

5TH US COMBUSTION MEETING - MARCH 25–28, 2007

Monday, March 26, 2007

7:45 **Opening remarks: Dr. William Pitz, Chairman of the Board, Western States Section of the Combustion Institute**

7:50 **Welcome: Dr. Arthur B. Ellis, Vice Chancellor for Research, University of California at San Diego**

Session Chair: Forman A. Williams

8:05 **Combustion in a carbon constrained era**

Robert F. Sawyer, California Air Resources Board & University of California at Berkeley

The central role of the scalar dissipation rate in non-premixed combustion

9:00 *Norbert Peters, RWTH Aachen, Germany*

Session A1 - Laminar

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| 10:30 | A01 | Direct numerical simulation of transient ignition of diluted hydrogen versus heated air in axisymmetric counterflow. | <i>Chun Sang Yoo, Jacqueline H. Chen, Jonathan H. Frank, Sandia National Laboratories</i> |
| 10:45 | A02 | Experimental and numerical investigation of strained laminar flame speeds for H₂/O₂/N₂ mixtures at elevated temperature. | <i>Jayaprakash Natarajan, Tim C. Lieuwen, Jerry M. Seitzman, School of Aerospace Engineering, Georgia Institute of Technology</i> |
| 11:00 | A03 | Laser-induced fluorescence measurements of NCN in low pressure CH₄/O₂/N₂ flames and its role in prompt NO formation. | <i>Jeffrey A. Sutton, Bradley A. Williams, James W. Fleming, Naval Research Laboratory</i> |
| 11:15 | A04 | Comprehensive study of extinction, re-ignition, and the evolution of an annular edge flame in a counterflow flame perturbed by vortices. | <i>Giuliano Amantini^{1,2}, Jonathan H. Frank³, Beth Anne V. Bennett¹, Mitchell D. Smooke¹, Alessandro Gomez^{1,1} Department of Mechanical Engineering, Yale Center for Combustion Studies, Yale University ² Current Address: United Technologies Research Center ³ Sandia National Laboratories</i> |
| 11:30 | A05 | Effect of NO on extinction and re-ignition of vortex-perturbed hydrogen flames. | <i>Uen Do Lee, Sebastian A. Kaiser, Chun Sang Yoo, Jacqueline H. Chen, Jonathan H. Frank, Sandia National Laboratories</i> |

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| 11:45 | A06 | Radiative extinction of gaseous spherical diffusion flames in microgravity. | <i>Karlos J. Santa, Beei-Huan Chao, University of Hawaii at Manoa; Peter B. Sunderland, University of Maryland; David L. Urban, Dennis P. Stocker, NASA Glenn Research Center; Richard L. Axelbaum, Washington University at St Louis</i> |
| 12:00 | A07 | A numerical study of microgravity spherical diffusion flame structure with various radiation approximations. | <i>Songtao Tang¹, Melissa Chernovsky², Hong Im¹, Arvind Atreya¹ ¹ University of Michigan ² Exponent Inc.</i> |
| 12:15 | A08 | Effects of diluents on laminar premixed methane-air flames in microgravity. | <i>Li Qiao¹, Elaine Oran¹, Werner Dahm¹, Gerald Faeth¹ ¹ University of Michigan ² Naval Research Laboratory</i> |
| 12:30–14:00 | LUNCH | | |
| Session A2 - Laminar | | | |
| 14:00 | A09 | Fuel consumption and initial steps of aromatic ring formation in a laminar premixed fuel-rich cyclopentene flame. | <i>N. Hansen¹, T. Kasper², S.J. Klippenstein³, P.R. Westmoreland⁴, M.E. Law⁴, C.A. Taatjes¹, K. Kohse-Höinghaus², J. Wang⁵, T.A. Cool⁵ ¹ Combustion Research Facility, Sandia National Laboratories ² Department of Chemistry, Bielefeld University, Germany ³ Chemistry Division, Argonne National Laboratory ⁴ Department of Chemical Engineering, University of Massachusetts ⁵ School of Applied and Engineering Physics, Cornell University</i> |
| 14:15 | A10 | Formation of aromatics in rich methane flames doped by unsaturated compounds. | <i>Hadj Ali Glaude, Pierre-Alexandre Gueniche, René Fournet, Frédérique Battin-Leclerc, Département de Chimie-Physique des Réactions, CNRS-INPL, Nancy, France</i> |
| 14:30 | A11 | Extinction of benzene/air and toluene/air premixed flames: experiments and simulations. | <i>Adam Holley, Adamandios Sifounakis, Lee Wang, Fokion Egolopoulos, Department of Mechanical Engineering, University of Southern California</i> |

