1,3</sup> and S. Popinet <sup>4</sup> Affiliation: 1.Institut Jean Le Rond d'Alembert, Paris, France.2.University of California, Santa Barbara, 3.CNRS, UMR 7190, Institut Jean Le Rond d'Alembert, France.4.NIWA, Wellington, New Zealand.
10:10 AM	Paper 2	Paper Number: 025 Paper Title: Droplet transport on a discrete wettability gradient surface: Role of droplet Weber number Paper Authors: Visakh Vaikuntanathan, R Kannan, D Sivakumar Affiliation: Department of Aerospace Engineering, Indian Institute of Science, Bangalore, India	Paper Number: 087 Paper Title: An experimental study of the atomization of a liquid film submitted to an external forcing Paper Authors: Madjid BOUKRA <sup>1,4</sup> , Alain CARTELLIER <sup>2</sup> , Éric DUCASSE <sup>3</sup> , Pierre GAJANI <sup>1</sup> , Marie LALO <sup>1</sup> , Thomas NOEL <sup>4</sup> and Alain STRZELECKI <sup>1</sup> Affiliation: 1ONERA-DMAE, Toulouse; 2LEGI-CNRS-UJF-INPJ, Grenoble; 3LMP, Université de Bordeaux 1, 4SNECMA, Villaroche	Paper Number: 199 Paper Title: Modeling and Validation of the Crystallization Process in Food Sprays Paper Authors: F.X. Tanner <sup>1</sup> , S. Srinivasan <sup>2</sup> , T.O. Althaus <sup>2</sup> , K.A. Feigl <sup>1</sup> and E.J. Windhab <sup>2</sup> Affiliation: 1 Department of Mathematical Sciences, Michigan Technological 2. Laboratory of Food Process Engineering, ETH Zurich, CH-8092 Zurich, Switzerland	Paper Number: 188 Paper Title: Detailed Simulations of the Breakup Processes of Turbulent Liquid Jets in Subsonic Crossflows Paper Authors: M. Herrmann Affiliation: Department of Mechanical and Aerospace Engineering, Arizona State University, Tempe, Arizona
10:35 AM	Paper 3	Paper Number: 161 Paper Title: An experimental study of the crater evolution by impact of a drop onto a fluctuating shallow pool Paper Authors: Nils. P. van Hinsberg, Morteza Shoaie, Ilia. V. Roisman <sup>1</sup> and Cam Tropea Affiliation: Chair of Fluid Mechanics and Aerodynamics, Technische Universität Darmstadt,	Paper Number: 252 Paper Title: New Method of Liquid Atomization Based on Pulse Laser Ablation of Liquid Surface Paper Authors: Yuji Utsunomiya <sup>1</sup> , Takashi Kajiwara <sup>1</sup> , Takashi Nishiyama <sup>1</sup> , Motono Nakahara <sup>2</sup> and Kunihiro Nagayama <sup>1</sup> Affiliation: 1.Kyushu University, Fukuoka Japan 2. Fukuoka Institute of Technology, Fukuoka Japan	Paper Number: 170 Paper Title: Visualization and PDA Measurement of Spray inside a Thermostatic Expansion Valve Paper Authors: Ming Huo Chia-fon F. Lee Affiliation: Department of Mechanical Science Engineering University of Illinois at Urbana Champaign	Paper Number: 225 Paper Title: Trajectory of a Liquid Jet in High Pressure and High Temperature Subsonic Air Crossflow Paper Authors: A. Amighi, M. Eslamian, N. Ashgriz Affiliation: Department of Mechanical and Industrial Engineering, University of Toronto, Toronto, ON, Canada
11:00 AM	Paper 4	Paper Number: 066 Paper Title: Droplet Impact Dynamics of Aqueous Polymeric Solutions Paper Authors: A. Ariyo, M. A. Jog, and R. M. Manglik Affiliation: University of Cincinnati, Cincinnati, OH	Paper Number: 001 Paper Title: Theoretical and Experimental Fluid/Structure Investigation of an On Demand Induced Spray Paper Authors: Mousa Tembely <sup>1</sup> , Christian Lécot <sup>2</sup> and Arthur Soucemarianadin <sup>1</sup> Affiliation: 1Laboratory of Geophysical and Industrial Fluid Flows, University Joseph Fourier, Grenoble, France 2.Laboratory of Applied Mathematics, CNRS, University of Savoie, France	Paper Number: 257 Paper Title: Effective Innovation: using the Theory of Inventive Problem Solving to develop improved wet-wall gas quenches Paper Authors: Charles W. Lipp Affiliation: Lake Innovation, LLC	Paper Number: 007 Paper Title: Influence of Nozzle-Flow Turbulence on the Primary Spray Breakup Paper Authors: B. Balewski <sup>1</sup> , B. Heine <sup>2</sup> and C. Tropea <sup>1</sup> Affiliation: Chair of Fluid Mechanics and Aerodynamics, Technische Universität Darmstadt,
11:25 AM	<b>Lunch - ICLASS Awards and Announcements (Colorado Ballroom) / Exhibitors (Grand Ballroom)</b>				

Tuesday, July 28th 2009 continued AFTER LUNCH...

