

THURSDAY–29 July 2004

50TH ANNIVERSARY LECTURE – 8:30

Unravelling Combustion Mechanisms Through a Quantitative Understanding of Elementary Reactions, J.A. Miller, M.J. Pilling, J. Troe

Jürgen Troe, 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
	Nano Particles <i>Chairs: M.B. Colket S. Tse</i>	Chemical Kinetics <i>Chairs: H. Hippler T. Turanyi</i>	Premixed Turbulent Flames <i>Chairs: R.K. Cheng A. Lipatnikov</i>	New Technologies <i>Chairs: B. Dally P.D. Ronney</i>	Fire Research <i>Chairs: A.C. Fernandez-Pello T. Hirano</i>	Laminar Flames <i>Chairs: S.H. Chung V.R. Katta</i>	Heterogeneous Combustion <i>Chairs: D.M. Mann J.O.L. Wendt</i>
10:00	4A01: Surface Deposition and Coagulation Efficiency of Combustion Generated Nanoparticles in the Size Range from 1 nm To 10 nm <i>A. D'Alessio, A.C. Barone, R. Cua, A. D'Anna, P. Minutolo</i>	4B01: Fuel Decomposition and Hydrocarbon Growth Processes for Oxygenated Hydrocarbons: Butyl Alcohols <i>C.S. McEnally L.D. Pfefferle</i>	4C01: Detailed Measurements of Local Scalar-Front Structures in Stagnation-Type Turbulent Premixed Flames in the Thin Reaction Zones Regime <i>Y.-C. Chen, R.W. Bilger</i>	4D01/02: Solid Oxide Fuel Cells with Hydrocarbon Fuels <i>R.J. Kee, H. Zhu, D.G. Goodwin</i>	4E01: An Earth-Based Equivalent Low Stretch Apparatus for Material Flammability Assessment in Microgravity and Extraterrestrial Environments <i>S.L. Olson, H.D. Beeson, J.P. Haas, J.S. Baas</i>	4F01: The Influence of Water on Extinction and Ignition of Hydrogen and Methane Flames <i>R. Seiser, K. Seshadri</i>	4G01: Influence of Size and Density of Fuel on Combustion in a Packed Bed <i>H. Thunman, B. Leckner</i>
10:25	4A02: The Relative Roles of Acetylene and Aromatic Precursors During Soot Particle Inception <i>A. Violi, G.A. Voth, A.F. Sarofim</i>	4B02: The Role and Rate of Hydrogen Peroxide Decomposition During Hydrocarbon Two-Stage Auto- Ignition <i>J.F. Griffiths, K.J. Hughes, R. Porter</i>	4C02: Curvature and Wrinkling of Premixed Flame Kernels– Comparisons of OH PLIF and DNS Data <i>S. Gashi, J. Hult, K.W. Jenkins, N. Chakraborty, R. S. Cant, C.F. Kaminski</i>		4E02: The Effect of Irradiation Angle on Laser Ignition of Cellulose Sheet in Microgravity <i>J. Takahashi, O. Fujita, K. Ito</i>	4F02: Lean or Ultra Lean Stretched Planar Methane/Air Flames <i>Z. Cheng, J.A. Wehrmeyer, R.W. Pitz</i>	4G02: Time-Dependent Behavior of the Ash Particle Size Distribution in a Circulating Fluidized Bed System <i>C. Kleet, E.-U. Hartge, J. Werther</i>
10:50	4A03: Migration Mechanism of Aromatic-Edge Growth <i>M. Frenklach, C.A. Schuetz, J. Ping</i>	4B03: Elementary Reactions of Formyl (HCO) Radical Studied by Laser Photolysis- Transient Absorption Spectroscopy <i>L.N. Krasnoperov, E.N. Chesnokov, H. Stark, A.R. Ravishankara</i>	4C03: Evaluation of Models for Flame Stretch Due to Curvature <i>E.R. Hawkes, J.H. Chen</i>	4D03: Experimental Study of Flame Stabilization in Low Reynolds and Dean Number Flows in Curved Mesoscale Ducts <i>F. Richecoeur, D.C. Kyritsis</i>	4E03: Effects of Combustible Dust Clouds on Premixed Flame Extinction in Normal- and Micro- Gravity <i>M.G. Andac, C.S. Campbell, F.N. Eglolfopoulos, J.C. Lee</i>	4F03: An Experimental Realization of an Unstained Planar Diffusion Flame <i>D.L. Jacono, P. Papas, M. Matalon, P.A. Monkewitz</i>	4G03: Co-Firing Pulverized Coal and Biomass: A Modeling Approach <i>R.I. Backreedy, L.M. Fletcher, J.M. Jones, L. Ma, M. Pourkashanian, A. Williams</i>

11:15	4A04: Monte-Carlo Simulation of Soot Particle Coagulation and Aggregation: The Effect of a Realistic Size Distribution <i>M. Balthasar, M. Frenklach</i>	4B04: Chemical Kinetic Modeling of Dimethyl Carbonate in an Opposed-Flow Diffusion Flame <i>P.A. Glaude, W.J. Pitz, M.J. Thomson</i>	4C04: Three-Dimensional Direct Simulations and Structure of Expanding Turbulent Methane Flames <i>D. Thévenin</i>	4D04: Characteristics of Combustion in Narrow Channel with Temperature Gradient <i>K. Maruta, T. Katoka, N.I. Kim, S. Minaev, R. Fursenko</i>	4E04: Two-Sided Ignition of a Thin PMMA Sheet in Microgravity <i>Y. Nakamura, T. Kashiwagi, S.L. Olson, K. Nishizawa, O. Fujita, K.Ito</i>	4F04: Glowing Ignition of Wood: the Onset of Surface Combustion <i>N. Boonmee, J.G. Quintiere</i>	4G04: Effect of Co-Firing on the Properties of Submicron Aerosols from Biomass Combustion <i>S. Jiménez, J. Ballester</i>
11:40	4A05: Stochastic Modeling of Soot Particle Size and Age Distributions in Laminar Premixed Flames <i>J. Singh, M. Balthasar, M. Kraft, W. Wagner</i>	4B05: Experimental and Computational Study of Non-Premixed Ignition of Dimethyl Ether in Counterflow <i>X.L. Zheng, T.F. Lu, C.K. Law, C.K. Westbrook</i>	4C05: A Flamelet Analysis of the Burning Velocity of Premixed Turbulent Expanding Flames <i>J.A. van Oijen, G.R.A. Groot, R.J.M. Bastiaans, L.P.H. de Goeij</i>	4D05: The Role of Structural Heat Exchange and Heat Loss in the Design of Efficient Silicon Micro-Combustors <i>T.T. Leach, C.P. Cadou</i>	4E05: Modeling of One-Dimensional Smoldering of Polyurethane in Microgravity Conditions <i>G. Rein, A. Bar-Ilan, A.C. Fernandez-Pello, J.L. Ellzey, J.L. Torero, D.L. Urban</i>	4F05: Hot-Gas Ignition of Non-Premixed Methane Flames in the Presence of Inert Particles <i>M.G. Andac, F.N. Egolfopoulos, C.S. Campbell</i>	4G05: Co-Gasification of Blended Coal with Feedlot and Chicken Litter Biomass <i>S. Priyadarsan, K. Annamalai, J.M. Sweeten, M.T. Holtzapfel, S. Mukhtar</i>
12:05 LUNCH							
	Sulfur Chemistry <i>Chairs: U.O Koylu, A.F. Sarofim</i>	Kinetics <i>Chairs: J.V. Michael, W.J. Pitz</i>	Turbulent Premixed Flames <i>Chairs: I. Gökalp, R.S. Cant</i>	New Technologies <i>Chairs: R.J. Kee, H.B. Levinsky</i>	Fire Research <i>Chairs: J. Torero, J.-P. Vantalon</i>	Laminar Flames <i>M.D. Smooke, R. Seiser</i>	Coal Char Combustion <i>Chairs: R.E. Mitchell, P.F. Nelson</i>