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| 14:45 | A12 | The chemical structure of pyridine-doped methane/air, non-premixed flames: tracking the fate of fuel nitrogen. | <i>Maria A. Puccio, J. Houston Miller, Department of Chemistry, George Washington University</i> |
| 15:00 | A13 | A numerical study of ammonia/air counter-flow diffusion flames. | <i>Kemdy Lawson, Yuan Zheng, Jay Gore, School of Mechanical Engineering, Purdue University</i> |
| 15:15 | A14 | Effect of oxygen enhancement and gravity variation on soot emission and reaction paths for inverse diffusion flames. | <i>Pramod Bhatia¹, V.R. Katta², S.S. Krishnan¹, P.B. Sunderland³, J.P. Gore¹</i> ¹ <i>School of Mechanical Engineering, Purdue University</i> ² <i>Innovative Scientific Solutions</i> ³ <i>University of Maryland</i> |
| 15:30–16:00 | BREAK | | |
| Session A3 - Laminar | | | |
| 16:00 | A15 | Flame structure study and laminar burning speed calculation of JP8/oxidizer and JP10/oxidizer mixtures. | <i>Kian Eisazadeh Far¹, Farzan Parsinejad², Hameed Metghalchi¹, James C. Keck²</i> ¹ <i>Northeastern University,</i> ² <i>Massachusetts Institute of Technology</i> |
| 16:15 | A16 | Measurements of hydrogen syngas flame speeds at elevated pressures. | <i>M.P. Burke, Y. Ju, F.L. Dryer, Mechanical and Aerospace Engineering Department, Princeton University</i> |
| 16:30 | A17 | Bio-Diesel surrogate. | <i>Ulrich Niemann¹, Justin Gerritzen², Reinhard Seiser³, Stefan Humer¹, Kalyanasundaram Seshadri¹</i> ¹ <i>University of California, San Diego</i> ² <i>Technische Universiteit Eindhoven</i> ³ <i>Oryxe Energy International, Inc.</i> |
| 16:45 | A18 | Studies of combustion characteristics of biofuels in premixed and non-premixed flames. | <i>Lee Wang, Adam Holley, Fokion Egolfopoulos, Department of Aerospace and Mechanical Engineering, University of Southern California</i> |
| 17:00 | A19 | Extinction and re-ignition in non-premixed flame-vortex interactions under Diesel conditions. | <i>Rishikesh Venugopal¹, Vinicio Magi², John Abraham¹,</i> ¹ <i>Maurice J. Zucrow Laboratories, School of Mechanical Engineering, Purdue University</i> ² <i>Department of Environmental Engineering and Physics, University of Basilicata, Potenza, Italy</i> |
| Tuesday, March 27, 2007 | | | |

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| | Session Chair: Chung K. Law | | |
| 8:00 | The effect of thermal expansion on flame dynamics, | | |
| | <i>Moshe Matalon, Northwestern University</i> | | |
| 8:55 | A career in combustion diagnostics: Fruitful insights and lessons learned, | | |
| | <i>Normand Laurendau, Purdue University</i> | | |
| Session A4 - Laminar | | | |
| 10:30 | A20 | A facility for high-pressure laminar flame speed measurements. | <i>J. de Vries, B. Corbin, E.L. Petersen, Mechanical, Materials and Aerospace Engineering, University of Central Florida</i> |
| 10:45 | A21 | Experiments on ethylene/O₂/diluent mixtures: laminar flame speeds with preheat and ignition delays at high pressures. | <i>Kamal Kumar, Gaurav Mittal, Chih-Jen Sung, Case Western Reserve University; C.K. Law, Princeton University</i> |
| 11:00 | A22 | Validation of a detailed chemical kinetic model for the high pressure combustion of methane-flame and ignition characteristics. | <i>Raghu Sivaramakrishnan, Sibendu Som, Kenneth Brezinsky, Suresh Aggarwal, Department of Mechanical and Industrial Engineering, University of Illinois at Chicago</i> |
| 11:15 | A23 | The effect of flow compression on the determination of flame speeds using propagating spherical flames at normal and high pressures. | <i>Zheng Chen, Yiguang Ju, Department of Mechanical and Aerospace Engineering, Princeton University</i> |
| 11:30 | A24 | Species identification in laminar flames investigated by molecular beam mass spectrometry. | <i>T. Kasper, K. Kohse-Höinghaus, Bielefeld University, Germany; N. Hansen, C.A. Taatjes, Sandia National Laboratories; M.E. Law, University of Massachusetts; P.R. Westmoreland, J. Wang, T.A. Cool, Cornell University</i> |
| 11:45 | A25 | Effects of spark energy and energy losses to electrodes and radiation on flame kernel development. | <i>Farzan Parsinejad, James C. Keck, Massachusetts Institute of Technology; Edwim Shirk, Kian Eisazadeh Far, Hameed Metghalchi, Mechanical and Industrial Engineering Department, Northeastern University</i> |
| 12:00-13:30 | LUNCH | | |
| Session A5 - Nano Technology | | | |
| 13:30 | A26 | Flame synthesis of carbon nanotubes over reduced metal-oxides. | <i>Fusheng Xu, Geliang Sun, Stephen D. Tse, Department of Mechanical and Aerospace Engineering, Rutgers University</i> |