		<b>Mini-Symposium on Impact/Wetting</b>	<b>Spray Cleaning and Disinfectants</b>	<b>Non-Newtonian / Suspensions I</b>	<b>Mini-Symposium on Atomization</b>
		<b>Session Chairs:</b> Guillermo Aguilar and Olympia Kyriopoulos <b>Grand Ballroom (Salon G-J)</b>	<b>Session Chairs:</b> G.G. Nasr and Michelle Zeles-Hahn <b>Grand Ballroom (Salon F)</b>	<b>Session Chairs:</b> Paul Sojka and Norman Chigier <b>Blue Sky</b>	<b>Session Chairs:</b> Antonio Lozano and Doug Talley <b>Sun Down</b>
12:25 PM	Paper 5	Paper Number: 095 Paper Title: Drop Fingering on Oblique Impact: Part 1—Experimental Data Paper Authors: Richard A. Jepsen, Alexander L. Brown, Guillermo Aguilar, and Henry Vu Affiliation: Sandia National Laboratories, Mechanical Engineering Department, University of California, Riverside	Paper Number: 149 Paper Title: The Characterization of Overlapping Flat Sprays for Descaling Oil and Gas Wells Paper Authors: M. A. El kamkhi, G. G. Nasr, M. Burby and E. Onyukwu Affiliation:	Paper number: 203 Paper title: Atomization for Spray Drying: Unanswered Questions and Industrial Needs Paper authors: J.P. Hecht <sup>1</sup> and A.E. Bayly <sup>2</sup> Affiliation: 1.Process Technologies Department, Corporate Engineering Procter & Gamble West Chester, OH	Paper Number: 145 Paper Title: Laser sheet imaging of high-velocity air atomised water sprays Paper Authors: P. L. Garlick <sup>1</sup> , A. K. Jasuja <sup>2</sup> Affiliation: 1. Independent, 2. Cranfield University, Bedfordshire, UK
12:50 PM	Paper 6	Paper Number: 130 Paper Title: Liquid interface on structured surface and apparent contact angle Paper Authors: A. N. Lembach <sup>1</sup> , I. V. Roisman <sup>1</sup> , F. Z. Batarese <sup>1</sup> , S. Collicott <sup>2</sup> and C. Tropea <sup>1</sup> Affiliation: 1.Department of fluid mechanics and aerodynamics, Technische Universität Darmstadt, Germany; 2.School of Aeronautics and Astronautics, Purdue University, West Lafayette, IN	Paper Number: 217 Paper Title: Cleaning Performance of High Pressure Sprays at Short and Long Stand-off Distances Paper authors: G. G. Nasr <sup>1</sup> , A.J. Yule <sup>1</sup> , D. Woodall <sup>2</sup> and J.Clark <sup>2</sup> Affiliation: 1.Institute of Materials Research (IMR) University of Salford England; 2.Unilever R & D Port Sunlight Wirral England.	Paper Number: 175 Paper Title: A Numerical Study of Axi-symmetric Droplet Formation Using A Moving Mesh Approach Paper Authors: Sandeep Menon, Jonathan Rothstein and David P. Schmidt Affiliation: Department of Mechanical and Industrial Engineering, University of Massachusetts Amherst	Paper Number: 097 Paper Title: Atomization phenomena with plate nozzle with a several ten micrometer slit Paper Authors: N. Iki, T. Ebara, D. Shimizu Affiliations: Energy Technology Research Institute, National Institute of Advanced Industrial Science and Technology (AIST), Maruwa Electronic Incorporated, Graduate School of Kogakuin University
1:15 PM	Paper 7	Paper Number: 096 Paper Title: Drop Fingering on Oblique Impact: Part 2—Modeling Paper Authors: Alexander L. Brown and Richard A. Jepsen Affiliation: Sandia National Laboratories	Paper Number: 002 Paper title: Fine Spray for Disinfection Purposes within Healthcare Environments Paper authors: J. A. Stewart, G. G. Nasr and M. Burby Author affiliation: University of Salford, UK	Paper Number: 013 Paper Title: Influence of suspended solid particles on suspension atomization processes Paper Authors: U. Fritsching, B. Mulhem, O. Kurt and G. Schulte Affiliation: Department of Particle and Process Technology University of Bremen Germany	Paper Number: 185 Paper Title: Effects of Nozzle Geometry on the Near-field Characteristics of a Liquid Jet Paper Authors: S. C. Spangelo, N. Lekic, S. C. Fabbro and M. Birouk Affiliation: Department of Mechanical Engineering, University of Manitoba, Winnipeg, Manitoba R3T 5V6 Canada
1:40 PM	Paper 8	Paper Number: 222 Paper Title: Experimental and Numerical Analysis of Marine Diesel Engine Injection Sprays under Cold and Evaporative Conditions Paper Authors: C. Fink <sup>1</sup> , M. Frobenius <sup>2</sup> , E. Meindl <sup>2</sup> , H. Harndorfs <sup>1</sup> Affiliation: 1.University of Rostock, Germany; 2. AVL Deutschland GmbH, Am Pfanderling 70, 85778 Haimhausen, Germany	Paper Number: 003 Paper title: Spray Characterisation of Glycerin-Water Mixture, Using A Spill-Return Atomiser (SRA) Paper authors: J. A. Stewart, G. G. Nasr and M. Burby Author affiliation: University of Salford, UK	Paper Number: 101 Paper Title: Secondary Breakup of Non-Newtonian Liquid Drops Paper Authors: C. López-Rivera <sup>1</sup> and P. E. Sojka <sup>2</sup> Affiliation: Department of Mechanical Engineering, Purdue University, West Lafayette, IN	Paper Number: 123 Paper Title: Nonlinear instability and encapsulation of a compound liquid jet Paper Authors: Takao Yoshinaga Affiliation: Department of Mechanical Science, Osaka University
2:05 PM	<b>Break/Exhibitors</b>				



Tuesday, July 28th 2009 continued AFTER BREAK...

		<b>Mini-Symposium on Impact/Wetting</b>	<b>Medical Sprays</b>	<b>Non-Newtonian / Suspensions II</b>	<b>Mini-Symposium on Atomization</b>
		<b>Session Chairs: Ilia Roisman and Henry Vu</b> <b>Grand Ballroom (Salon G-J)</b>	<b>Session Chairs: Peter Walzel and Chris Sponhiemer</b> <b>Grand Ballroom (Salon F)</b>	<b>Session Chairs: John Hecht and Celienid Lopez-Rivera</b> <b>Blue Sky</b>	<b>Session Chairs: Takashi Susuki and Daniel Guildenbecher</b> <b>Sun Down</b>
2::30PM	Paper 9	Paper Number: 251 Paper Title: From Single Droplet to Spray Wall Interaction – Multiple Droplet Chains Paper Authors: A. Müller, E. Velios, K. Dullenkopf and H.-J. Bauer Affiliation: Universität Karlsruhe (TH)	Paper Number: 107 Paper Title: Spatially Resolved Characteristics of Pharmaceutical Sprays Paper Authors: A. R. Muliadi and P. E. Sojka Affiliation: Maurice J. Zucrow Laboratories—School of Mechanical Engineering, Purdue University	Paper Number: 164 Paper Title: Effect of Viscoelastic Properties in Impinging Jet Sprays Paper Authors: M. A. Coil Affiliation: Orbital Technologies Corporation (ORBITEC) Madison, WI 53717	Paper Number: 253 Paper Title: Aerodynamic Breakup of Droplets Arrayed in Gas-flow Direction Paper Authors: Takashi SUZUKI <sup>1</sup> and Takahisa YAMAMOTO <sup>2</sup> Affiliation: 1.Department of Mechanical Engineering, Toyohashi University of Technology 2.Department of Mechanical Engineering, Kobe City College of Technology
