

Wednesday, July 29th 2009

7:30 AM		<b>Breakfast/Exhibitors</b>			
8:30 AM		<b>Plenary Lecture: The physics of Electro spray, 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 Hermann and</b>	<b>Session chair: Arvind Jasuja and Adel Mansour</b>	<b>Session chair : Edouard Berrocal and</b>	<b>Session chair: Yasuo Moriyoshi and</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: Fast-framing ballistic imaging for velocity determination of liquid structures in sprays 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 Claverie 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> . lecki <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. Strignano <sup>7</sup> Affiliation: Department of Aerospace and Mechanical Engineering, University of California, Irvine	Paper Number: 255 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. Ebrahimian <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</b>	<b>Session Chair : Oskar Haidn and Michael Benjamin</b>	<b>Session Chair: William Bachalo and Hiro Hiroyasu</b>	<b>Session Chair: David Hung and</b>
12:50 PM	Paper 6	<p>Paper Number: 205</p> <p>Paper Title: A Large Eddy Simulation Subgrid Model for Turbulent Phase Interface Dynamics</p> <p>Paper Authors: M. Herrmann<sup>1</sup> and M. Gorokhovski<sup>2</sup></p> <p>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</p>	<p>Paper Number: 042</p> <p>Paper Title: Evaluation of Simulation Strategies for Multipoint Injection Systems in Aero-Engines on the Example of a Liquid Jet in a Gaseous Crossflow</p> <p>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. Poinot<sup>1</sup></p> <p>Affiliation: 1CERFACS, Toulouse, France; 2.Ciemat, Modeling and Numerical Simulation Group, Energy Dept., 28040 Madrid, Spain</p>	<p>Paper Number: 047</p> <p>Paper Title: Liquid Spray Morphological Information from Laser-Diffraction Measurements</p> <p>Paper Authors: Christophe Dumouchel<sup>1</sup>, Sébastien Grout<sup>1</sup>, Bertrand Leroux<sup>2</sup>, Xavier Paubel<sup>2</sup></p> <p>Affiliation: 1CNRS UMR 6614 – CORIA, Université de Rouen76801 Saint Etienne du Rouvray, France; 2.Air Liquide, Centre de Recherche France</p>	<p>Paper Number: 048</p> <p>Paper Title: On the Effect of GDI Injector Configuration on Charge Preparation.</p> <p>Paper Authors: M D Bejoy, Shamit Bakshi, A. Ramesh</p> <p>Affiliation: Internal Combustion Engines Laboratory, Department of Mechanical Engineering, IIT Madras, Chennai – 600036, India</p>
1:15 PM	Paper 7	<p>Paper Number: 250</p> <p>Paper Title: LES of atomization: From the resolved liquid surface to the subgrid scale spray</p> <p>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> &amp; F.X. Demoulin<sup>2</sup></p> <p>Affiliation: 1CORIA &amp; Renault SA, Direction des Technologies Avancées de l'Automobile,France 2.CORIA, France</p>	<p>Paper Number: 008</p> <p>Paper Title: Spray Nonuniformities in Gas-Centered Swirl-Coaxial Injectors</p> <p>Paper Authors: Malissa D.A. Lightfoot and Stephen A. Danczyk</p> <p>Affiliation: Air Force Research Laboratory, Edwards AFB</p>	<p>Paper Number: 147</p> <p>Paper Title: TIR-LIF: a Validation Tool for Spray Impact Models</p> <p>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></p> <p>Affiliation: 1 Cardiff School of Engineering; 2. Ricardo UK</p>	<p>Paper Number: 156</p> <p>Paper Title: GDI Multi-Hole Injector: Particle Size and Velocity Distribution for Single and Jet-to-Jet Evolution Analysis</p> <p>Paper Authors: L. Allocca, S. Alfuso, L. Marchitto, G. Valentino</p> <p>Affiliation: Istituto Motori, CNR - Via Marconi, 8 - 80125 Napoli, ITALY</p>