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| 13:45 | A27 | Characterization of diffusion flames for synthesis of single-walled carbon nanotubes. | <i>Chad J. Unrau, Richard L. Axelbaum, Dept. of Mechanical and Aerospace Engineering, Washington University in St. Louis</i> |
| 14:00 | A28 | Nanocarbon synthesis in an atmospheric-pressure microwave-plasma reactor. | <i>Albert Dato, Michael Frenklach, UC Berkeley; Velimir Radmilovic, Zonghoon Lee, National Center for Electron Microscopy, Lawrence Berkeley National Laboratory; Jonathan Phillips, Los Alamos National Laboratory</i> |
| 14:15 | A29 | Combustion synthesis and characterization of rare-earth doped ceria upconversion nanophosphors. | <i>Xiao Qin, Takeshi Yokomori, Yiguang Ju, Princeton University</i> |
| 14:30 | A30 | Experimental and computational studies of flame synthesis of nanoparticles: effects of pressure, precursor loading, and electric field. | <i>Hong Zhao, Megan Smith, Stephen D. Tse, Department of Mechanical and Aerospace Engineering, Rutgers University</i> |
| POSTER Session - 15:00:17:00 | | | |
| Wednesday, March 28, 2007 | | | |
| Session Chair: Adel F. Sarofim | | | |
| 8:00 | Fuel structure relationships in combustion chemistry: Dealing with complexity | | |
| | <i>Lisa D. Pfefferle, Yale University</i> | | |
| 8:55 | "Non-burning" issues of Combustion Fundamentals, | | |
| | <i>Donald Lucas, Lawrence Berkeley National Laboratory</i> | | |
| Session A6 - Laminar | | | |
| 10:30 | A31 | Extinction of premixed methanol and ethanol flames in counterflow. | <i>Justin Gerritzen, Joep Aerts, Technische Universiteit Eindhoven; Stefan Humer, Kalyanasundaram Seshadri, University of California, San Diego</i> |
| 10:45 | A32 | Ignition and extinction of mixtures of wet synthesis gas with air. | <i>Adam Holley, Peter Veloo, Gary Schwab, Fokion Egofoopoulos, Department of Mechanical Engineering, University of Southern California</i> |
| 11:00 | A33 | Propagating edge flame response to multiple stoichiometric gradients. | <i>Stanislav Kostka, Michael W. Renfro, University of Connecticut</i> |
| 11:15 | A34 | Propagation and extinction of premixed edge-flame in a counterflow slot burner. | <i>David Clayton¹, Min Suk Cha², Paul Ronney¹ ¹ University of Southern California ² Korea Institute of Machinery and Materials</i> |
| 11:30 | A35 | Rotating spiral waves and target patterns in burner-stabilized premixed gas flames. | <i>Yi Ma, Howard Pearlman, Department of Mechanical Engineering and Mechanics, Drexel University</i> |

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| 11:45 | A36 | An asymptotic analysis of spontaneous ignition of hydrogen jets. | <i>Kian Boon Lim, University of Maryland; Beei-Huan Chao, University of Hawaii at Manoa; Peter B. Sunderland, University of Maryland; Richard L. Axelbaum, Washington University</i> |
| 12:00 | A37 | Boundary layer modeling of reactive flow over a porous surface with angled injection. | <i>Shiling Liu¹, Catalin Fotache¹, Beei-Huan Chao², Donald Hautman¹, Stuart Ochs¹ ¹United Technologies Research Center ²University of Hawaii at Manoa</i> |
| 12:15 | A38 | Effect of electric fields on reattachment of lifted flame at low AC frequency. | <i>S.K. Ryu, Y.K. Kim, S.H. Chung, School of Mechanical and Aerospace Engineering, Seoul National University</i> |
| Monday, March 26, 2007 | | | |
| 7:45 | Opening remarks: Dr. William Pitz, Chairman of the Board, Western States Section of the Combustion Institute | | |
| 7:50 | Welcome: Dr. Arthur B. Ellis, Vice Chancellor for Research, University of California at San Diego | | |
| | Session Chair: Forman A. Williams | | |
| 8:05 | Combustion in a carbon constrained era | | |
| | <i>Robert F. Sawyer, California Air Resources Board & University of California at Berkeley</i> | | |
| | The central role of the scalar dissipation rate in non-premixed combustion | | |
| 9:00 | <i>Norbert Peters, RWTH Aachen, Germany</i> | | |
| Session B1 - Turbulent | | | |
| 10:30 | B01 | Direct numerical simulations of soot formation and transport in nonpremixed turbulent ethylene flames. | <i>David Lignell^{1,2}, Jacqueline Chen², Philip Smith¹, Tianfeng Lu³, Chung K. Law³ ¹University of Utah ²Sandia National Laboratories ³Princeton University</i> |
| 10:45 | B02 | Composition PDF modeling of soot formation in turbulent ethylene/air jet flames. | <i>Ranjan S. Mehta, Daniel C. Haworth, Michael F. Modest, Pennsylvania State University</i> |
| 11:00 | B03 | Prediction of pollutant emissions from industrial furnaces using large eddy simulation. | <i>Liangyu Wang, Heinz Pitsch, Stanford University</i> |
| 11:15 | B04 | Direct numerical simulation of turbulence-radiation interactions in a quasi-stationary premixed flame. | <i>Kshitij Deshmukh, Daniel C. Haworth, Michael F. Modest, Pennsylvania State University</i> |
| 11:30 | B05 | Extinction and reignition in direct numerical simulations of CO/H₂ temporal plane jet flames. | <i>Evatt R. Hawkes¹, Ramanan Sankaran², Jacqueline H. Chen¹ ¹Sandia National Laboratories ²Oakridge National Laboratories</i> |

