WSS/CI Western States Section/Combustion Institute

Monday, 17 March 2008
Registration and breakfast
Welcome Address

Invited Presentation: Reducing the Impacts of Los Angeles Port Operations on Air Quality
David Freeman - President of the Los Angeles Harbor Commission
Announcements

Session 1A: Kinetics	**Session 1B: Diagnostics**	**Session 1C: Combustion Fundamentals**
	BREAK	
Session 2A: Kinetics	**Session 2B: New Technologies**	**Session 2C: Laminar Flames**
	LUNCH	

Invited Presentation: Combustion Perspectives ***Professor Sydney Benson, USC***
Invited Presentation: Air Quality Challenges in Southern California
Hon. Miguel Pulido, Mayor of Santa Ana, CA and
Board Member of the South Coast Air Quality Management District

Session 3A: Kinetics	**Session 3B: IC Engines**	**Session 3C: Turbulent Combustion**
	BREAK	
Session 4A: Soot	**Session 4B: IC Engines**	**Session 4C: Laminar Flames**
	RECEPTION	

Tuesday, 18 March 2008
BREAKFAST
Invited Presentation: Physical, Chemical and Toxicological Characteristics of Particulate Matter from Mobile Sources
Professor Costas Sioutas, USC

Session 5A: Soot	**Session 5B: Laminar Flames**	**Session 5C: Stationary Combustion**
	BREAK	
Session 6A: Kinetics	**Session 6B: New Technologies**	**Session 6C:**
	WOMEN IN COMBUSTION MEETING	
	LUNCH	
	ADJOURN	

WSS/CI Western States Section/Combustion Institute

2008 SPRING TECHNICAL MEETING
WESTERN STATES SECTIONS OF THE COMBUSTION INSTITUTE
Hosted by University of Southern California
Monday, 17 March 2008

7:30 **Registration and breakfast (included in registration fee)**
8:30 **Welcome Address: Jerald A. Cole, Hydrogen Ventures LLC, WSS Chair**
8:45 **Invited Presentation: Session Chair: Jerald A. Cole**
Reducing the Impacts of Los Angeles Port Operations on Air Quality
David Freeman - President of the Los Angeles Harbor Commission
Announcements: Paul Ronney, USC

	Session 1A: Kinetics **Room: Embassy** **Session Chair: Marco Mehl**	**Session 1B: Diagnostics** **Room: Alumni A & B** **Session Chair: Shankar Mahalingam**	**Session 1C: Combustion Fundamentals** **Room: Club A & B** **Session Chair: Ingmar Schoegl**
9:50	**08S-1** RECENT ADVANCES IN SHOCK TUBE/LASER DIAGNOSTIC METHODS FOR IMPROVED CHEMICAL KINETICS MEASUREMENTS. *David F. Davidson, Ronald K. Hanson, Stanford University*	**08S-5** WIND TUNNEL STUDY OF PARTICULATE EMISSIONS, FIRE SPREAD AND VELOCITY FIELD WITHIN THE FLAME. *Hansheng Pan, Jesse Lozano, Watcharapong Tachajapong, Shankar Mahalingam, Marko Princevac, University of California, Riverside; Aaron Swanson, Chris Kelley, Northrop Grumman Space Technologies*	**08S-7** MODELING A HEATED COILED CATALYST WIRE IN CROSS FLOW. *Katrina Leichliter, Judi Steciak, Ralph Budwig, Steve Beyerlein, University of Idaho*
10:10	**08S-2** IGNITION DELAY IN HIGH PRESSURE-LOW TEMPERATURE HYDROGEN RICH SYNGAS COMBUSTION: DISCREPANCIES BETWEEN EXPERIMENT AND PREDICTION. *Kimberly N. Jasch, John W. Daily, University of Colorado at Boulder*	**08S-6** EVALUATION OF THE EUROPEAN PMP METHODOLOGIES DURING ON-ROAD TESTING. *Heejung Jung, Kent C. Johnson, Thomas D. Durbin, Ajay Chaudhary, David R. Cocker III, University of California, Riverside; Jorn D. Herner, William H. Robertson, Alberto Ayala, Tao Huai, California Air Resources Board (CARB)*	**08S-45** AN EXPERIMENTAL STUDY OF THE AUTOIGNITION CHARACTERISTICS OF JET-A/OXIDIZER MIXTURES IN A RAPID COMPRESSION MACHINE. *K. Kumar, C.J. Sung, Case Western Reserve University*