2:55 PM	Paper 10	Paper Number: 226 Paper Title: Coalescence Dynamics of Two Liquid Droplets Paper Authors: Ri Li <sup>1</sup> , Nasser Ashgriz <sup>2</sup> , Sanjeev Chandra <sup>2</sup> Affiliation: 1: Thermal System Lab, GE Global Research, Niskayuna, NY 2: Department of Mechanical and Industrial Engineering University of Toronto Ontario, Canada	Paper Number: 173 Paper Title: Manufacturing of Taylor Made Carrier Particles for Inhalation Therapy by Spray Drying Paper Authors: Stephan G. Maas, Gerhard Schaldach, Peter Walzel, Nora A. Urbanetz Affiliation: Institute of Pharmaceutics and Biopharmaceutics, Heinrich-Heine-University, Department of Biochemical and Chemical Engineering, Technische Universität Dortmund	Paper Number: 117 Paper Title: Breakup of Shear-Thinning Liquids Subject to Controlled Disturbances Paper Authors: A. Dęchelte <sup>1</sup> , R. Muddu <sup>2</sup> , C. Corvalan <sup>2</sup> and P. E. Sojka <sup>1</sup> Affiliation: 1. School of Mechanical Engineering 2. Department of Food Science 2, Purdue University, West Lafayette, IN	Paper Number: 243 Paper Title: Liquid encapsulation by binary collisions of immiscible liquid drops Paper Authors: C. Planchette <sup>1</sup> , G. Brenn <sup>2</sup> Affiliation: 1. Laboratoire de Physique des Matériaux Divisés et des Interfaces, Université Marne-la-Vallée, Descartes, France 2. Institute of Fluid Mechanics and Heat Transfer, Graz University of Technology Inffeldgasse Graz, Austria
3:20 PM	Paper 11	Paper number: 276 Paper title: Characterization of Poly-Dispersed Paint Droplet Trajectories in Systems with an Electrostatic Rotary Bell Atomizer Paper authors: S. Zhao <sup>1</sup> , G. S. P. Castle <sup>1</sup> , K. Adamiak <sup>1</sup> , Hong-Hsiang (Harry) Kuo <sup>2</sup> , Yar-Ming Wang <sup>2</sup> and Hua-Tzu (Charles) Fan <sup>2</sup> Author affiliation: 1 Dept. of Electrical and Computer Engineering, University of Western Ontario, Canada, 2. GM R&D Center, Warren, Michigan	Paper Number: 167 Paper Title: Thermodynamic Consequence of Aerosolizing Therapeutic Proteins in Solution Paper Authors: M. G Zeles-Hahn and C. S. Lengsfeld Affiliation: Department of Mechanical and Material Engineering, University of Denver CO	Paper Number: 111 Paper Title: Atomization of Liquid Issued from an Ultra High-speed Rotary Bell Paper Authors: S. Ogasawara and M. Daikoku, T. Inamura, Y. Saito, Y. Matsushita, H. Aoki and T. Miura Affiliation: Department of Mechanical Engineering, Hachinohe Institute of Technology, Department of Intelligent Machines and System Engineering, Hiroshima University, Department of Chemical Engineering, Graduate School of Engineering, Tohoku University	Paper Number: 122 Paper Title: The Role of Propagative Capillary Waves in Droplet Formation from Ligament Paper Authors: J. Shinjo <sup>1</sup> , S. Matsuyama <sup>1</sup> , Y. Mizobuchi <sup>1</sup> , S. Ogawa <sup>1</sup> and A. Umemura <sup>2</sup> Affiliation: 1. Japan Aerospace Exploration Agency 2. Nagoya University
3:45 PM	Paper 12	Paper Number: 277 Paper Title: Measurement of Electric Currents in Electrostatic Spray Painting System Paper Authors: Hua-Tzu Fan, Hong-Hsiang Kuo, and Yar-Ming Wang Affiliation: Global Research & Development Center, General Motors Corporation	Paper Number: 027 Paper Title: Valve Designs For Aerosol Cans Paper Authors: R. S. Valpey*, S. P. Kingston, and P. A. Clark Affiliations: SC Johnson and Son	Paper Number: 158 Paper Title: Effects of Fluid Viscosity on the Spray of a Swirl Atomizer in Trigger Sprayers Paper Authors: Shanshan Yao, Ji Zhang, Tiegang Fang, and Jack Edwards Affiliation: Department of Mechanical and Aerospace Engineering North Carolina State University, Raleigh, NC	Paper number: 129 Paper title: A Coupling between Internal Flow and Primary Breakup Simulations - Case of a Compound Nozzle Paper authors: A. Berlemont, J. Cousin, M. Doring and T. Menard Affiliation: CNRS UMR 6614 – CORIA Université et INSA de Rouen Avenue de l'Université – BP 76801 Saint-Etienne du Rouvray, France
4:10 PM	Paper 13	Paper Number: 034 Paper Title: Wettability-Dependent Breakup of Thin Films Formed by Droplet Impact Paper Authors: Rajeev Dhiman and Sanjeev Chandra Affiliation: Department of Mechanical and Industrial Engineering, University of Toronto	No Paper Scheduled	Paper Number: 214 Paper Title: Unsteady simulation of the painting process with high speed rotary bells Paper Authors: J. Domnick <sup>1</sup> , A. Scheibe <sup>1</sup> , Q. Ye <sup>2</sup> Affiliation: 1. University of Applied Sciences Esslingen, Germany; 2. Institut für Industrielle Fertigung und Fabrikbetrieb, University of Stuttgart, Germany	Paper number: 275 Paper title: Generation and Pressure Atomization of Water-in-Oil Emulsions for Gas Turbines Paper authors: C.D. Bolszo, A.A. Narvaez, S. Abilian, A. Jepsen, D. Dunn-Rankin, V.G. McDonnell, and W.A. Sirignano Affiliation: Department of Aerospace and Mechanical Engineering, University of California, Irvine, Irvine, CA
6:00 PM	<b>Western Banquet (4 Eagle Ranch - bus pickup at front of hotel)</b>				

Wednesday, July 29th 2009

7:30 AM		<b>Breakfast/Exhibitors</b>			
8:30 AM		<b>Plenary Lecture: The physics of Electrospray, Flow Focusing and Flow Blurring: a revision of three ultra-fine liquid atomization systems</b> Alfonso M. Ganan Calvo, Chair of Fluid Mechanics, ESI, Universidad de Sevilla			
9:30 AM		<b>Breakfast/Exhibitors</b>			
		<b>Mini-Symposium on Modeling</b>	<b>Mini-Symposium on AeroJet and Rocket Sprays</b>	<b>Mini-Symposium on Diagnostics</b>	<b>Automotive Gasoline I</b>
		<b>Session chair : Marcus Herrmann and Oliver Desjardins</b>	<b>Session chair: Arvind Jasuja and Adel Mansour</b>	<b>Session chair : William Bachalo and Terrence Meyer</b>	<b>Session chair: Yasuo Moriyoshi and David Hung</b>
		<b>Grand Ballroom (Salon G-J)</b>	<b>Grand Ballroom (Salon F)</b>	<b>Blue Sky</b>	<b>Sun Down</b>
