MONDAY–26 JULY 2004

WELCOME and 50TH ANNIVERSARY LECTURE – 8:30 am

Combustion Theory and Modeling, J. Buckmaster, P. Clavin, A. Liñan, M. Matalon, N. Peters, G.I. Sivashinsky, F.A. Williams

Lecturer: Forman A. Williams

Chairs: Ronald K. Hanson and R. Peter Lindstedt

10:00 BREAK

Room	Lecture Center F4	BSB 250	IL Rm A&B	Lecture Center F1	Lecture Center F6	Lecture Center A1	Lecture Center F3
	Detonations *Chairs: T. Fujiwara* *K. Kailasanath*	Catalysis/Material Synthesis *Chairs:* *O. Deutschmann* *G.T. Jackson*	Turbulent Diffusion Flames *Chairs: A.R. Masri* *N. Peters*	Diagnostics – LIF *Chairs: S. Cheskis* *K. Kohse-Höinghaus*	Direct Injection Engines *Chairs: J.B. Ghandhi* *V. Sick*	Laminar Flame Dynamics *Chairs: J.K. Bechtold* *C.M .Vagelopoulo*	Droplet Combustion *Chairs: J. Bellan* *J.-P. Delplanque*
10:30	1A01/02 Astophysical Combustion	1B01: Partial Catalytic Oxidation of Methane to Synthesis Gas Over Rhodium: *in situ* Raman Experiments and Detailed Simulations *C. Appel,* *J. Mantzaras,* *R. Schaeren,* *R. Bombach,* *A. Inauen,* *N. Tylli,* *M. Wolf,* *T. Griffin,* *D. Winkler,* *R. Carroni*	1C01: Measurements of Flame Orientation and Scalar Dissipation in Turbulent Partially Premixed Methane Flames *A.N. Karpetis,* *R.S. Barlow*	1D01: Quantitative Planar Laser-Induced Fluorescence of Naphthalenes as Fuel Tracers *S.A. Kaiser,* *M.B. Long*	1E01: Quantitative In-Cylinder NO-LIF Imaging in a Realistic Gasoline Engine with Spray-Guided Direct Injection *W.G. Bessler,* *M. Hofmann,* *F. Zimmermann,* *G. Suck,* *J. Jakobs,* *S. Nicklitzsch,* *T. Lee,* *J. Wolfrum,* *C. Schulz*	1F01: Combustion Dynamics of Inverted Conical Flames *D. Durox,* *T. Schuller,* *S. Candel*	1G01: A Study on Single Fuel Droplets Combustion in Vertical Direct Current Electric Fields *O. Imamura,* *Y. Kubo,* *J. Osaka,* *J. Sato,* *M. Tsue,* *M. Kono*
10:55	Elaine Oran	1B02: Homogeneous Ignition of CH_4/Air and H_2O and CO_2-Diluted CH_4/O_2 Mixtures Over Platinum; an Experimental and Numerical Investigation at Pressures up to 16 bar *M. Reinke,* *J. Mantzaras,* *R. Schaeren,* *R. Bombach,* *A. Inauen,* *S. Schenker*	1C02: Scalar Length Scales and Spatial Averaging Effects in Turbulent Piloted Methane/Air Jet Flames *R.S. Barlow,* *A.N. Karpetis*	1D02: Mid-Infrared PS and LIF Detection of CH_4 and C_2H_6 in Cold Flows and Flames at Atmospheric Pressure *Z.S. Li,* *M. Rupinski,* *J. Zetterberg,* *M. Aldén*	1E02: Stratified-Charge Combustion: Modeling and Imaging of a Spray-Guided Direct Injection Spark-Ignition Engine *M.C. Drake,* *T.D. Fansler,* *A.M. Lippert*	1F02: Non-Linear Kinematic Response of Premixed Flames to Harmonic Velocity Disturbances *T. Lieuwen*	1G02: Droplet Combustion in Standing Sound Waves *M. Tanabe,* *T. Kuwahara,* *K. Satoh,* *T. Fujimori,* *J. Sato,* *M. Kono*