10:30	BREAK		
	Session 2A: Kinetics **Room: Embassy** **Session Chair: John W. Daily**	**Session 2B: New Technologies** **Room: Alumni A & B** **Session Chair: Judi Steciak**	**Session 2C: Laminar Flames** **Room: Club A & B** **Session Chair: Jeffrey Manion**
10:50	**08S-3** A CHEMICAL KINETICS MODEL FOR THE FAST IGNITION OF SYNGAS AT LOWER TEMPERATURES AND HIGHER PRESSURES. *John D. Mertens, Scott S. Mussmann, Trinity College; Danielle M. Kalitan, University of Central Florida; Eric L. Petersen, Texas A&M University*	**08S-14** DEVELOPMENT OF COMBUSTION-DRIVEN SMALL THERMOACOUSTIC ENGINE. *Najmeddin Shafrei Tehrany, Chien Shung Lin, Jeongmin Ahn, Konstantin Matveev, Washington State University*	**08S-9** MEASUREMENT OF BINARY GAS PHASE DIFFUSION COEFFICIENTS FOR COMBUSTION APPLICATIONS. *Jeffrey A. Manion, W. Sean McGivern, National Institute of Standards and Technology*
11:10	**08S-10** EXPERIMENTAL STUDY AND MODELING OF SHOCK TUBE IGNITION DELAY TIMES FOR HYDROGEN-OXYGEN-ARGON MIXTURES AT LOW TEMPERATURES. *Genny A. Pang, David F. Davidson, Ronald K. Hanson, Stanford University*	**08S-15** INTRODUCING NATURAL GAS AS A SECOND FUEL AND RECONSTRUCTION OF A DIESEL BUS ENGINES TO USE DUAL FUEL TECHNOLOGY– EMISSIONS, ECONOMY. *Dame Dimitrovski, St. Cyril and Methodius University, Skopje, Macedonia*	**08S-19** DIFFUSION-FLAME EXTINCTION ON A ROTATING POROUS-DISK BURNER. *Javier Urzay, Forman A. Williams, University of California San Diego; Vedha Nayagam, NASA Glenn Research Center*
11:30	**08S-11** THEORETICAL STUDY OF THE THERMAL DECOMPOSITION OF A JET FUEL SURROGATE. *Baptiste Sirjean[1], Olivier Herbinet[2], Pierre-Alexandre Glaude[2], Manuel Ruiz-Lopez[3], Rene Fournet[1]* *[1]University of Southern California [2]DCPR - Nancy Universite [3]SRSMC - Nancy Universite*	**08S-17** A MESOSCALE FUEL REFORMER TO PRODUCE SYNGAS IN PORTABLE POWER SYSTEMS. *Ingmar Schoegl, Janet L. Ellzey, The University of Texas at Austin*	**08S-21** PROPAGATION RATES AND STABILITY MODES OF LOW LEWIS NUMBER EDGE-FLAMES IN A COUNTERFLOW SLOT BURNER. *David Clayton, Paul Ronney, University of Southern California; Min Suk Cha, Korea Institute of Machinery & Materials*
11:50	**08S-12** PREIGNITION AND AUTOIGNITION BEHAVIOR OF THE XYLENE ISOMERS. *Robert H. Natelson, Rodney O. Johnson, Matthew S. Kurman, Nicholas P. Cernansky, David L. Miller, Drexel University*	**08S-24** SOLID STATE ELECTROCHEMICAL SENSOR FOR MONITORING DIRECT INJECTION ENGINES. *Jonathan Rheaume, Robert Dibble, University of California, Berkeley*	**08S-26** LOCAL QUENCHING AND RECOVERY PHENOMENA OF TURBULENT PREMIXED AND NON-PREMIXED COMBINED FLAMES IN AN OPPOSITE FLOW. *Yuji Yahagi, Takuya Tsunekawa, Takahiro Yokoyama, Shibaura Institute of Technology*