9:45 AM	Paper 1	Paper Number: 219 Paper Title: A Particle-Based Method Coupled with Finite Volume Solver for Interfacial Flows Paper Authors: Sourabh V. Apte Affiliation: Oregon State University	Paper number: 224 Paper title: Behaviour of Dense, Industrial Sprays: A Comparative Assessment under High Air Density Conditions Paper Author: A K Jasuja Affiliation: School of Engineering, Cranfield University, England	Paper Number: 026 Paper Title: Velocity Analysis of Fluid Structures from Ballistic Images in the Near Field of an Aerated Spray Paper Authors: D. L. Sedarsky <sup>1</sup> , J. Gord <sup>2</sup> , B. Kiel <sup>2</sup> , T. Meyer <sup>3</sup> , M. A. Linne <sup>1,4</sup> Affiliation: 1. Department of Physics, Lund University, Lund, Sweden, 2. Air Force Research Laboratory, Wright-Patterson AFB, 3. Iowa State University, Ames, 4. Department of Applied Mechanics, Chalmers University, Gothenburg, Sweden	Paper Number: 172 Paper Title: Experimental and Computational Analysis of Fuel Mixing in a Low Pressure Direct Injection Gasoline Engine Paper Authors: Shalabh Srivastava, Farhad A. Jaber, Harold J. Schock, David L.S. Hung Affiliation: Michigan State University
10:10 AM	Paper 2	Paper Number: 182 Paper Title: Modeling of polydisperse sprays using a high order method for numerical advection of size moments Paper Authors: D. Kah <sup>1</sup> , S. Jay <sup>1</sup> , M. Massot <sup>2</sup> , F. Laurent <sup>2</sup> Affiliation: 1. Institut Français du Pétrole, France, 2. Laboratoire EM2C, Ecole Centrale Paris France	Paper Number: 162 Paper Title: Atomization Process of an Annular Liquid Sheet assisted by an Inner Gas Jet Paper Authors: N. Leboucher, F. Roger, J. L. Carreau and Alain Clavier Affiliation: Laboratoire de Combustion et de Détonique, France	Paper Number: 035 Paper Title: 2-D Spatial Distribution of Droplets in a Diesel Spray by Means of Direct Photography with Super High Resolution Paper Authors: H. Gen Fujimoto, T. Hori, K. Katsuta, H. Adachi, and J. Senda Affiliation: Department of Mechanical Engineering, Doshisha University	Paper Number: 189 Paper Title: Application of laser-induced fluorescence for imaging sprays of model fuels emulating gasoline and gasoline/ethanol blends Paper Authors: Mats Andersson <sup>1</sup> and Jonas Wärnberg <sup>2</sup> Affiliation: 1) Department of Applied Mechanics, Chalmers University of Technology, 41296 Göteborg, Sweden 2) General Motors Powertrain – Sweden
10:35 AM	Paper 3	Paper Number: 184 Paper Title: A Numerical Method for Detailed Simulations of Atomization in Non-Isothermal Environments Paper Authors: P. Brady <sup>1</sup> , M. Herrmann <sup>1</sup> , and J. M. Lopez <sup>2</sup> Affiliation: 1. Department of Mechanical and Aerospace Engineering, Arizona State University, 2. Department of Mathematics and Statistics, Arizona State University	Paper Number: 304 Paper Title: Effect of Phase Angle of Transverse Acoustics on Shear Coaxial Jets for Two Geometries Paper Authors: Juan Rodriguez, Ivett Leyva, Doug Talley Affiliation: Air Force Research Laboratory   AFRL, Space and Missile Propulsion Division, Aerophysics Branch (RZSA), Edwards AFB, CA	Paper Number: 136 Paper Title: Analysis of the SLIPI technique for multiple scattering suppression in planar imaging of fuel sprays Paper Authors: E. Berrocal <sup>1</sup> , E. Kristensson <sup>1</sup> , D. Sedarsky <sup>1</sup> , M. Linne <sup>1,2</sup> Affiliation: 1. Department of Physics, Lund University, Sweden, 2. Department of Applied Mechanics, Chalmers University, Sweden	Paper Number: 225 Paper Title: Trajectory of a Liquid Jet in High Pressure and High Temperature Subsonic Air Crossflow Paper Authors: A. Amighi, M. Eslamian, N. Ashgriz Affiliation: Department of Mechanical and Industrial Engineering, University of Toronto
11:00 AM	Paper 4	Paper Number: 227 Paper Title: Simulation of jets with a finite element Navier-Stokes solver and a multilevel VOF approach Paper Authors: A. Cervone, S. Manservigi and R. Scardovelli Affiliation: DIENCA, Laboratorio di Montecuccolino, University of Bologna, Italy	Paper Number: 010 Paper Title: Small Angle X-Ray Scattering (SAXS) on Droplet Size and Liquid Contents of Condensed Supercritical Ethylene Jets Paper Authors: Kuo-Cheng Lin <sup>1</sup> , Michael Ryan <sup>2</sup> , Campbell Carter <sup>3</sup> , Alec Sandy <sup>4</sup> , Suresh Narayanan <sup>4</sup> , Jan Ilavsky <sup>5</sup> , and Jin Wang <sup>4</sup> Affiliation: 1. Taitech, Inc., 2. Universal Technology Corporation, 3. Air Force Research Laboratory, 4. Argonne National Laboratory	Paper Number: 085 Paper Title: Fuel vapor concentration measurements by Infra-Red Extinction – A comparison to Laser Induced Fluorescence on a mono disperse droplet stream Paper Authors: Bernhard Wagner <sup>1,3</sup> , Bruno Frackowiak <sup>2</sup> , Pierre Gajan <sup>3</sup> and Alain Strze <sup>1</sup> . Iecki <sup>3</sup> Affiliation: Cerfacs/CFD Toulouse, 2. TU-Darmstadt/SLA, 3. ONERA Toulouse/DMAE	Paper Number: 153 Paper Title: Experimental and Numerical Characterization of the Fuel Distribution by a GDI Multi-Hole Injector for Spark Ignition Engines Paper Authors: L. Allocca, M. Costa, A. Montanaro Affiliation: Istituto Motori - CNR, Viale Marconi 8 - 80125 Napoli - ITALY
11:25 AM	Paper 5	Paper Number: 290 Paper title: Spray Collision Modeling of Immiscible Droplets in Direct Water Injection Paper authors: Daisuke Tsuru <sup>1</sup> , Satoshi Kawauchi <sup>2</sup> , Kousuke Okazaki <sup>1</sup> and Hiroshi Tajima <sup>1</sup> Affiliation 1 Interdisciplinary Graduate School of Engineering Sciences, Kyushu University 2 National Maritime Research Institute, Japan	Paper Number: 275 Paper Title: Generation and Pressure Atomization of Water-in-Oil Emulsions for Gas Turbines Paper Authors: C.D. Bolszo, A.A. Narvaez, S. Abbilian, A. Jepsen, D. Dunn-Rankin, V.G. McDonnell, and W.A. Sirignano <sup>7</sup> Affiliation: Department of Aerospace and Mechanical Engineering, University of California, Irvine	Paper Number: 297 Paper Title: Gate time effects on ballistic imaging of Diesel sprays Paper Authors: S. Duran, C. Dreyer, and T. E. Parker Affiliation: Colorado School of Mines	Paper number: 077 Paper title: Numerical Investigation of Lagrangian Single-Component Liquid Film Evaporation models Paper authors: V. Ebrahimi <sup>1</sup> , C. Habchi <sup>1</sup> and B. Cuenot <sup>2</sup> Author affiliation: 1 IFP, France; 2 CERFACS Toulouse France
11:50 AM		<b>Lunch / ICLASS-Americas Annual Business Meeting (Colorado Ballroom) - Exhibitors (Grand Ballroom)</b>			

Wednesday, July 29th 2009 continued AFTER LUNCH...