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| 11:45 | B06 | Monte Carlo simulation of radiative transfer in turbulent jet flames. | <i>Anquan Wang, Dan Haworth, Michael Modest, Department of Mechanical and Nuclear Engineering, Pennsylvania State University</i> |
| 12:00 | B07 | Radiating structures in nonluminous unsteady laminar and turbulent jet flames. | <i>David Blunck, Yuan Zheng, Jay Gore, Purdue University</i> |
| 12:15 | B08 | Large-eddy simulation of a non-premixed turbulent reacting flow with turbulence/radiation interactions. | <i>Ankur Gupta, D.C. Haworth, M.F. Modest, Department of Mechanical and Nuclear Engineering, Penn State University</i> |

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| 12:30–14:00 | LUNCH | | |
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| Session B2 - Turbulent | | | |
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| 14:00 | B09 | Direct numerical simulation of stationary lean premixed methane-air flames under intense turbulence. | <i>Ramanan Sankaran, Oak Ridge National Laboratory; Evatt R. Hawkes, Chunsang Yoo, Jacqueline H. Chen, Sandia National Laboratories; Tianfeng Lu, Chung K. Law, Princeton University</i> |
| 14:15 | B10 | Blow-off characteristics of bluff body stabilized conical premixed flames with spatial mixture gradients and upstream velocity modulations. | <i>Swetaprovo Chaudhuri, Baki Cetegen, Mechanical Engineering Department, University of Connecticut</i> |
| 14:30 | B11 | Observations on the effect of lifted flames oscillations on flame stability. | <i>N. Moore, K. Lyons, North Carolina State University</i> |
| 14:45 | B12 | Experiments on strained premixed flames at high Karlovitz number. | <i>Bruno Coriton, Alessandro Gomez, Yale University</i> |
| 15:00 | B13 | A cinema stereoscopic PIV system for the measurement of micro- and meso-scale turbulent premixed flame dynamics. | <i>Adam M. Steinberg¹, James F. Driscoll¹, Daniel J. Micka¹, Steven Ceccio², Campbell Carter² ¹ Aerospace Engineering, University of Michigan, ² Air Force Research Laboratory</i> |
| 15:15 | B14 | High frequency acoustic wave scattering from turbulent premixed flames. | <i>Venkateswarlu Narra, Tim Lieuwen, Aerospace Combustion Lab, Georgia Institute of Technology</i> |

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| 15:30–16:00 | BREAK | | |
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| Session B3 - Modeling | | | |
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| 16:00 | B15 | Flame synthesis of molybdenum oxide hollow micro-channels. | <i>V. Alexei Saveliev¹, Wilson Merchan-Merchan², M. Aaron Taylor², Lawrence A. Kennedy¹¹ Department of Mechanical and Industrial Engineering, University of Illinois at Chicago² School of Aerospace and Mechanical Engineering, University of Oklahoma</i> |
| 16:15 | B16 | Biomass fly ash in concrete: strength and kinetics. | <i>Shunagzhen Wang, Larry Baxter, Brigham Young University</i> |
| 16:30 | B17 | Ceramic formation in liquid precursor droplets heated by a CO₂ laser. | <i>Saptarshi Basu, Baki Cetegen, Mechanical Engineering Department, University of Connecticut</i> |
| 16:45 | B18 | Investigation of vascular inflammation induced by ceria particles synthesized by hydrogen fueled spray flame. | <i>Jun Tae Lee¹, Andrea Gojova¹, Heejung Jung², Abdul I. Barakat¹, Ian M. Kennedy¹¹ Dept of MAE, UC Davis² Dept of ME, UC Riverside</i> |
| 17:00 | B19 | Thermochemical data for combustion species from <i>ab initio</i> (G3B3) calculations. | <i>Donald R. Burgess Jr., Jeffrey A. Manion, NIST</i> |
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| 8:00 | The effect of thermal expansion on flame dynamics, | | |
| | <i>Moshe Matalon, Northwestern University</i> | | |
| 8:55 | A career in combustion diagnostics: Fruitful insights and lessons learned, | | |
| | <i>Normand Laurendau, Purdue University</i> | | |
| Session B4 - Turbulent | | | |
| 10:30 | B20 | A study of dilution and mixing of unconfined multiple turbulent jets for industrial furnaces. | <i>Seung Jun Shin, Hyo Seok Lee, Arvind Atreya, Department of Mechanical Engineering, University of Michigan</i> |
| 10:45 | B21 | Two-point OH time-series statistics in turbulent partially premixed jet flames. | <i>Jiayao Zhang, Galen B. King, Normand M. Laurendau, Mechanical Engineering, Purdue University; Michael W. Renfro, Mechanical Engineering, University of Connecticut</i> |
| 11:00 | B22 | Global NO_x measurements in turbulent nitrogen-diluted hydrogen jet flames. | <i>Nathan Weiland, National Energy Technology Laboratory, Pittsburgh; Peter Strakey, National Energy Technology Laboratory, Morgantown</i> |

