

TUESDAY–27 JULY 2004

50TH ANNIVERSARY LECTURE – 8:30 am
Paradigms in Turbulent Combustion Research, R.W. Bilger, S.B. Pope, K.N.C. Bray, J.F. Driscoll
Robert W. Bilger, Lecturer
Chairs: Ronald K. Hanson and R. Peter Lindstedt

9:30

BREAK

Room	Lecture Center F4	BSB 250	IL Rm A&B	Lecture Center F1	Lecture Center F6	Lecture Center AI	Lecture Center F3
	Pulse Detonation Engines <i>Chairs: A.K. Hayashi G.D. Roy</i>	Chemical Kinetics <i>Chairs: D.M. Golden K.H. Hoyermann</i>	Turbulent Combustion <i>Chairs: J.F. Driscoll L. Vervisch</i>	Diagnostics <i>Chairs: C. Schultz G.J. Smallwood</i>	Engine Combustion <i>Chairs: N.P.. Cernansky F. Behrendt</i>	Edge Flames <i>Chairs: M. Matalon A. Umemura</i>	Heterogeneous Combustion <i>Chairs: H. Krier R.A. Yetter</i>
10:00	2A01: An Experimental Investigation of the Onset of Detonation <i>J. Chao, T. Otsuka, J.H.S. Lee</i>	2B01: Rate Constants for the Abstraction Reactions $RO_2 + C_2H_6$; R = H, CH_3 and C_2H_5 <i>H.H. Carstensen, A.M. Dean</i>	2C01/02: Large Eddy Simulation for Turbulent Combustion <i>J. Janicka, A. Sadiki</i>	2D01: Simultaneous CH-OH PLIF and Stereoscopic PIV Measurements of Turbulent Premixed Flames <i>M. Tanahashi, S. Murakami, G.-M. Choi, Y. Fukuchi, T. Miyauchi</i>	2E01: An Investigation into Lowest Acceptable Combustion Temperatures for Hydrocarbon Fuels in HCCI Engines <i>M. Sjöberg, J.E. Dec</i>	2F01: Experiments on Standing and Traveling Edge Flames Around Flame Holes in Both Ignition and Extinction Modes <i>G. Amantini, J.H. Frank, A. Gomez</i>	2G01: Ignition and Combustion of a Falling, Single Sodium Droplet <i>A. Makino, H. Fukada</i>
10:25	2A02: Flowfield Characterization and Simulation Validation of Multiple-Geometry PDE's Using Cesium-Based Velocimetry <i>Z.C. Owens, D.W. Mattison, E.A. Barbour, C.I. Morris, R.K. Hanson</i>	2B02: Cool Flames in Space: Experimental and Numerical Studies of Propane Combustion <i>R. Fairle, F. Griffiths, K.J. Hughes, H. Pearlman</i>		2D02: Particle Streak Velocimetry and CH Laser-Induced Fluorescence Diagnostics in Strained, Premixed, Methane-Air Flames <i>J.M. Bergthorson, D.G. Goodwin, P.E. Dimotakis</i>	2E02: Low Flame Temperature Limits for Mixing-Controlled Diesel Combustion <i>L.M. Picket</i>	2F02: Smolder Waves, Smolder Spots, and the Genesis of Tribachial Structures in Smolder Combustion <i>Y. Liu, M. Chen, J. Buckmaster, T.L. Jackson</i>	2G02: Ignition of Single Nickel-Coated Aluminum Particles <i>E. Shafirovich, P. Escot Bocanegra, C. Chauveau, I. Gökalp, U. Goldshleger, V. Rosenband, A. Garty</i>
10:50	2A03: Evaluation of Pulse Detonation Engine Modeling Using Laser-Based Temperature and OH Concentration Measurements <i>D.W. Mattison, M.A. Oehlschlaeger, C.I. Morris, Z.C. Owens, E.A. Barbour, J.B. Jeffries, R.K. Hanson</i>	2B03: The Reactions of the Branched Alkyl Radicals <i>Iso</i> -Butyl and Neo-Pentyl with Oxygen Atoms—An Experimental and Theoretical Study <i>W. Hack, K. Hoyermann, M. Olzman, B. Viskolcz, J. Wehmeyer, T. Zeuch</i>		2C03: Large Eddy Simulation of a Turbulent Non-Premixed Piloted Methane Jet Flame (Sandia Flame D) <i>M.R.K. Sheikh, T.G. Drozda, P. Givi, F.A. Jaberi, S.B. Pope</i>	2D03: Nitric Oxide Detection in Turbulent Premixed Methane/Air Flames <i>K. Boulouchos, K. Herrmann</i>	2E03: Modeling Auto-Ignition Under Diesel Engine Conditions Using a Stochastic Flamelet Approach <i>G. Blanquart, H. Pitsch</i>	2F03: Edge-Flames and Cellular Structures in Oscillatory Premixed Counterflows <i>D.A. Kessler, M. Short, J. Buckmaster</i>