		Mini-Symposium on Modeling	Mini-Symposium on AeroJet and Rocket Sprays	Mini-Symposium on Diagnostics	Automotive Gasoline II
		<b>Session Chair : Alain Berlemont and Hiroshi Tajima</b>	<b>Session Chair : Oskar Haidn and Michael Bejamin</b>	<b>Session Chair: Edouard Berrocal and Hiro Hiroyasu</b>	<b>Session Chair: David Hung and Lee Markle</b>
		<b>Grand Ballroom (Salon G-J)</b>	<b>Grand Ballroom (Salon F)</b>	<b>Blue Sky</b>	<b>Sun Down</b>
12:50 PM	Paper 6	Paper Number: 205 Paper Title: A Large Eddy Simulation Subgrid Model for Turbulent Phase Interface Dynamics Paper Authors: M. Herrmann <sup>1</sup> and M. Gorokhovski <sup>2</sup> Affiliation: 1.Department of Mechanical and Aerospace Engineering, Arizona State University, Tempe; 2. Laboratoire de Mecanique des Fluides et Acoustique, Ecole Central de Lyon, France	Paper Number: 042 Paper Title: Evaluation of Simulation Strategies for Multipoint Injection Systems in Aero-Engines on the Example of a Liquid Jet in a Gaseous Crossflow Paper Authors: F. Jaegle <sup>1</sup> , J.M. Senoner <sup>1</sup> , M. Garcia <sup>1</sup> , C. Jimenez <sup>2</sup> , B. Cuenot <sup>1</sup> , T. Poinso <sup>1</sup> Affiliation: 1CERFACS, Toulouse, France; 2.Clema, Modeling and Numerical Simulation Group, Energy Dept., 28040 Madrid, Spain	Paper Number: 047 Paper Title: Liquid Spray Morphological Information from Laser-Diffraction Measurements Paper Authors: Christophe Dumouchel <sup>1</sup> , Sébastien Grout <sup>1</sup> , Bertrand Leroux <sup>2</sup> , Xavier Paubel <sup>2</sup> Affiliation: 1CNRS UMR 6614 – CORIA, Université de Rouen 76801 Saint Etienne du Rouvray, France; 2.Air Liquide, Centre de Recherche France	Paper Number: 048 Paper Title: On the Effect of GDI Injector Configuration on Charge Preparation. Paper Authors: M D Bejoy, Shamit Bakshi, A. Ramesh Affiliation: Internal Combustion Engines Laboratory, Department of Mechanical Engineering, IIT Madras, Chennai – 600036, India
1:15 PM	Paper 7	Paper Number: 250 Paper Title: LES of atomization: From the resolved liquid surface to the subgrid scale spray Paper Authors: J. Chesnel <sup>1</sup> , J. Réveillon <sup>2</sup> , T. Ménard <sup>2</sup> , M. Doring <sup>2</sup> , A. Berlemont <sup>2</sup> & F.X. Demoulin <sup>2</sup> Affiliation: 1CORIA & Renault SA, Direction des Technologies Avancées de l'Automobile, France 2.CORIA, France	Paper Number: 008 Paper Title: Spray Nonuniformities in Gas-Centered Swirl-Coaxial Injectors Paper Authors: Malissa D.A. Lightfoot and Stephen A. Danczyk Affiliation: Air Force Research Laboratory, Edwards AFB	Paper Number: 147 Paper Title: TIR-LIF: a Validation Tool for Spray Impact Models Paper Authors: M. Alonso <sup>1</sup> , P.J. Kay <sup>1</sup> , P.J. Bowen <sup>1</sup> , R. Gilchrist <sup>2</sup> and S. Sapsford <sup>2</sup> Affiliation: 1 Cardiff School of Engineering; 2. Ricardo UK	Paper Number: 156 Paper Title: GDI Multi-Hole Injector: Particle Size and Velocity Distribution for Single and Jet-to-Jet Evolution Analysis Paper Authors: L. Allocca, S. Alfuso, L. Marchitto, G. Valentino Affiliation: Istituto Motori, CNR - Via Marconi, 8 - 80125 Napoli, ITALY
1:40 PM	Paper 8	Paper Number: 038 Paper Title: Numerical Study of Multi-Component Spray Combustion with a Discrete Multi-Component Fuel Model Paper Authors: Y. Ra, and R. D. Reitz Affiliation: Engine Research Center, University of Wisconsin-Madison	Paper Number: 071 Paper Title: Study of Two Dimensional Transverse Liquid Injection into Subsonic Air Stream Paper Authors: D. P. Mishra, S. Das, P.K. Mohapatra, Affiliation: Indian Institute of Technology, Kanpur	Paper Number: 246 Paper Title: Simultaneous Planar Fluorescence, Phosphorescence, and Mie Scattering in Pressure-Atomized Sprays Paper Authors: Barry V. Kiel <sup>1</sup> James R. Gord <sup>2</sup> , Jacob B. Schmidt <sup>2</sup> , Joseph D. Miller <sup>2</sup> , and Terrence R. Meyer <sup>2</sup> Affiliation: 1.Air Force Research Laboratory, Propulsion Directorate Wright-Patterson AFB, OH ;2. Department of Mechanical Engineering Iowa State University, Ames, IA	Paper Number: 240 Application of a Micro Nozzle Array Fuel Injector to Cold-Start Experiments of a 4 Stroke-cycle Gasoline Engine Paper Authors: Mikiya ARAKI <sup>1</sup> , Tomio OBOKATA, Tsuneaki ISHIMA <sup>1</sup> and Seichi SHIGA <sup>1</sup> Masahiko MASUBUCHI <sup>2</sup> and Tomojiro SUGIMOTO <sup>2</sup> Affiliation: Department of Mechanical Engineering, Gunma University, Japan; 2.Power Train Development Division Toyota Motor Corporation Susono, Japan
2:05PM	Paper 9	Paper Number: 037 Paper Title: Simulation of primary breakup for diesel spray with phase transition Paper Authors: Peng Zeng <sup>1</sup> , Bernd Binnering <sup>1</sup> , Norbert Peters <sup>1</sup> , Marcus Herrmann Affiliation: 1. RWTH Aachen University, 2.Arizona State University	Paper Number: 121 Paper Title: Review of Atomization: Current Knowledge and Recent Trends for Propulsion Combustors Paper Authors: M. Arienti <sup>1</sup> , M. Benjamin <sup>2</sup> and R. J. Jensen <sup>3</sup> Affiliation: 1.United Technologies Research Center, 2.General Electric Aviation 3.Pratt & Whitney Rocketdyne	Paper Number: 116 Paper Title: A Study of the Primary Breakup Process and Macroscale Characteristics of Impinging Diesel Spray Nozzles Paper Authors: Jian Gao <sup>1</sup> , Rolf D. Reitz <sup>1</sup> , Jaal B. Gandhi <sup>1</sup> , Jin Wang <sup>2</sup> , Zunping Liu <sup>2</sup> Affiliation: 1 Engine Research Center, Department of Mechanical Engineering, Univ. of Wisconsin-Madison, Madison, 2 Advance Photon Source, Argonne National Laboratory, Argonne, IL	No Paper Scheduled at this Time
2:30PM	Paper 10	Paper number: 301 Paper title: Spray Collision Modeling of Immiscible Droplets in Direct Water Injection Paper authors: Daisuke Tsuru <sup>1</sup> , Satoshi Kawauchi <sup>2</sup> , Kousuke Okazaki <sup>1</sup> and Hiroshi Tajima <sup>1</sup> Affiliation: 1 Interdisciplinary Graduate School of Engineering Sciences, Kyushu University. 2 National Maritime Research Institute, Japan	Paper Number: 012 Paper Title: Numerical Investigation of Methane/Oxygen and Methane/LOX Counterflowing Spray Flames at Elevated Pressure Paper Authors: D. Urzica, E. Gutheil Affiliation: Interdisciplinary Center for Scientific Computing, Heidelberg University, Germany	Paper Number: 072 Paper Title: Experimental Study of an Internally Mixed Liquid Atomizer for an Air-breathing Engine Application Paper Authors: D. P. Mishra* and G. Singh Affiliation: Department of Aerospace Engineering, Indian Institute of Technology-Kanpur India	No Paper Scheduled at this Time
2:55 PM	<b>Break/Exhibitors</b>				



Wednesday, July 29th 2009 continued AFTER BREAK...