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| 11:15 | B23 | Mixing models and turbulence-radiation interactions in non-premixed jet flames via the LES/FMDF approach. | <i>Abhilash Chandy, David Glaze, Steven Frankel, Purdue University</i> |
| 11:30 | B24 | Hydroxyl space-time correlations in turbulent opposed-jet partially premixed CH₄/Air flames. | <i>Krishna Venkatesan, Jiayao Zhang, Galen King, Michael W. Renfrow, Normand Laurendeau, Department of Mechanical Engineering, Purdue University, University of Connecticut</i> |
| 11:45 | B25 | Dissipative and reactive scales in the near field of non-premixed turbulent jet flames. | <i>Sebastian A. Kaiser, Jonathan H. Frank, Sandia National Laboratories</i> |
| 12:00–13:30 | LUNCH | | |
| Session B5 - Turbulent | | | |
| 13:30 | B26 | Experimental investigation of turbulent pool fires using stereo particle image velocimetry. | <i>Kaushik Biswas, Sergei A. Filatyev, Jay P. Gore, M.J. Zucrow Laboratories, School of Mechanical Engineering, Purdue University</i> |
| 13:45 | B27 | Flame structure and celerity of strongly-pulsed turbulent diffusion flames in buoyant and non-buoyant environments. | <i>Mathieu Fregeau, James C. Hermanson, University of Washington; Dennis P. Stocker, Uday Hegde, NASA Glenn Research Center</i> |
| 14:00 | B28 | Investigations of spectral radiation emission in a one-dimensional turbulence simulation of a pool fire. | <i>A.J. Ricks, J.P. Gore, School of Mechanical Engineering, Purdue University; A.R. Kerstein, Reacting Flow Research, Sandia National Laboratories; S.R. Tieszen, J.C. Hewson, Fire Science and Technology, Sandia National Laboratories</i> |
| 14:15 | B29 | Heat release rate and thermometry of unsteady methane and propane kernel-vortex interactions. | <i>S.J. Danby¹, S.K. Marley², W.L. Roberts¹ ¹North Carolina State University ²Sandia National Laboratories</i> |
| 14:30 | B30 | A dynamic model for the turbulent burning velocity for premixed combustion LES. | <i>Edward Knudsen, Heinz Pitsch, Stanford University</i> |
| POSTER Session - 15:00:17:00 | | | |
| Wednesday, March 28, 2007 | | | |
| | Session Chair: Adel F. Sarofim | | |
| 8:00 | Fuel structure relationships in combustion chemistry: Dealing with complexity | | |
| | <i>Lisa D. Pfefferle, Yale University</i> | | |
| 8:55 | "Non-burning" issues of Combustion Fundamentals, | | |
| | <i>Donald Lucas, Lawrence Berkeley National Laboratory</i> | | |
| Session B6 - Turbulent | | | |

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| 10:30 | B31 | Lagrangian investigation of local extinction, re-ignition, and auto-ignition in turbulent flames. | <i>Haifeng Wang, Stephen B. Pope, Cornell University</i> |
| 10:45 | B32 | Effects of the subgrid-scale mixture fraction structure on scalar and temperature dissipation in turbulent partially premixed flames. | <i>Chenning Tong, Danhong Wang, Department of Mechanical Engineering Clemson University; Robert S. Barlow, Sandia National Laboratories; Adonios N. Karpetis, Texas A&M University</i> |
| 11:00 | B33 | Direct numerical simulation of turbulent, non-premixed, non-adiabatic, boundary layer combustion. | <i>Praveen Narayanan, Arnaud Trouvé, University of Maryland</i> |
| 11:15 | B34 | Comparison of differential-diffusion effects in flamelet models for combustion with normal and oxygen-enriched air. | <i>Nao Ninomiya, Department of Energy and Environmental Science, Utsunomiya University; Werner Dahm, Laboratory for Turbulence & Combustion, Department of Aerospace Engineering, University of Michigan</i> |
| 11:30 | B35 | A Lagrangian particle advection scheme for hybrid LES/FDF methods based on a mean velocity reconstruction with desirable divergence properties. | <i>R. McDermott, S.B. Pope, Cornell University</i> |
| 11:45 | B36 | Strongly-forced non-premixed jet flames in cross-flow. | <i>Kevin Marr, Mirko Gamba, Noel T. Clemens, Ofodike A. Ezekoye, University of Texas at Austin</i> |
| 12:00 | B37 | Asymmetric interaction between H₂-O₂ flames and periodic pressure waves. | <i>Amardip Ghosh, Ken H. Yu, University of Maryland</i> |
| 12:15 | B38 | Prediction of combustion-generated noise in non-premixed turbulent flames using large-eddy simulation. | <i>Matthias Ihme¹, Heinz Pitsch¹, Manfred Kaltenbacher², Alexander Friedrich^{2 1} Department of Mechanical Engineering, Stanford University ² University Erlangen, Germany</i> |
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| 8:05 | Combustion in a carbon constrained era | | |
| | <i>Robert F. Sawyer, California Air Resources Board & University of California at Berkeley</i> | | |
| | The central role of the scalar dissipation rate in non-premixed combustion | | |
| 9:00 | <i>Norbert Peters, RWTH Aachen, Germany</i> | | |
| Session C1 - Kinetics | | | |