11:15	2A04: Studies of Detonation Transition in a Gradual Area Expansion For Multi-Cycle PDE Applications <i>S.R. Saretto, S.-Y. Lee, J. Brumberg, C. Conrad, S. Pal, R.J. Santoro</i>	2B04: Reactions of Oxygen Atoms with Hydrocarbon Radicals: A Priori Kinetic Predictions for the $\text{CH}_3 + \text{O}$, $\text{C}_2\text{H}_5 + \text{O}$, and $\text{C}_2\text{H}_3 + \text{O}$ Reactions <i>L.B. Harding, S.J. Klippenstein, Y. Georgievskii</i>	2C04: Investigation of Lengthscales, Scalar Dissipation, and Flame Orientation in a Piloted Diffusion Flame by LES <i>A. Kempf, F. Flemming, J. Janicka</i>	2D04: Investigation of Laminar High-Pressure Fames for Soot Model Validation Using SV-CARS and LII <i>K.P. Geigie, Y. Schneider-Kühnle, M.S. Tsurikov, R. Haef, R. Lückerrath, V. Küger, W. Stricker</i>	2E04: A Two Mixture Fraction Flamelet Model Applied to Split Injections in a DI Diesel Engine <i>C. Hasse, N. Peters</i>	2F04: Stabilization Mechanism of Lifted Flame Edge in the Near Field of Coflow Jets for Diluted Methane <i>S.H. Won, J. Kim, K.J. Hong, M.S. Cha, S.-H. Chung</i>	2G04: Fully Dense Nano-Composite Energetic Powders Prepared By Arrested Reactive Milling <i>M. Schoenitz, T.S. Ward, E.L. Dreizin</i>
11:40	2A05: Investigations of Cycle Processes in a Pulsed Detonation Engine Operating on Fuel-Air Mixtures <i>V.E. Tangirala, A.J. Dean, P.F. Pinard, B. Varatharajan</i>	2B05: The Reaction of $\text{CH}_3 + \text{O}_2$: Experimental Determination of the Rate Coefficients for the Product Channels at High Temperatures <i>J.T. Herbon, R.K. Hanson, C.T. Bowman, D.M. Golden</i>	2C05: Experimental Study of Velocity-Scalar Filtered Joint Density Function for LES of Turbulent Combustion <i>D. Wang, C. Tong</i>	2D05: Dual-Broadband Rotational CARS Thermometry in the Product Gas of Hydrocarbon Flames <i>F. Vestin, M. Afzelius, C. Brackmann, P.-E. Bengtsson</i>	2E05: Effects of Engine Operating Conditions on Morphology, Microstructure, and Fractal Geometry of Light-Duty Diesel Engine Particulates <i>J. Zhu, K.O. Lee, A. Yozgatligil, M.Y. Choi</i>	2F05: Transient Dynamics of Edge Flames in a Laminar Non-Premixed Hydrogen-Air Counterflow <i>C.S. Yoo, H.G. Im</i>	2G05: Thermophysical Characteristics of Shear-Coaxial LOX-H ₂ Flames at Supercritical Pressure <i>J.C. Oefelein</i>
12:05	LUNCH						
	Detonations <i>Chairs: L. Bauwens, M. Short</i>	Chemical Kinetics <i>Chairs: J.F. Griffiths, S.J. Klippenstein</i>	LES of Turbulent Combustion <i>Chairs: J. Janicka, D. Veynante</i>	Diagnostics <i>Chairs: D. Lucas, J.C. Rolon</i>	Propulsion <i>Chairs: U. Riedel, T.M. Sloane</i>	Laminar Flames <i>Chairs: J.S. Kim, C.-J. Sung</i>	Propellants <i>Chairs: S.R. Chakravarthy, K.K. Kuo</i>
2:00	2A06: Quasi-Steady, Weakly Curved, Imploding Detonations <i>M. Short, G.J. Sharpe, V. Gorchkov, J.B. Bdzil</i>	2B06: On the Influence of the Position of the Double Bond on the Low-Temperature Chemistry of Hexenes <i>G. Vanhove, M. Ribaucour, R. Minetti</i>	2C06: Subgrid Combustion Modeling of Three Dimensional Premixed Flames in the Thin-Reaction-Zone Regime <i>V. Sankaran, S. Menon</i>	2D06: Frequency Modulation Spectroscopy in a Particle-Forming Environment for the Detection of SiH ₂ <i>M.W. Crofton, E.L. Petersen</i>	2E06: Experimental and Detailed Kinetic Modeling Study of Hydrogen-Enriched Natural Gas Blend Oxidation over Extended Temperature and Equivalence Ratio Ranges <i>P. Dagaut, A. Nicolle</i>	2F06: A Comparison of Computational and Experimental Lift-Off Heights of Coflow Laminar Diffusion Flames <i>K.T. Walsh, J. Fielding, M.D. Smooke, M.B. Long, A. Liñan</i>	2G06: Influence of Distributed Solid-Phase Reactions on Deflagrations in Confined Porous Propellants <i>A.M. Telengator, S.B. Margolis, F.A. Williams</i>
2:25	2A07: Numerical Study on Three-Dimensional C-J Detonation Waves: Detailed Propagating Mechanism and Existence of OH Radical <i>K. Eto, N. Tsuboi, A.K. Hayashi</i>	2B07: Modeling of the Oxidation of Large Alkenes at Low Temperature <i>S. Touchard, R. Fournet, P.A. Glaude, V. Warth, F. Battin-Leclerc, G. Vanhove, M. Ribaucour, R. Minetti</i>	2C07: Large Eddy Simulation of Turbulent Premixed Flames Using Level-Set G-Equation <i>P. Wang, X.S. Bai</i>	2D07: Measurements of Absolute Concentration Profiles of C ₂ in Non-Sooting and Sooting Diffusion Flames by Coupling Cavity Ring-Down Spectroscopy and Laser Induced Fluorescence <i>X. Mercier, E. Therssen, J.R. Pauwels, P. Desgroux</i>	2E07: The Influence of Fuel Structure on Combustion as Demonstrated by the Isomers of Heptane; a Rapid Compression Machine Study <i>E.J. Silke, H.J. Curran, J.M. Simmie</i>	2F07: Lift-Off Characteristics of Triple Flame with Concentration Gradient <i>N.I. Kim, J.I. Seo, K.C. Oh, H. D. Shin</i>	2G07: Response of a Burning Heterogeneous Propellant to Small Pressure Disturbances <i>J. Buckmaster, T.L. Jackson, L. Massa, M. Ulrich</i>