		<b>Mini-Symposium on Modeling</b>	<b>Mini-Symposium on AeroJet and Rocket Sprays</b>	<b>Mini-Symposium on Diagnostics</b>	<b>Alternative Fuels</b>
		<b>Session chair: Sourabh Apte and Guillermo Aguilar</b>	<b>Session chair: Malissa Lightfoot and Robert Jensen</b>	<b>Session chair: Keiya Nishida and Sean Duran</b>	<b>Session chair: Soo Young No and Mina Rohani</b>
		<b>Grand Ballroom (Salon G-J)</b>	<b>Grand Ballroom (Salon F)</b>	<b>Blue Sky</b>	<b>Sun Down</b>
3:20PM	Paper 11	Paper Number: 052 Paper Title: Adaptive spectral re nement for accurate simulations of turbulent multiphase flows Paper Authors: Olivier Desjardins Affiliations: Department of Mechanical Engineering, University of Colorado	Paper Number: 146 Paper Title: Characteristic Study of Two phase Unlike Impinging Injectors Paper Authors: Rakesh P., B.N.Raghunandan Affiliation: Department of Aerospace Engineering, Indian Institute of Science, Bangalore, India	Paper Number: 062 Paper Title: Numerical analysis of ballistic imaging for revealing liquid breakup in dense sprays Paper Authors: D. L. Sedarsky <sup>1</sup> , Edouard Berrocal <sup>1</sup> and M. A. Linne <sup>1,2</sup> Affiliation: 1. Department of Physics, Lund University, Lund, Sweden; 2. Department of Applied Mechanics, Chalmers University, Gothenburg, Sweden	Paper Number: 014 Paper Title: Impact of alternative fuels physical properties on combustor performance Paper Authors: Patrick Le Clercq and Manfred Aigner Affiliations: DLR, German Aerospace Center, Institute of Combustion Technology, Stuttgart, Germany
3:45 PM	Paper 12	Paper Number: 079 Paper Title: An Extended Moment Method for Crossing Polydisperse Sprays Paper Authors: L. Schneidera, N. Le Lostecb, P. Villedieub, A. Sadiki Affiliations: Department of Mechanical Engineering, EKT, Technical University of Darmstadt, ONERA	Paper Number: 011 Paper Title: Studies of Pure- and Aerated-Liquid Jets Using the X-Ray Phase Contrast Imaging Paper Authors: Kuo-Cheng Lin <sup>1</sup> , Campbell Carter <sup>2</sup> , Kamel Fezzaa <sup>3</sup> , Zunping Liu <sup>3</sup> , and Jin Wang <sup>3</sup> Affiliation: 1. Taitech, Inc.; 2. Air Force Research Laboratory, 3. Argonne National Laboratory	Paper Number: 137 Paper Title: Ultra-fast Structured Laser Illumination Planar Imaging (SLIPI) for single-shot imaging of dense sprays Paper Authors: Elias Kristensson, Edouard Berrocal, Mattias Richter and Marcus Aldén Affiliations: Department of Combustion Physics, Lund University, Sweden	Paper Number: 157 Paper Title: Investigation of Entrainment during Combustion of Biodiesel Sprays Paper Authors: Yifeng Wu <sup>1</sup> , Ronghua Huang <sup>1</sup> and Chia-fon F. Lee <sup>2</sup> Affiliation: 1. School of Energy and Power Engineering Huazhong University of Science and Technology Wuhan, China; 2. Department of Mechanical Science and Engineering University of Illinois at Urbana Champaign
4:10PM	Paper 13	Paper number: 232 Paper title: Dynamics of the Cavity Generated in a Liquid Film by Drop Impact Paper authors: M. Budakli <sup>1</sup> , T. Gambaryan-Roisman <sup>1</sup> , N. van Hinsberg <sup>2</sup> , I. V. Roisman <sup>2</sup> , P. Stephan <sup>1</sup> , C. Tropea <sup>2</sup> Author affiliation: 1. Chair of Technical Thermodynamics, Technische Universität Darmstadt, Germany 2. Chair of Fluid Mechanics and Aerodynamics, Technische Universität Darmstadt Germany	Paper Number: 133 Paper Title: Effect of the initial droplet size distribution of the liquid phase combined with transport phenomena on the resulting airblast spray in the far field Paper Authors: Fabrice Giuliani <sup>1</sup> , Christoph Hennig <sup>1</sup> , Thomas Leitgeb <sup>1</sup> and Christoph Hassa <sup>2</sup> Affiliations: <sup>1</sup> Combustion Department, Graz University of Technology (TU Graz), Austria <sup>2</sup> Combustor Department, Institute of Propulsion Technology, German Aerospace Center (DLR),	Paper Number: 084 Paper Title: Phase Doppler Interferometry Volume Flux Calculation Optimization and Comparison with Nominally Point Mechanical Patternation Techniques Paper Authors: K. M. Bade and R. J. Schick Affiliations: Spray Analysis and Research Services, Spraying Systems Co.	Paper Number: 017 Paper Title: Experimental Investigation of Spray Propagation and Mixture Formation of Tailor-Made Fuels under Engine-Relevant Conditions Paper Authors: M. A. Reddemann, F. Mathieu, D. Martin and R. Kneer Affiliations: Institute of Heat and Mass Transfer, RWTH Aachen University, Germany
4:35 PM	Paper 14	No Paper Scheduled at this Time	No Paper Scheduled at this Time	Paper Number: 073 Paper Title: Two-color Laser-Induced Fluorescence thermometry applied to droplets: investigation of the droplet's size influence Paper Authors: V. Depredurand <sup>1</sup> , A. Labergue <sup>1*</sup> , A. Delconte <sup>1</sup> , F. Lemoine <sup>1</sup> Affiliations: 1. LEMTA 2, Avenue de la Forêt de Haye, BP 160 54504 Vandœuvre-les-Nancy Cedex France	Paper Number: 106 Paper Title: The Effects of MVCO Injections and Conventional Fuel Injections in a High Speed Direction Injection Engine Paper Authors: Way Lee Cheng <sup>1</sup> and Chia-Fon F. Lee <sup>1</sup> , Deyang Hou <sup>2</sup> Affiliation: 1. Department of Mechanical Science Engineering, University of Illinois at Urbana-Champaign, Urbana, Illinois 2. QuantLogic Corporation Texas,
5:00 PM	Paper 15	No Paper Scheduled at this Time	No Paper Scheduled at this Time	Paper number: 191 Paper title: High-Speed Internal Nozzle Flow Visualization of Flashing Jets Paper Authors: Henry Vu and Guillermo Aguilar Affiliation: Department of Mechanical Engineering, University of California, Riverside	