11:20	1A03: Three-Dimensional Reactive Shock Bifurcations *V.N. Gamezo,* *E.S. Oran,* *A.M. Khokhlov*	1B03: Liquid Flame: Combustion of Metal Suspensions in Liquid Sulfur *S. Goroshin,* *L. Camargo,* *J.H.S. Lee*	1C03: High-Repetition Rate Measurements of Temperature and Thermal Dissipation in a Non-Premixed Turbulent Jet Flame *G.H. Wang,* *N.T. Clemens,* *P.L. Varghese*	1D03: Predicting LIF Signal Strength for Toluene and 3-Pentanone Under Engine-Related Temperature and Pressure Conditions *W. Koban,* *J.D. Koch,* *V. Sick,* *N. Wermuth,* *R.K. Hanson,* *C. Schulz*	1E03: Development of a Simplified Bubble Growth Model for Flash Boiling Sprays in Direct Injection Spark Ignition Engines *D.-L. Chang,* *C.-F.F. Lee*	1F03: Premixed Flame Response to Oscilatory Pressure Waves *O.J. Teerling,* *A.C. McIntosh,* *J. Brindley,* *V.H.Y. Tam*	1G03: Combustion and Microexplosion of Collision-Merged Methanol/Alkane Droplets *C.H. Wang,* *S.Y. Fu,* *L.J. Kung,* *C.K. Law*
11:45	1A04: Reaction Zones in Highly Unstable Detonations *J.M. Austin,* *F. Pintgen,* *J.E. Shepherd*	1B04: Combustion Synthesis of Nitrides: Mechanistic Studies *A. Mukasyan*	1C04: Experimental Analysis of Local Flame Extinction in a Turbulent Jet Diffusion Flame by High Repetition Two Dimensional Laser Techniques and Multi-Scalar Measurements *J. Hult,* *U. Meier,* *W. Meier,* *A. Harvey,* *C.F. Kaminski*	1D04: Two-Photon LIF Imaging of Atomic Oxygen in Flames with Picosecond Excitation *J.H. Frank,* *T.B. Settersten*	1E04: High-Speed Imaging of OH* and Soot Temperature and Concentration in a Stratified-Charge Direct-Injection Gasoline Engine *B.D. Stojkivic,* *T.D. Fansler,* *M.C. Drake,* *V. Sick*	1F04: The Influence of Burner Material Properties on the Acoustical Transfer Function of Radiant Surface Burners *K.R.A.M. Schreel,* *E.L. van den Tillaart,* *L.P.H. de Goey*	1G04: Numerical Simulations of the Ignition of *n*-Heptane Droplets in the Transition Diameter Range from Heterogeneous to Homogeneous Ignition *O. Moriue,* *M. Mikami,* *N. Kojima,* *C. Eigenbrod*

12:10 LUNCH

NOTES:

Member's Meeting 5:30, F1 Lecture Center

	Detonations *Chairs: I.S. Jeung* *J.E. Shephard*	Fullerenes & Carbon Nanotubes *Chairs: I. Glassman* *N.G. Glumac*	Ignition in Turbulent Flames *Chairs: S.B. Pope* *T. Takeno*	Diagnostics *Chairs: A. Liepertz* *J. Seitzman*	HCCI Engines *Chairs:* *D.L. Reuss* *D.L. Siebers*	Laminar Flame Instabilities *Chairs: W.L. Roberts* *H.G. Im*	Droplet Combustion Chairs: *A. Makino* *J.M. Tishkoff*
2:00	1A05: The Ignition Mechanism in Irregular Structure Gaseous Detonations *M.I. Radulescu,* *G.J. Sharpe,* *J.H.S. Lee,* *C. Kiyanda,* *A.J. Higgins,* *R.K. Hanson*	1B05: Flame Synthesis of Single-Walled Carbon Nanotubes *M.J. Height,* *J.B. Howard,* *J.W. Tester*	1C05: An Experimental Study of Hydrogen Auto-Ignition in a Turbulent Co-Flow of Heated Air *C.N. Markides,* *E. Mastorakos*	1D05: A Technique for Extrapolating Absorption Coefficient Measurements to High Temperatures *S.P. Fuss,* *K. Wakatsuki,* *A. Hamins,* *M.R. Nyden*	1E05: Investigation of Light Load HCCI Combustion Using Formaldehyde Planar Laser-Induced Fluorescence *T. Kim,* *J.B. Ghandhi*	1F05: Cellular Instabilities of Expanding Hydrogen/Propane Spherical Flames at Elevated Pressures: Theory and Experiment *C.K. Law,* *G. Jomaas,* *J.K. Bechtold*	1G05: Vaporization and Combustion in Three-Dimensional Droplet Arrays *R.T. Imaoka,* *W.A. Sirignano*
2:25	1A06: Two-Step Chemical-Kinetic Descriptions for Hydrocarbon-Oxygen-Diluent Ignition and Detonation Applications *B. Varatharajan,* *M. Petrova,* *F.A. Williams,* *V. Tangirala*	1B06: Fullerenes Formation In Atmospheric Pressure Opposed Flow Oxy-Flames *M. Silvestrini,* *W. Merchan-Merchan,* *H. Richter,* *A. Saveliev,* *L.A. Kennedy*	1C06: The Effects of Non-Uniform Temperature Distribution on the Ignition of a Lean Homogeneous Hydrogen-Air Mixture *R. Sankaran,* *H.G. Im,* *E.R. Hawkes,* *J.H. Chen*	1D06: High Sensitivity *in-situ* CO-Detection in a 3 MWth Rotary Kiln for Special Waste Incineration Using New 2.3 µm Distributed Feedback Diode Lasers *V. Ebert,* *H. Teichert,* *P. Strauch,* *T. Kolb,* *H. Seifert,* *J. Wolfrum*	1E06: Investigation of HCCI Combustion of Diethyl Ether and Ethanol Mixtures Using Carbon 14 Tracing and Numerical Simulations *J.H. Mack,* *D.L. Flowers,* *B.A. Buchholz,* *R.W. Dibble*	1F06: The Unstable Behavior of Cellular Premixed Flames Induced by Intrinsic Instability *S. Kadowaki,* *H. Suzuki,* *H. Kobayashi*	1G06: Observation of Droplet Motion During Flame Spread on Three-Fuel-Droplet Array with a Pendulum Suspender *H. Nomura,* *M. Takahashi,* *Y. Ujiie,* *H. Hara*
2:50	1A07: Detonation Structure with Pressure Dependent Chain-Branching Kinetics *Z. Liang,* *L. Bauwens*	1B07: Catalyst Influence on the Flame Synthesis of Aligned Carbon Nanotubes and Nanofibers *C. Arana,* *I.K. Puri,* *S. Sen*	1C07: Effects of Temperature and Equivalence Ratio on the Ignition of *n*-Heptane Fuel Spray in Turbulent Flow *Y. Wang,* *C.J. Rutland*	1D07: Two-Line Atomic Fluorescence Flame Thermometry Using Diode Lasers *J. Hult,* *I.S. Burns,* *C.F. Kaminski*	1E07: Combustion Timing in HCCI Engines Determined by Ion-Sensor: Experimental and Kinetic Modeling *P. Mehresh,* *J. Souder,* *D. Flowers,* *U. Riedel,* *R.W. Dibble*	1F07: The Role of Radiative Losses in Self-Extinguishing and Self-Wrinkling Flames *J.K. Bechtold,* *C. Cui,* *M. Matalon*	1G07: Numerical Study on Flame Spread of an *n*-Decane Droplet Array in Different Temperature Environment Under Microgravity *M. Kikuchi,* *Y. Wakashima,* *S. Yoda,* *M. Mikami*
3:15	BREAK						