2:50	2A08: Effect of Silane Addition on Acetylene Ignition Behind Reflected Shock Waves <i>M.J.A. Rickard, J.M. Hall, E.L. Petersen</i>	2B08: Thermo-Chemical and Kinetic Analysis of the Allyl Radical with O ₂ Reaction System <i>J. Lee, J.W. Bozzelli</i>	2C08: A Fractal Flame-Wrinkling Large Eddy Simulation Model for Premixed Turbulent Combustion <i>C. Fureby</i>	2D08: Intracavity Laser Absorption Spectroscopy of NH ₂ in Methane/Air Flames Doped with N ₂ O, NO and NH ₃ <i>I. Rahinov, N. Ditzian, A. Goldman, S. Cheskis</i>	2E08: Detailed Chemistry Based Auto-Ignition Model Including Low Temperature Phenomena Applied to Three Dimensional Engine Calculations <i>O. Colin, A. Pires da Cruz, S. Jay</i>	2F08: Three-Dimensional Numerical Simulations of Cellular Jet Diffusion Flames <i>C.E. Frouzakis, A.G. Tomboulides, P. Papas, P.F. Fischer, R.M. Rais, P.A. Monkewitz, K. Boulouchos</i>	2G08: Combustion of Sandwich Propellant at Low Pressures <i>P.A. Ramakrishna, P.J. Paul, H.S. Mukaunda, C.H. Sohn</i>
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3:15