Thursday, July 30th 2009

8:00 AM	<b>Breakfast/Exhibitors</b>				
		<b>Mini-Symposia on Cluster/Multi-Port Injection</b>	<b>Mini-Symposia on Sheet/Swirling Sprays</b>	<b>Flashing Sprays and Electrostatic Sprays</b>	<b>Cooling Sprays</b>
		<b>Session Chairs: Chris Edwards Grand Ballroom (Salon G-J)</b>	<b>Session Chairs: Marco Marengo and Christoph Hennig Grand Ballroom (Salon F)</b>	<b>Session Chairs Yun-feng Chang and Kyle Bade Blue Sky</b>	<b>Session Chairs Antonio Moreira Sun Down</b>
8:30 AM	Paper 1	Paper Number: 063 Paper Title: Microscopic Visualization of Transient Spray from Multi-hole Injector of DISI Engine Paper Authors: M. Esmail <sup>1</sup> , N. Kawahara <sup>1</sup> , E. Tomita <sup>1</sup> , M. Sumida <sup>2</sup> Affiliation: 1. Okayama University, 2. Mitsubishi Electric Corp	Paper Number: 024 Paper Title: The large aspect ratio air-blasted liquid sheet revisited Paper Authors: A. Lozano*, F. Barreras J.A. Garcia and E. Calvo Affiliation: LITEC, CSIC-Univ. Zaragoza	Paper Number: 236 Paper Title: Unsteadiness in Effervescent Sprays: Influence of Operational Conditions and Atomizer Design Paper Authors: J. Jedelsky, Z. Beinstein and M. Jicha Affiliations: Faculty of Mechanical Engineering, Brno University of Technology	Paper Number: 074 Paper Title: Droplet Cooling of Heated Surfaces: Experimental and Numerical Analysis Paper Authors: Paolo Tartarini, Mauro A. Corticelli, Paolo E. Santangelo Affiliation: Dipartimento di Ingegneria Meccanica e Civile (DI MeC), Università degli Studi di Modena e Reggio Emilia, Italy
8:55 AM	Paper 2	Paper Number: 004 Paper Title: X-Ray Measurements of Mass Distributions in the Near-Nozzle Region of Sprays from Standard Multi-Hole Common-Rail Diesel Injection Systems Paper Authors: Philippe Leick <sup>1</sup> , Alan L. Kastengren <sup>2</sup> , Zunping Liu <sup>3</sup> , Jin Wang <sup>3</sup> and Christopher F. Powell <sup>1</sup> Affiliation: 1 Robert Bosch GmbH, Corporate Research, Gerlingen, Germany. 2 Center for Transportation Research, Argonne National Laboratory 3. Advanced Photon Source, Argonne National Laboratory	Paper Number: 139 Paper Title: Promotion of Perforation in a Radial Liquid Sheet by Impingement of a Hot/Cold Airflow Paper Authors: T. Wakimoto <sup>1</sup> , K. Nishida and K. Katoh Affiliation: Osaka City University	Paper Number: 177 Paper Title: Simulation of Flash-Boiling in Pressure Swirl Injectors Paper Authors: K. D. Neroorkar <sup>1</sup> , S. Gopalakrishnan <sup>1</sup> , D. P. Schmidt <sup>1</sup> and R.O. Grover, Jr. <sup>2</sup> Affiliation: 1 Department of Mechanical and Industrial Engineering University of Massachusetts - 2 General Motors Research & Development Warren, Michigan	Paper Number: 092 Paper Title: Evaluation of the cooling performance of individual droplets impinging onto heated targets. Paper Authors: A. S. Moita <sup>1</sup> , M. Morais <sup>2</sup> , A. Spena <sup>2</sup> , A. L. N. Moreira <sup>1</sup> Affiliation: 1. Department of Mechanical Engineering, Technical University of Lisbon, Lisbon, Portugal. 2. Department of Enterprise Engineering, University of Rome, Italy
9:20 AM	Paper 3	Paper Number: 142 Paper Title: Fundamental Investigation of Diesel Spray-Spray Interaction for Cluster-Hole Nozzles Paper Authors: M. Gauding, A. Pawlowski, C. Felsch, B. Sonntag, R. Kneer and N. Peters Affiliations: Institut für Technische Verbrennung, Institut für Wärme- und Stoffübertragung	Paper Number: 018 Paper Title: OPTIMAL FLOWS IN SWIRL ATOMIZERS Paper Authors: L. Craig, N. Barlow, S. Patel, B. Kania, S.P. Lin Affiliation: Clarkson University	Paper Number: 254 Paper Title: Nanosized particle synthesis by Flash Boiling Atomization Paper Authors: Koji Sasaki, Jun Hayashi, Iino Kimio, Masahiko Shibahara, Fumiteru Akamatsu Affiliations: Department of Mechanical Engineering, Osaka University, Taiyo Nippon Sanso	Paper Number: 105 Paper Title: Multijet spray characteristics for spray cooling Paper Authors: M. R. O. Panão, J. L. C. V. Rosa and A. L. N. Affiliations: Moreira Department of Mechanical Engineering, Instituto Superior Técnico, Technical University of Lisbon
9:45 AM	Paper 4	Paper Number: 125 Paper Title: Spray-Spray and Spray-Wall Interactions in Diesel Sprays from Micro-Hole Nozzles under Ultra-High Injection Pressures Paper Authors: Wu Zhang <sup>1</sup> , Keiya Nishida <sup>1</sup> , and Jiang-Ping Tian <sup>2</sup> Affiliation: 1. Department of Mechanical System Engineering, University of Hiroshima, Japan 2. Institute of Internal Combustion Engine, Dalian University of Technology, China	Paper Number: 058 Paper Title: Experimental Evaluation of a Film Separation Criterion Paper Authors: J. L. Wegener, M. A. Friedrich, J. A. Drallmeier and B. F. Armaly Affiliations: Department of Mechanical and Aerospace Engineering, Missouri University of Science and Technology	Paper Number: 016 Paper Title: Further Development in Actuators Designs for Flashing Household Aerosols- Hair Spray Paper Authors: Rajab Shjarief Affiliation: Lionstarcorp /Stockport, England, UK	Paper Number: 144 Paper Title: An experimental study of intermittent spray cooling above the Leidenfrost point Paper Authors: S. Fest, J. Schmidt Affiliation: Otto-von-Guericke University Magdeburg, Magdeburg, Germany