	Supersonic Combustion	Material Synthesis	Pollutants in Turbulent Flames	Sensors	HCCI Engines	Burning Velocities of Laminar Flames	Heterogeneous Combustion
3:45	1A08: Combustion Oscillations in a Scramjet Engine Combustor with Transverse Fuel Injection *J.-Y. Choi,* *F. Ma,* *V. Yang*	1B08: Synthesis of Ultrafine Anatase TiO_2 Nanoparticles in Premixed Ethylene Stagnation Flames *B. Zhao,* *K. Uchikama,* *J.R. McCormick,* *C.Y. Ni,* *J.G. Chen,* *H. Wang*	1C08: Joint-Scalar Transported PDF Modeling of Soot Formation and Oxidation *R.P. Lindstedt,* *S.A. Louloudi*	1D08: Wavelength-Agile Sensor Applied for HCCI Engine Measurements *L.A. Kranendonk,* *J.W. Walewski,* *T. Kim,* *S.T. Sanders*	1E08: Fast Prediction of Start-of-Combustion in HCCI with Combined Artificial Neural Networks and Ignition Delay Model *Y. Choi,* *J.-Y. Chen*	1F08: Experimental Determination of Counterflow Ignition Temperatures and Laminar Flame Speeds of C_2-C_3 Hydrocarbons at Atmospheric and Elevated Pressures *G. Jomaas,* *X.L. Zheng,* *D.L. Zhu,* *C.K. Law*	1G08: Modeling of Multicomponent-Fuel Drop-Laden Mixing Layers Having a Multitude of Species *P.C. Le Clercq,* *J. Bellan*
4:10	1A09: Stability Limits of Cavity-Stabilized Flames in Supersonic Flow *C.C. Rasmussen,* *J.F. Driscoll,* *K.-Y. Hsu,* *J.M. Donbar,* *M.R. Gruber,* *C.D. Carter*	1B09: SNO_2/TiO_2 Mixed Oxide Particles Synthesized in Doped Premixed H_2/O_2/Ar Flames *P. Ifeacho,* *H. Wiggers,* *P. Roth*	1C09: Two-Dimensional Soot Distributions in Buoyant Turbulent Fires *Y. Xin,* *J.P. Gore*	1D09: UV Absorption of CO_2 for Temper-ature Diagnostics of Hydrocarbon Combustion Applications *J.B. Jeffries,* *C. Schulz,* *D.W. Mattison,* *M.A. Oehlschlaeger,* *W.G. Bessler,* *T. Lee,* *D.R. Davidson,* *R.K. Hanson*	1E09: Chemical Mechanistic Analysis of Additive Effects in Homogeneous Charge Compression Ignition of Dimethyl Ether *H. Yamada,* *M. Yoshi,* *A. Tezaki*	1F09: Character-ization of the Effects of Pressure and Hydrogen Concentration on Laminar Burning Velocities of Methane-Hydrogen-Air Mixtures *F. Halter,* *C. Chauveau,* *N. Djebaïli-Chaumeix,* *I. Gökalp*	1G09: Combustion of Partially Premixed Spray Jets *M. Mikami,* *K. Yamamoto,* *O. Moriue,* *N. Kojima*
4:35	1A10: LES of Scalar Mixing in Supersonic Mixing Layers *V. Sankaran,* *S. Menon*	1B10: Time-Resolved Two-Color LII: Size Distributions of Nano-Particles from Gas-to-Particle Synthesis *T. Lehre,* *R. Suntz,* *H. Bockhorn*	1C10: Measurements and Inverse Calculations of Spectral Radiation Intensities of a Turbulent Ethylene/Air Jet Flame *Y. Zheng,* *J.P. Gore*	1D10: Optical Equivalence Ratio Sensors for Gas Turbine Combustors *T.M. Muruganandam,* *B.-.H. Kim,* *M.R. Morrell,* *V. Nori,* *M. Patel,* *B.W. Romig,* *J.M. Seitzman*	1E10: A PDF Method for Multidimensional Modeling of HCCI Engine Combustion: Effects of Turbulence/Chemistry Interactions on Ignition Timing and Emissions *Y.Z. Zhang,* *E.H. Kung,* *D.C. Haworth*	1F10: The Laminar Burning Velocity and Markstein Lengths of Hydrogen-Air Mixtures at Engine-Like Conditions *S. Verhelst,* *R. Woolley,* *M. Lawes,* *R. Sierens*	1G10: Numerical Simulation and Laser-Based Imaging of Mixture Formation, Ignition and Soot Formation in a Diesel Spray *S. Vogel,* *C. Hasse,* *J. Gronki,* *S. Andersson,* *N. Peters,* *J. Wolfrum,* *C. Schulz*

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