

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 Kajiwar <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, Hiroaki 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>				