12:10	**LUNCH (included in registration fee)**		
13:30 **13:45**	**Invited Presentation: Session Chair: Hai Wang** **Combustion Perspectives** ***Professor Sydney Benson, USC*** **Invited Presentation: Session Chair: Paul Ronney** **Air Quality Challenges in Southern California** ***Hon. Miguel Pulido, Mayor of Santa Ana***		
	Session 3A: Kinetics **Room: Embassy** **Session Chair: Guillaume Blanquart**	**Session 3B: IC Engines** **Room: Alumni A & B** **Session Chair: Jeongmin Ahn**	**Session 3C: Turbulent Combustion** **Room: Club A & B** **Session Chair: Anthony Marchese**
14:50	**08S-13** OH TIME-HISTORY ABSORPTION MEASUREMENTS AT HIGH PRESSURES AND TEMPERATURES BEHIND REFLECTED SHOCKS DURING METHYLCYCLOHEXANE AND *N*-HEPTANE OXIDATION. *Subith S. Vasu, David F. Davidson, Ronald K. Hanson, Stanford University*	**08S-25** HIGH LOAD PERFORMANCE AND EMISSIONS COMPARISON IN A CFR DIESEL ENGINE RUNNING DIESEL FUEL AND A FISCHER-TROPSCH SYNTHETIC FUEL. *L.J. Hamilton, E.M. Sink, P.G. Slye, P.A. Caton, J.S. Cowart, United States Naval Academy*	**08S-27** TURBULENCE EFFECTS ON CELLULAR BURNING STRUCTURES IN LEAN PREMIXED HYDROGEN FLAMES. *Marc Day, Berkeley National Laboratory*
15:10	**08S-22** COMPARISON OF COAL BURNOUT PREDICTIONS FROM A COMPUTATIONAL FLUID DYNAMICS MODEL AND A DETAILED KINETICS MODEL. *Peter Therkelsen, Derek Dunn-Rankin, University of California, Irvine*	**08S-32** MASS FRACTION BURN MODEL FOR CHARACTERIZING CFR ENGINE PERFORMANCE ON WATER-ETHANOL-GAS MIXTURES. *Edwin Anderson, Dan Cordon, Steve Beyerlein, University of Idaho*	**08S-36** EXTINCTION OF WET AND DRY PREMIXED ETHANOL/AIR AND BUTANOL/AIR FLAMES. *G.F. Schwab, P.S. Veloo, Y.L. Wang, A.T. Holley, F.N. Egolfopoulos, T.T. Tsotsis, University of Southern California; H. Zhang, Tsinghua University*
15:30	**BREAK**		