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| 10:30 | C01 | Association kinetics of C₃H₃ + C₃H₃. | <i>Yuri Georgievski, James A. Miller, Sandia National Laboratories; Stephen J. Klippenstein, Argonne National Laboratory</i> |
| 10:45 | C02 | The decomposition and isomerization of cyclohexyl and 1-hexenyl radicals. | <i>Wing Tsang, Iftikhar Awan, Sean McGivern, Jeffrey Manion, National Institute of Standards and Technology</i> |
| 11:00 | C03 | Substitution effects in the isomerization and decomposition of branched alkyl radicals at high temperature. | <i>Sean McGivern, Iftikhar A. Awan, Jeffrey A. Manion, Wing Tsang, National Institute of Standards and Technology</i> |
| 11:15 | C04 | Alkyl radical stability from the decomposition and isomerization of primary iodides: 5-methyl-hexyl radical from 5-methyl-hexyl iodide. | <i>Iftikhar Awan, Wing Tsang, Sean McGivern, Jeffrey Manion, National Institute of Standards and Technology</i> |
| 11:30 | C05 | Thermal decomposition of vinyl fluoride: a combined time of flight mass spectrometry/laser Schlieren densitometry shock tube study. | <i>Binod R. Giri, Robert S. Tranter, Argonne National Laboratory; Hui Xu, John H. Kiefer, University of Illinois at Chicago</i> |
| 11:45 | C06 | Theoretical kinetic study of the decomposition of cyclic alkyl radicals. | <i>Baptiste Sirjean¹, Pierre Alexandre Glaude¹, Manuel Ruiz-Lopez², René Fournet¹ ¹ Dépt de Chimie-Physique des Réactions, CNRS-INPL, France ² Equipe de Chimie et Biochimie Théorique, UMR CNRS-UHP 7565, Université Henri Poincaré, France</i> |
| 12:00 | C07 | Secondary vinylic radicals in C₄ to C₇ 1,3 diene systems and their reactions with O₂: a theoretical study of thermochemical properties, reaction paths and kinetics. | <i>Leonhard Rutz¹, Gabriel da Silva², Joseph Bozzelli², Henning Bockhorn¹ ¹ University of Karlsruhe ² New Jersey Institute of Technology</i> |
| 12:15 | C08 | Kinetics of ring closure reactions and their role in polymerization of aromatics. | <i>Lam K. Huynh, Hongzhi R. Zhang, My-Phuong Pham, Eric G. Eddings, Adel Sarofim, Thahn N. Truong, Chemical Engineering Department, University of Utah</i> |
| 12:30–14:00 | LUNCH | | |
| Session C2 - Kinetics | | | |
| 14:00 | C09 | Computational aspects of an adaptive approach for coupling detailed chemical kinetics and multidimensional CFD. | <i>Long Liang, John Stevens, John Farrell, ExxonMobil Research and Engineering; Yannis Androulakis, Marianthi Ierapetritou, Rutgers University</i> |

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| 14:15 | C10 | A new method in modeling and simulations of complex oxidation chemistry. | <i>Kenneth Harstad, Josette Bellan, Jet Propulsion Laboratory, California Institute of Technology</i> |
| 14:30 | C11 | Submission of reaction rates to PrIme. | <i>Zoran Djuriscic, Michael Langston, Michael Frenklach, Department of Mechanical Engineering, University of California-Berkeley</i> |
| 14:45 | C12 | Autoignition of H₂-air mixtures at realistic conditions using an RCEM: investigating late cycle ignition and expansion stroke oxidation. | <i>S. Scott Goldsborough, Marquette University</i> |
| 15:00 | C13 | Development of a model compound-based detailed kinetic reaction mechanism for Lignin thermochemical conversion. | <i>Mark Jarvis, John Daily, University of Colorado at Boulder; David Dayton, National Renewable Energy Laboratories</i> |
| 15:15 | C14 | Comparative sensitivity analysis of kinetic mechanisms for C₁-C₃ oxidation. | <i>Laurent Benezech¹, Jeff Berghorson², Paul Dimotakis¹ Graduate Aeronautical Laboratories, Caltech² Department of Mechanical Engineering, McGill University</i> |
| 15:30–16:00 | BREAK | | |
| Session C3 - Kinetics | | | |
| 16:00 | C15 | Reduced description of complex dynamics in reactive flows by the ICE-PIC method. | <i>Zhuyin Ren, Stephen B. Pope, Sibley School of Mechanical and Aerospace Engineering, Cornell University</i> |
| 16:15 | C16 | The application of the Rate-Controlled Constrained-Equilibrium technique to reduced chemical mechanisms for <i>n</i>-heptane and <i>iso</i>-octane. | <i>Donald Goldthwaite, Mohammad Janbozorgi, Hameed Metghalchi, Northeastern University; James C. Keck, Massachusetts Institute of Technology</i> |
| 16:30 | C17 | An efficient reduced mechanism for methane oxidation with NO_x chemistry. | <i>Tianfeng Lu, Chung K. Law, Princeton University</i> |
| 16:45 | C18 | Development and assessment of a highly reduced mechanism for <i>iso</i>-octane combustion. | <i>Yuk Fai Tham, Fabrizio Bisetti, Jyh-Yuan Chen, U.C. Berkeley</i> |
| 17:00 | C19 | Short and reduced mechanisms for syn gas combustion. | <i>Priyank Saxena, Forman A. Williams, UC-San Diego</i> |
| Tuesday, March 27, 2007 | | | |
| Session Chair: Chung K. Law | | | |
| 8:00 | The effect of thermal expansion on flame dynamics, <i>Moshe Matalon, Northwestern University</i> | | |
| 8:55 | A career in combustion diagnostics: Fruitful insights and lessons learned, <i>Normand Laurendau, Purdue University</i> | | |