1:40 PM	Paper 8	<p>Paper Number: 038</p> <p>Paper Title: Numerical Study of Multi-Component Spray Combustion with a Discrete Multi-Component Fuel Model</p> <p>Paper Authors: Y. Ra, and R. D. Reitz</p> <p>Affiliation: Engine Research Center, University of Wisconsin-Madison</p>	<p>Paper Number: 071</p> <p>Paper Title: Study of Two Dimensional Transverse Liquid Injection into Subsonic Air Stream</p> <p>Paper Authors: D. P. Mishra, S. Das, P.K. Mohapatra,</p> <p>Affiliation: Indian Institute of Technology, Kanpur</p>	<p>Paper Number: 246</p> <p>Paper Title: Simultaneous Planar Fluorescence, Phosphorescence, and Mie Scattering in Pressure-Atomized Sprays</p> <p>Paper Authors: Barry V. Kiel<sup>1</sup> James R. Gord<sup>1</sup>, Jacob B. Schmidt<sup>2</sup>, Joseph D. Miller<sup>2</sup>, and Terrence R. Meyer<sup>2</sup></p> <p>Affiliation: 1.Air Force Research Laboratory, Propulsion Directorate Wright-Patterson AFB, OH ;2. Department of Mechanical Engineering Iowa State University, Ames, IA</p>	<p>Paper Number: 240</p> <p>Application of a Micro Nozzle Array Fuel Injector to Cold-Start Experiments of a 4 Stroke-cycle Gasoline Engine</p> <p>Paper Authors:Mikiya ARAKI<sup>1</sup>, Tomio OBOKATA, Tsuneaki ISHIMA<sup>1</sup> and Seiichi SHIGA<sup>1</sup> Masahiko MASUBUCHI<sup>2</sup> and Tomojiro SUGIMOTO<sup>2</sup></p> <p>Affiliation: Department of Mechanical Engineering, Gunma University, Japan; 2.Power Train Development Division Toyota Motor Corporation Susono, Japan</p>
2:05PM	Paper 9	<p>Paper Number: 037</p> <p>Paper Title: Simulation of primary breakup for diesel spray with phase transition</p> <p>Paper Authors: Peng Zeng<sup>1</sup>, Bernd Binnerger<sup>1</sup>, Norbert Peters<sup>1</sup>, Marcus Herrmann</p> <p>Affiliation: 1. RWTH Aachen University, 2.Arizona State University</p>	<p>Paper Number: 121</p> <p>Paper Title: Review of Atomization: Current Knowledge and Recent Trends for Propulsion Combustors</p> <p>Paper Authors: M. Arienti<sup>1</sup>, M. Benjamin<sup>2</sup> and R. J. Jensen<sup>3</sup></p> <p>Affiliation: 1.United Technologies Research Center, 2.General Electric Aviation 3.Pratt &amp; Whitney Rocketdyne</p>	<p>Paper Number: 116</p> <p>Paper Title: A Study of the Primary Breakup Process and Macroscale Characteristics of Impinging Diesel Spray Nozzles</p> <p>Paper Authors: Jian Gao<sup>1</sup>, Rolf D. Reitz<sup>1</sup>, Jaal B. Ghandhi<sup>1</sup>, Jin Wang<sup>2</sup>, Zunping Liu<sup>2</sup></p> <p>Affiliation: 1 Engine Research Center, Department of Mechanical Engineering, Univ. of Wisconsin-Madison, Madison, 2 Advance Photon Source, Argonne National Laboratory, Argonne, IL</p>	No Paper Scheduled at this Time
2:30PM	Paper 10	<p>Paper number: 301</p> <p>Paper title: Spray Collision Modeling of Immiscible Droplets in Direct Water Injection</p> <p>Paper authors: Daisuke Tsuru<sup>1</sup>, Satoshi Kawauchi<sup>2</sup>, Kousuke Okazaki<sup>1</sup> and Hiroshi Tajima<sup>1</sup></p> <p>Affiliation: 1 Interdisciplinary Graduate School of Engineering Sciences, Kyushu University. 2 National Maritime Research Institute, Japan</p>	<p>Paper Number: 012</p> <p>Paper Title: Numerical Investigation of Methane/Oxygen and Methane/LOX Counterflowing Spray Flames at Elevated Pressure</p> <p>Paper Authors: D. Urzica, E. Gutheil</p> <p>Affiliation: Interdisciplinary Center for Scientific Computing, Heidelberg University, Germany</p>	<p>Paper Number: 072</p> <p>Paper Title: Experimental Study of an Internally Mixed Liquid Atomizer for an Air-breathing Engine Application</p> <p>Paper Authors: D. P. Mishra* and G. Singh</p> <p>Affiliation: Department of Aerospace Engineering, Indian Institute of Technology-Kanpur India</p>	No Paper Scheduled at this Time
2:55 PM	<b>Break/Exhibitors</b>				

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

		Mini-Symposium on Modeling	Mini-Symposium on AeroJet and Rocket Sprays	Mini-Symposium on Diagnostics	Alternative Fuels
		<b>Session chair: Sourabh Apte and</b>	<b>Session chair: Malissa Lightfoot and Robert Jensen</b>	<b>Session chair: Keiya Nishida and Sean Duran</b>	<b>Session chair: No Soo Young and</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.Ragunandan 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 Losteb, 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: Analytical and Experimental Study of Small Droplet Formation in a Pneumatic Drop-on-Demand Generator Paper Authors: A. Amirzadeh Goghari and S. Chandra Affiliations: Department of Mechanical and Industrial Engineering, University of Toronto	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	Paper number: 014 Paper title: Impact of alternative fuels physical properties on combustor performance Paper authors: Patrick Le Clercq and Manfred Aigner Affiliation: DLR, German Aerospace Center, Institute of Combustion Technology, Stuttgart, Germany