BREAK

	Detonations	Chemical Kinetics	Flame Acoustics & Instabilities	Diagnostics	Combustor Dynamics	Laminar Burning Velocities	Propellants
3:45	2A09: Detonation Properties of Stoichiometric <i>n</i> -Heptane/Oxygen/Argon Mixtures <i>B. Imbert, L. Catoire, N. Chaumeix, C. Paillard</i>	2B09: Rate Constants for $D + C_2H_4 \rightarrow C_2H_3D + H$ at High Temperature: Implications to the High Pressure Rate Constant for $H + C_2H^+ \rightarrow C_2H_5$ <i>J.V. Michael, M.-C. Su, J.W. Sutherland, L.B. Harding, A.F. Wagner</i>	2C09: An Experimental Study of Partially Premixed Flame Sound <i>K.K. Singh, C. Zhang, J.P. Gore, L. Mongeau, S.H. Frankel</i>	2D09: Scalar Dissipation Rates in Isothermal and Reactive Turbulent Opposed-Jets: One-Dimensional Raman/Rayleigh Experiments Supported by LES <i>D. Geyer, A. Kempf, A. Dreizler, J. Janicka</i>	2E09: Effect of Swirl on Combustion Dynamics in a Lean-Premixed Swirl-Stabilized Combustor <i>Y. Huang, V. Yang</i>	2F09: Laminar Burning Velocities and Markstein Lengths of Aromatics at Elevated Temperature and Pressure <i>R.J. Johnston, J.T. Farrell</i>	2G09: Flame Structure of HMX/GAP Propellant at High Pressure <i>A.A. Paletsky, O.P. Korobeinichev, A.G. Tereshchenko, E.N. Volkov, P.D. Polyakov</i>
4:10	2A10: Influence of the Ignition Delay Time on the Explosion Parameters of Hydrocarbon Air/Oxygen Mixtures at Elevated Pressure and Temperature <i>A.A. Pekalski, E. Terli, J.F. Zevenbergen, S.M. Lemkowitz, H.J. Pasman</i>	2B10: High Temperature Ethane and Propane Decomposition <i>M.A. Oehlschlaeger, D.F. Davidson, R.K. Hanson</i>	2C10: The Response of Turbulent Premixed Flames to Normal Acoustic Excitation <i>C.J. Lawn, T.C. Williams, R.W. Schefer</i>	2D10: Experimental Investigations on Visualization of Three-Dimensional Temperature Distributions in a Large-Scale Pulverized-Coal-Fired Boiler Furnace <i>H.-C. Zhou, C. Lou, Q. Cheng, Z. Jiang, J. He, B. Huang, Z. Pei, C. Lu</i>	2E10: Mechanism of Combustion Dynamics in a Backward-Facing Step Stabilized Premixed Flame <i>A.F. Ghoniem, S. Park, A. Wachsmann, A. Annaswamy, D. Wee, H.M. Altay</i>	2F10: Measurement of Unstable Burning Velocities of <i>Iso</i> -Octane-Air Mixtures at High Pressure and the Derivation of Laminar Burning Velocities <i>A.S. Al-Shahrany, D. Bradley, M. Lawes, R. Woolley</i>	2G10: AP/(N ₂ + C ₂ H ₂ + C ₂ H ₄) Gaseous Fuel Diffusion Flame Studies <i>T.P. Parr, D.M. Hanson-Parr, M.D. Smooke, R.A. Yetter</i>

4:35	<p>2A11: Auto-Ignition of Propane-Air Mixture Behind Reflected Shock Waves <i>O.G. Penyazkov, K.A. Ragotner, A.J. Dean, V.E. Tangirala, B. Varatharajan</i></p>	<p>2B11: Dissociation, Relaxation and Incubation in the High-Temperature Pyrolysis of Ethane, Along with an Extremely Successful RRKM Modeling <i>J.H. Kiefer, S. Santhanam, N.K. Srinivasan, R.S. Tranter, S.J. Klippenstein, M.A. Oehlschlaeger</i></p>	<p>2C11: Effects of Imperfect Premixing Coupled with Hydrodynamic Instability on Flame Propagation <i>D. Garrido-López, S. Sarkar</i></p>	<p>2D11: Comparison of LII and TEM Sizing During Synthesis of Iron Particle Chains <i>B.F. Kock, C. Kayan, J. Knipping, H.R. Orthner, P. Roth</i></p>	<p>2E11: LES Studies of the Flow in a Swirl Gas Combustor <i>F.F. Grinstein, C. Fureby</i></p>	<p>2F11: Measurements of Burning Velocities of Dimethyl Ether and Air Premixed Flames at Elevated Pressures <i>X. Qin, Y. Ju</i></p>	<p>2G11: Correlation Between Burning Surface Temperature and Regression Rate for Polymethylmetacrylate <i>A. Ishihara, Y. Sakai, K. Konishi, E. Andoh</i></p>
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