2:00	4A06: Experimental and Kinetic Modeling Study of the Effect of SO ₂ on the Reduction of NO by Ammonia <i>P. Dagaut, A. Nicolle</i>	4B06: The Effect of NO and NO ₂ on the Partial Oxidation of Methane: Experiments and Modeling <i>A.A. Konnov, J.N. Zhu, J.H. Bromly, D.-K. Zhang</i>	4C06: A Theoretical Study of Premixed Turbulent Flame Development <i>A. Lipatnikov, J. Chomiak</i>	4D06: Experimental Study of Air Dilution in Oxy-Liquid Fuel Flames <i>F. Lacas, B. Leroux, N. Dagabiha</i>	4E06: A Simple Model of the World Trade Center Fireball Dynamics <i>H.R. Baum, R.G. Rehm</i>	4F06: Flame Structure of Steady and Pulsed Sooting Inverse Jet Diffusion Flames <i>C.R. Shaddix, T.C. Williams, L.G. Blevins, R.W. Schefer</i>	4G06: Kinetics of Methane and Tar Evolution During Coal Pyrolysis <i>A. Holstein, R. Basilakis, M.A. Wójtowicz, M.A. Serio</i>
2:25	4A07: A Kinetic Study of the Reaction of Atomic Oxygen with SO ₂ <i>J. Naidoo, A. Goumri, P. Marshall</i>	4B07: Thermal Decomposition of Dichloroacetone and Its Reaction with H Atoms <i>A.A. Shestov, S.A. Kostina, V.D. Knyazev</i>	4C07: Flame Front Analysis of High-Pressure Turbulent Lean Premixed Methane-Air Flames <i>T. Lachaux, F. Halter, C. Chauveau, I. Gökalp, I.G. Shepherd</i>	4D07: Stability and Emissions Control Using Air Injection and H ₂ Addition in Premixed Combustion <i>A.F. Ghoniem, A. Annaswamy, S. Park, Z.C. Sobhani</i>	4E07: Coupled Fire Dynamics and Thermal Response of Complex Building Structures <i>K. Prasad, H.R. Baum</i>	4F07: Pulsed Flow Modulation of Soot Production in a Laminar Jet-Diffusion Flame <i>O.A. Ezekoye, K.M. Martin, F. Bisetti</i>	4G07: The Effect of Potassium Bromide and Sodium Carbonate on Coal Char Combustion Reactivity <i>A. Molina, J.J. Murphy, C.R. Shaddix, L.G. Blevins</i>

2:50	4A08: A Systematically Reduced Reaction Mechanism for Sulfur Oxidation <i>F. Cerru, A. Kronenburg, R.P. Lindstedt</i>	4B08: A Complete Statistical Analysis of the Reaction of OH with CO <i>J.P. Senosiain, S.J. Klippenstein, J.A. Miller</i>	4C08: Zone Conditional Analysis of a Freely Propagating One-Dimensional Turbulent Premixed Flame <i>E. Lee, Y.H. Im, K.Y. Huh</i>	4D08: "Slow" Active Control of Combustion Instabilities by Modification of Liquid Fuel Spray Properties <i>J.-Y. Lee, E. Lubarsky, B.T. Zinn</i>	4E08: Transition from Forward Smoldering to Flaming in Small Polyurethane Foam Samples <i>A. Bar-Ilan, O. Putzeys, G. Rein, A.C. Fernandez-Pello, D.L. Urban</i>	4F08: Nano-Organic Carbon and Soot Particle Measurements in a Laminar Ethylene Diffusion Flame <i>A. D'Anna, A. Rolando, C. Allouis, P. Minutolo, A. D'Alessio</i>	4G08: Evaluation of Char Combustion Models: Measurement and Analysis of Variability in Char Particle Size and Density <i>D.J. Maloney, E.R. Monazam, K.H. Casleton, C.R. Shaddix</i>
3:15 BREAK							
	Pollutant Formation	Chemical Kinetic Mechanisms	Turbulent Diffusion Flames	New Technologies	Combustion Suppression	Gravity Effects	Heterogeneous Combustion