	Session 4A: Soot Room: Embassy Session Chair: David Davidson	Session 4B: IC Engines Room: Alumni A & B Session Chair: J.S. Cowart	Session 4C: Laminar Flames Room: Club A & B Session Chair: Katrina Leichliter
16:10	**08S-28** A WIDE RANGE KINETIC MODELING STUDY OF OXIDATION AND COMBUSTION OF THE *N*-HEXENE ISOMERS. *Marco Mehl, William J. Pitz , Lawrence Livermore National Laboratory; Guillaume Vanhove , Université des Sciences et Technologies de Lille, France; Eliseo Ranzi, Politecnico di Milano, Italy*	**08S-33** DEVELOPMENT AND CHARACTERIZATION OF A SMALL IC ENGINE DYNAMOMETER. *Adam Jepsen, Chris Miller, Peter Therkelsen, John Garman, Derek Dunn-Rankin, University of California, Irvine; Jim Hynes, Continental Controls, Huntington Beach*	**08S-37** PROPAGATION AND EXTINCTION OF PREMIXED *N*-DODECANE/AIR FLAMES. *C. Ji, X. You, A.T. Holley, Y.L. Wang, F.N. Egolfopoulos, H. Wang; University of Southern California*
16:30	**08S-29** CHEMICAL MECHANISM FOR HIGH TEMPERATURE COMBUSTION OF ENGINE RELEVANT FUELS WITH EMPHASIS ON SOOT PRECURSORS. *G. Blanquart, P. Pepiot-Desjardins, H. Pitsch, Stanford University*	**08S-34** EVALUATION OF EMISSIONS AND PERFORMANCE OF DIESEL LOCOMOTIVES WITH BIODIESEL BLENDS: STATIC TEST RESULTS. *David McKenna, Rowan University; Anthony J. Marchese, Colorado State University*	**08S-38** EXPERIMENTAL AND KINETIC MODELING STUDY OF COMBUSTION OF GASOLINE, ITS SURROGATES AND COMPONENTS IN LAMINAR NON-PREMIXED FLOWS. *Tom Bieleveld[1], Alessio Frassoldati[2], Alberto Cuoci[2], Tiziano Faravelli[2], Eliseo Ranzi[2], Ulrich Niemann[1], Kalyanasundaram Seshadri[1] [1]UCSD [2]Politecnico di Milano*
16:50	**08S-30** APPLICATION OF PLANAR LIF AND LII IMAGING TO A TURBULENT NON-PREMIXED SOOTY ETHYLENE JET FLAME. *Jiayao Zhang, Timothy C. Williams, Christopher R. Shaddix, Robert W. Schefer, Sandia National Laboratories*	**08S-35** THE EFFECTS OF INTAKE PRESSURE, FUEL CONCENTRATION, AND BIAS VOLTAGE ON THE DETECTION OF IONS IN A HOMOGENEOUS CHARGE COMPRESSION IGNITION (HCCI) ENGINE. *Gregory E. Bogin Jr., J.-Y. Chen, Robert W. Dibble, University of California, Berkeley*	**08S-39** MODELING COMBUSTION CHARACTERISTICS OF COMPONENTS OF MODEL-BIODIESEL AT HIGH TEMPERATURES. *Chitralkumar V. Naik, Karthik Puduppakkam, Ellen Meeks, Reaction Design; Yang Lee Wang, Fokion Egolfopoulos, Theodore T. Tsotsis, University of Southern California; Charles K. Westbrook, Lawrence Livermore National Laboratory*
17:10	**RECEPTION**		

Tuesday, 18 March 2008

7:30 Breakfast (included in registration fee)

8:30 Invited Presentation: Session Chair: Fokion Egolfopoulos

Physical, Chemical and Toxicological Characteristics of Particulate Matter from Mobile Sources

Professor Costas Sioutas, USC

Announcements

	Session 5A: Soot **Room: Embassy** **Session Chair: Chien-Hua Chen**	**Session 5B: Laminar Flames** **Room: Alumni A & B** **Session Chair: Marc Day**	**Session 5C: Stationary Combustion** **Room: Club A & B** **Session Chair: Janet Ellzey**
9:35	**08S-40** STUDY ON THE PRESENCE OF NANOPARTICLES IN NEAR-SOOTING PREMIXED ETHYLENE-AIR FLAT FLAMES. *Aamir D. Abid, Hai Wang, University of Southern California*	**08S-41** EXPERIMENTAL AND NUMERICAL INVESTIGATION OF A MODEL TURBINE-BURNER. *Srivatsava Puranam, Ben Colcord, Jonathan Arici, Derek Dunn-Rankin, William Sirignano, University of California, Irvine*	**08S-42** CONTROLLED EXCITATION OF TRANSVERSE JET SHEAR LAYER INSTABILITIES. *Juliett Davitian, Cory Hendrickson, Robert T. M'Closkey, Ann R. Karagozian, UCLA*
9:55	**08S-43** FORMATION AND GROWTH OF NANOPARTICLES IN NON-SOOTING RICH PREMIXED FLAMES. *Andrea De Filippo[1], Lee Anne Sgro[1], Gianluca Lanzuolo[1], Patrizia Minutolo[2], Andrea D'Anna[1], Antonio D'Alessio[1] [1]Dipartimento di Ingegneria Chimica, Università degli Studi di Napoli, Italy [2]Istituto di Ricerche sulla Combustione, CNR, Italy*	**08S-46** WATER AND CARBON DIOXIDE EFFECTS ON THE EXTINCTION OF HYDROGEN AND CARBON MONOXIDE FLAMES. *P.S. Veloo, G.F. Schwab, Y.L. Wang, A.T. Holley, F.N. Egolfopoulos, University of Southern California*	**08S-49** CFD INVESTIGATION OF CARBON BURNOUT IN A FULL-SCALE COAL-FIRED BOILER. *Michael Khanh Tran[1], Irvine Wei Zhou[2], W. Randy Seeker[1, 2], Derek Dunn-Rankin[1] [1]University of California, Irvine [2]GE Energy and Environmental Research Corporation*
10:15	**BREAK**		