| Session C4 - Kinetics | | | |
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| 10:30 | C20 | Detailed chemical kinetic modeling of cyclohexane oxidation. | <i>Emma Sike, William J. Pitz, Charles K. Westbrook, Marc Ribaucour, Livermore National Laboratory</i> |
| 10:45 | C21 | A reduced mechanism for <i>n</i>-heptane oxidation. | <i>Tianfeng Lu, Chung K. Law, Princeton University</i> |
| 11:00 | C22 | Evaluation of gasoline and diesel fuel surrogates using temperature-based sensitivity analysis. | <i>Jonas Edman, Daniel L. Flowers, Salvador M. Aceves, Lawrence Livermore National Laboratory; Valeri I. Golovitchev, Chalmers University of Technology.</i> |
| 11:15 | C23 | Experiments and modeling of the high-pressure water gas shift reaction. | <i>Brad Culbertson, Raghu Sivaramakrishnan, Kenneth Brezinsky, Department of Mechanical and Industrial Engineering, University of Illinois at Chicago</i> |
| 11:30 | C24 | Ignition delay time measurements of synthesis gas mixtures at engine pressures. | <i>Shatra Reehal, Danielle Kalitan, Troy Hair, Alexander Barrett, Eric Petersen, University of Central Florida</i> |
| 11:45 | C25 | Measurement of water-vapor concentration in syngas mixtures using tunable diode laser absorption. | <i>Alexander Barrett, Eric Petersen, University of Central Florida</i> |
| 12:00–13:30 | LUNCH | | |
| Session C5 - Kinetics | | | |
| 13:30 | C26 | Chemical kinetics of ethanol oxidation. | <i>Juan Li, Praxair, Inc.; Andrei, Kazakov, Thermodynamic Research Center, NIST; Frederick L. Dryer, Department of Mechanical and Aerospace Engineering, Princeton University</i> |
| 13:45 | C27 | Thermochemistry and kinetics of the alpha and beta hydroxyethyl radicals + O₂ reaction in ethanol combustion. | <i>Gabriel da Silva, Joseph W. Bozzelli, New Jersey Institute of Technology; L. Liang, John T. Farrell, ExxonMobil</i> |
| 14:00 | C28 | Kinetics for the reaction of C₆H₅ with CH₃OH and C₂H₅OH: comparison of theory and experiment. | <i>J. Park, Z.F. Xu, K. Xu, M.C. Lin, Department of Chemistry, Emory University</i> |
| 14:15 | C29 | Kinetics of reactions important in CH₃OH decomposition. | <i>Ahren W. Jasper, Stephen J. Klippenstein, Lawrence B. Harding, Branko Ruscic, Argonne National Laboratory</i> |

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| 14:30 | C30 | Reduced chemistry of methanol oxidation with Rate-Controlled Constrained-Equilibrium approximation. | <i>Mohammad Janbozorgi¹, Donald Goldthwaite¹, Hameed Metghalchi¹, James C. Keck²</i> <i>¹Northeastern University ²Massachusetts Institute of Technology</i> |
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POSTER Session - 15:00:17:00

Wednesday, March 28, 2007

Session Chair: Adel F. Sarofim

8:00 Fuel structure relationships in combustion chemistry: Dealing with complexity

Lisa D. Pfefferle, Yale University

8:55 "Non-burning" issues of Combustion Fundamentals,

Donald Lucas, Lawrence Berkeley National Laboratory

Session C6 - Kinetics

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| 10:30 | C31 | Efficient slow manifold identification for tabulation based adaptive chemistry. | <i>Jose Ortega, Habib Najm, Sandia National Laboratories; Mauro Valorani, Universita di Roma "La Sapienza" Rome, Italy; Dimitris Goussis, National Technical University Athens, Greece; Michael Frenklach, UC-Berkeley</i> |
| 10:45 | C32 | Cool flames at microgravity: a skeletal kinetic model for propane oxidation. | <i>Ashutosh Gupta, Michael F. Foster, Howard Pearlman, David L. Miller, Nicholas P. Cernansky, Department of Mechanical Engineering and Mechanics, Drexel University</i> |
| 11:00 | C33 | Effect of pressure on ethane oxidation under flameless conditions. | <i>Kevin M. Walters, Craig T. Bowman, Mechanical Engineering, Stanford University</i> |
| 11:15 | C34 | High-temperature rate constants for OH with ethylene and acetylene. | <i>N.K. Srinivasan, M.-C. Su, J.V. Michael, Argonne National Laboratory</i> |
| 11:30 | C35 | Effects of chain length on the rates of C-C bond dissociation in linear alkanes and polyethylene. | <i>Vadim D. Knyazev, Research Center for Chemical Kinetics, Department of Chemistry, Catholic University of America</i> |
| 11:45 | C36 | Reaction kinetics of $\text{CO} + \text{HO}_2 \rightarrow$ products: <i>ab initio</i> transition state theory study with master equation modeling. | <i>Xiaoqing You, Hai Wang, University of Southern California; Elke Goos, DLR; Chih-Jen Sung, Case Western Reserve University; Stephen J. Klippenstein, Argonne National Laboratory.</i> |
| 12:00 | C37 | Reaction paths, kinetics, and thermochemical properties on the thioformyl radical ($\text{S}=\text{C}\cdot\text{H}$) with O_2 reaction. | <i>Li Zhu, Joseph Bozzelli, New Jersey Institute of Technology</i> |