10:10 AM	Paper 5	Paper Number: 148 Paper Title: Investigation of Particulate Emissions for Cluster-Nozzle Concepts in DI Diesel Engines Paper Authors: Hyun Woo Won <sup>1</sup> , Abhinav Sharma <sup>1</sup> , Peter Hottenbach <sup>1</sup> , Michael Gauding <sup>1</sup> , F. X. Robert <sup>1</sup> , Norbert Peters <sup>1</sup> , Gerd Gruenfeld <sup>1</sup> , Russell Durrett <sup>2</sup> , Alejandro H. Plazas T. <sup>2</sup> and Satbir Singh <sup>2</sup> Affiliation: 1. RWTH Aachen University, 2. Powertrain Systems Research Laboratory, General Motors	Paper Number: 174 Paper Title: Experimental Analysis and 3D-Visualization of Oscillating Hollow-Conical Liquid Sheets in Quiescent Air Paper Authors: E. Musemic, A. Rojek, M. Gaspar, F. Weichert, H. Müller and P. Walzel Affiliations: Technical University of Dortmund	Paper Number: 100 Paper Title: Secondary Atomization of Electrostatically Charged Drops Paper Authors: Daniel R. Gueldenbecher, Paul E. Sojka Affiliation: School of Mechanical Engineering, Purdue University,	Paper Number: 192 Paper Title: Single Droplet Heat Transfer through Shallow Liquid Pools Paper Author: Henry Vu, Guillermo Aguilar and Richard Jepsen Affiliations: University of California, Riverside, Sandia National Laboratories, Albuquerque
10:35 AM	Paper 6	Paper Number: 156 Paper Title: GDI Multi-Hole Injector: Particle Size and Velocity Distribution for Single and Jet-to-Jet Evolution Analysis Paper Authors: L. Allocca, S. Alfuso, L. Marchitto, G. Valentino Affiliation: Istituto Motori, CNR - Via Marconi, 8 - 80125 Napoli, ITALY	Paper Number: 220 Paper Title: Experiment Study on the Internal Flow Stability for Tangential Entry Conditions in a Swirl Injector Paper Authors: Sunghyuk Kim, Taeock Khil, Hyeon Choi and Youngbin Yoon Affiliation: School of Mechanical and Aerospace Engineering, Seoul National University, Seoul, 151-742, Korea	Paper number: 229 Paper title: The Flow Dynamic Simulation and Experiment of Piezoelectric Printhead Paper authors: Wei-Hsiang Lai, Yeong-Jen Wu Author affiliation: Institute of Aeronautics and Astronautics, National Cheng Kung University, Taiwan	Paper Number: 241 Paper Title: Dynamics of the Liquid Film produced by Spray Impact under Various Gravity Levels Paper Authors: O. Kyriopoulos, I. V. Roisman, C. Tropea Affiliations: Chair of Fluid Mechanics and Aerodynamics, Technische Universität Darmstadt, 64287 Darmstadt, Germany
11:00 AM	<b>Break/Exhibitors</b>				

Thursday, July 30th 2009 continued AFTER BREAK...

		<b>Mini-Symposia on Cluster/Multi-Port Injection</b>	<b>Mini-Symposia on Sheet/Swirling Sprays</b>	<b>Spray Measurements and Validation</b>	<b>Spray Control</b>
		<b>Session Chairs: Yasuo Moriyoshi and Greg Smallwood</b>	<b>Session Chairs: Stephanie Fest</b>	<b>Session Chairs : Vince McDonell</b>	<b>Session Chairs: Terry Parker</b>
		<b>Grand Ballroom (Salon G-J)</b>	<b>Grand Ballroom (Salon F)</b>	<b>Blue Sky</b>	<b>Sun Down</b>
11:25 AM	Paper 7	<p>Paper number: 119</p> <p>Paper Title: Effect of injection conditions on the spray characteristics of gasoline direct injection (GDI) injectors with different multi-hole configuration</p> <p>Paper authors: Hyung Jun Kim, Su Han Park, and Chang Sik Lee</p> <p>Affiliation: Department of Mechanical Engineering, Hanyang University Seoul, Republic of Korea</p>	<p>Paper Number: 093</p> <p>Paper Title: Image particle sizing of an air blasted liquid sheet of kerosene at intermediate pressure</p> <p>Paper Authors: Christoph Hennig<sup>1</sup>, Fabrice Giuliani<sup>1</sup>, Stefan Freitag<sup>2</sup>, Christoph Hassa<sup>2</sup></p> <p>Affiliation: 1Graz University of Technology, Graz, Austria; 2German Aerospace Center (DLR), Cologne, Germany</p>	<p>Paper number: ICLASS2009-094</p> <p>Paper title: Spray Plume Characteristics at Multiple Cross-Flow Angles, Experimental and Computational Assessments</p> <p>Paper authors: K. M. Bade, W. Kalata, and R. J. Schick</p> <p>Author affiliation: Spray Analysis and Research Services, Spraying Systems Co., Wheaton, IL USA</p>	<p>Paper Number: 115</p> <p>Paper Title: Applying Composite Disturbances to Control Breakup of Capillary Circular Liquid Jets.</p> <p>Paper Authors: Mina Rohani, Derek Dunn-Rankin, Faryar Jabbari</p> <p>Affiliation: University of California, Irvine</p>
11:50 AM	Paper 8	<p>Paper Number: 135</p> <p>Paper Title: Optimization of Orifices Arrangement for the Maximized Spray Tip Penetration of Wall-Impinging Sprays Injected by Group-Hole Nozzles</p> <p>Paper Authors: S. Moon, Y. Matsumoto and K. Nishida, J. Gao</p> <p>Affiliations: Department of Mechanical System Engineering, University of Hiroshima, Department of Mechanical Engineering, University of Wisconsin-Madison</p>	<p>Paper Number: 050</p> <p>Paper Title: Primary Atomization in Water and Kerosene Liquid Sheets At High Pressure</p> <p>Paper Authors: V. G. Fernandez*, P. Berthoumieu, G. Lavergne</p> <p>Affiliation: ONERA (French National Aerospace Research Centre), Heterogeneous Multiphase Flows Unit , Aerodynamic and Energetic Models Department, France</p>	<p>Paper Number: 223</p> <p>Paper Title: Quantification of the Transient Mass Flow Rate in a Simplex Swirl Injector</p> <p>Paper Authors: T. Khil, S. Kim, S. Cho and Y. Yoon</p> <p>Affiliation: School of Mechanical and Aerospace Engineering, Seoul National University, Seoul, Korea</p>	<p>Paper Number: 075</p> <p>Paper Title: Feasible Study of Spray and Combustion Control Using Dual Component Fuel Based on Multicomponent Spray Model</p> <p>Paper Authors: Yoshimitsu KOBASHIro SENDA</p> <p>Affiliation: 1 Department of Mechanical Engineering, Kanazawa Institute of Technology. 2 – Department of Mechanical Engineering, Doshisha University</p>
12:15 PM	<b>CLOSE of Conference</b>				