	Session 6A: Kinetics Room: Embassy Session Chair:	Session 6B: New Technologies Room: Alumni A & B Session Chair:	Session 6C: Room: Club A & B Session Chair:
10:35	**08S-44** EXTENDING THE METHOD OF MOMENTS FOR BIMODAL SOOT PARTICLE SIZE DISTRIBUTIONS. *Michael Mueller, Guillaume Blanquart, Heinz Pitsch, Stanford University*	**08S-47** SENSITIVITY OF PROPAGATION AND EXTINCTION OF LARGE HYDROCARBON FLAMES TO BINARY DIFFUSION COEFFICIENTS. *Adam Takashi Holley, Xiaoqing You, Enoch Dames, Hai Wang, Fokion Egolfopoulos, University of Southern California*	**08S-50** INDENTIFYING SOURCES OF LOW-WIND/HIGH PARTICULATE MATTER EPISODES IN THE IMPERIAL VALLEY/MEXICALI REGION. *Kerry Kelly, Cristina Jaramillo, Henk Meuzeelar, JoAnn Lighty, University of Utah; Kimberly Collins, San Diego State University, Imperial Valley; Margarito Quintero Núñez, Universidad Autónoma De Baja California*
10:55	**08S-23** DETAILED AND SIMPLIFIED KINETIC MODELS OF *N*-DODECANE OXIDATION: THE ROLE OF FUEL CRACKING IN ALIPHATIC HYDROCARBON COMBUSTION. *Xiaoqing You, Fokion N. Egolfopoulos, Hai Wang, University of Southern California*	**08S-4** ELECTRICAL PROPERTIES OF SMALL DIFFUSION FLAMES. *Sunny Karnani, Matt Bennett, Derek Dunn-Rankin, University of California, Irvine*	**08S-18** EXPERIMENTAL MEASUREMENTS OF EXTINCTION OF PREMIXED FLAMES BURNING HIGH MOLECULAR WEIGHT HYDROCARBON FUELS. *Patrick Weydert, Ulrich Niemann, Kalyanasundaram Seshadri, University of California at San Diego*
11:15	**08S-31** MODELING SOOT FORMATION IN KEROSENE AND FUEL SURROGATES COMBUSTION. *G. Blanquart, H. Pitsch, Stanford University*	**08S-16** AN ACTIVE GAS MASK USING A HEAT-RECIRCULATING BURNER. *Chien-Hua Chen, Paul D. Ronney, University of Southern California*	**08S-20** PROPAGATION AND EXTINCTION OF PREMIXED DIMETHYL-ETHER/AIR FLAMES. *Yang Lee Wang, Chungsheng Ji, Adam Holley, Fokion Egolfopoulos, Theodore Tsotsis, University of Southern California; Henry Curran, Galway-Mayo Institute of Technology*
11:35		**08S-48** EFFECT OF RADIATION HEAT TRANSFER ON BURNING SPEED OF ALUMINUM DUST CLOUD. *M. Bidabadi, H. Bisadi, O. Assarehzadegan, Iran University of Science and Technology*	***WOMEN IN COMBUSTION MEETING***
11:55	**LUNCH (included in registration fee)**		