3:45	4A09: Effect of Mixing Methane, Ethane, Propane and Propene on the Synergistic Effect of PAH and Soot Formation in Ethylene-Base Counterflow Diffusion Flames <i>S.S. Yoon, S.M. Lee, S.H. Chung</i>	4B09: Uncertainty Analysis of Update Hydrogen and Carbon Monoxide Oxidation Mechanisms <i>I.Gy. Zsély, J. Zádor, T. Turányi</i>	4C09: Axis Switching in Turbulent Buoyant Diffusion Flames <i>K.H. Luo</i>	4D09: Investigations of the Scaling Criteria for a Mild Combustion Burner <i>S. Kumar, P.J. Paul, H.S. Mukunda</i>	4E09: Inhibition of Premixed and Non-Premixed Flames with Phosphorus-Containing Compounds <i>A.G. Shmakov, O.P. Korobeinichev, V.M. Shvartsberg, D.A. Knyazkov, T.A. Bolshova, I.V. Rybitskaya</i>	4F09: Gravity Effects on Partially Premixed Flames: An Experimental-Numerical Investigation <i>A.J. Lock, R. Ganguly, I.K. Puri, S.K. Aggarwal, U. Hegde</i>	4G09: Characterization of High Heating Rate Chars from Alternative Fuels Using an Electrodynamic Balance <i>E. Biagini, S. Pintus, L. Tognott</i>
4:10	4A10: Fuel Decomposition and Hydrocarbon Growth Processes for Substituted Cyclohexanes and for Alkenes in Non-Premixed Flames <i>C.S. McEnally, L.D. Pfeifferle</i>	4B10: An Optimized Kinetic Model of H ₂ /CO Combustion <i>S.G. Davis, A.V. Joshi, H. Wang, F.N. Ególfopoulos</i>	4C10: Conditional Moment Closure Modeling of Turbulent Non-Premixed Combustion in Diluted Hot Coflow <i>S.H. Kim, K.Y. Huh, B. Dally</i>	4D10: The Effect of Hydrogen Addition on Flammability Limit and NO _x Emission in Ultra Lean Counterflow CH ₄ /Air Premixed Flames <i>H. Guo, G.J. Smallwood, F. Liu, Y. Ju, Ö.L. Gülder</i>	4E10: Flame Inhibition by Phosphorus-Containing Compounds in Lean and Rich Propane Flames <i>O.P. Korobeinichev, V.M. Shvartsberg, A.G. Shmakov, T.A. Bolshova, T.M. Jayaweera, C.F. Melius, W.J. Pitz, C.K. Westbrook, H. Curran</i>	4F10: Influence of G-Jitter on a Laminar Boundary Layer Type Diffusion Flame <i>S. Rouvreau, P. Cordeiro, J.L. Torero, P. Joulain</i>	4G10: Swelling Properties and Intrinsic Reactivities of Coal Chars Produced at Elevated Pressures and High Heating Rates <i>D. Zeng, M. Clark, T. Gunderson, W.C. Hecker, T.H. Fletcher</i>
4:35	4A11: The Effect of Global Mixing on Soot Volume Fraction: Measurements in Simple Jet, Precessing Jet and Bluff Body Flames <i>N.H. Qamar, G.J. Nathan, Z.T. Alwahabi, K.D. King</i>	4B11: Species Reconstruction Using Pre-Image Curves <i>Z. Ren, S.B. Pope</i>	4C11: Second-Order Conditional Moment Closure Modeling of a Turbulent CH ₄ /H ₂ /N ₂ Jet Diffusion Flame <i>S.H. Kim, C.H. Choi, K.Y. Huh</i>	4D11: Analysis of Process Parameters for Steady Operations in Methane Mild Technology <i>M. de Joannon, A. Cavaliere, T. Faravelli, E. Ranzi, P. Sabia, A. Tregrossi</i>	4E11: Experimental Investigation and Numerical Validation of Explosion Suppression by Inert Particles in Large-Scale Duct <i>G. Dong, B. Fan, B. Xie, J. Ye</i>	4F11: Experimental Low Stretch Gaseous Diffusion Flames in Buoyancy-Induced Flowfields <i>B. Han, A.F. Ibarreta, C.-J. Sung, J.S. T'ien</i>	4G11: The Influence of Char Surface Oxidation on Thermal Annealing and Loss of Combustion Reactivity <i>O. Senneca, P. Salatino, S. Masi</i>