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| 12:15 | C38 | High pressure experiments and detailed modeling of the mutual sensitization of the oxidation of NO and CH₄-C₂H₆ blends. | <i>Raghu Sivaramakrishnan¹, Philippe Dagaut², Guillaume Dayma², Kenneth Brezinsky¹ ¹MIE, University of Illinois at Chicago ²Laboratoire de Combustion et Systemes Reactifs, CNRS, Orleans, France</i> |
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| 7:45 | Opening remarks: Dr. William Pitz, Chairman of the Board, Western States Section of the Combustion Institute | | |
| 7:50 | Welcome: Dr. Arthur B. Ellis, Vice Chancellor for Research, University of California at San Diego | | |
| | Session Chair: Forman A. Williams | | |
| 8:05 | Combustion in a carbon constrained era | | |
| | <i>Robert F. Sawyer, California Air Resources Board & University of California at Berkeley</i> | | |
| | The central role of the scalar dissipation rate in non-premixed combustion | | |
| 9:00 | <i>Norbert Peters, RWTH Aachen, Germany</i> | | |
| 9:00 | The central role of the scalar dissipation rate in non-premixed combustion, Norbert Peters, RWTH Aachen, Germany | | |
| Session D1 - Fundamentals | | | |
| 10:30 | D01 | Theoretical issues in droplet array vaporization and burning. | <i>William A. Sirignano, University of California-Irvine</i> |
| 10:45 | D02 | Effects of radiation and preferential diffusion on flame initiation and minimum ignition energy. | <i>Zheng Chen, Yiguang Ju, Department of Mechanical and Aerospace Engineering, Princeton University</i> |
| 11:00 | D03 | Thermal-diffusive instabilities in a low-strain planar diffusion flame. | <i>Etienne Robert, Peter A. Monkewitz, Fluid Mechanics Laboratory, Swiss Federal Inst. of Technology Lausanne (EPFL-LMF)</i> |
| 11:15 | D04 | Role of buoyancy on instabilities in transitional gas jet diffusion flames. | <i>Pankaj S. Kohle, Ajay K. Agrawal, University of Alabama</i> |
| 11:30 | D05 | Autoignition of <i>n</i>-decane under high pressure conditions. | <i>Kamal Kumar, Gaurav Mittal, Chih-Jen Sung, Case Western Reserve University</i> |
| 11:45 | D06 | A new conserved quantity in multicomponent reactive flows. | <i>Wen-An Yong, Pei-Yuan Zhou, Center for Applied Mathematics, Tsinghua University, Beijing, P.R. China; Hai-Wen Ge, Engine Research Center, University of Wisconsin-Madison</i> |
| 12:00 | D07 | Flame hysteresis effects in methane jet flames in air-coflow. | <i>N. Moore, K. Lyons, S. Terry, North Carolina State University</i> |

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| 12:15 | D08 | Transient plasma ignition for internal combustion engines. | <i>Saro Rossi Memarzadeh, Rachel Jacob Neiman, Paul Ronney, Martin Gundersen, University of Southern California</i> |
| 12:30–14:00 | LUNCH | | |
| Session D2 - Fundamentals | | | |
| 14:00 | D09 | Diagnostics for the combustion science workbench. | <i>Joseph F. Grcar, Marcus S. Day, John B. Bell, Lawrence Berkeley National Laboratory</i> |
| 14:15 | D10 | Direct numerical simulation of spark-ignited hydrogen/air stratified mixtures. | <i>Rebecca Owston, Vinicio Magi, John Abraham, Department of Mechanical Engineering, Purdue University</i> |
| 14:30 | D11 | Measurements of homogeneous mercury oxidation by various gas components for simulated exhaust in a flow reactor. | <i>Hyukjin Oh, Kalyan Annamalai, Jerald A. Caton, Department of Mechanical Engineering, Texas A&M University</i> |
| 14:45 | D12 | Effects of replacing N₂ with CO₂ gas in coal combustion at various O₂ partial pressures. | <i>Paula Bejarano, Yiannis Levendis, Department of Mechanical Engineering, Northeastern University.</i> |
| 15:00 | D13 | Modeling microgravity and normal gravity flame spread rates over samples of polymer and polymer/glass composites. | <i>Sara McAllister, David Rich, Chris Lautenberger, Carlos Fernandez-Pello, Department of Mechanical Engineering, University of California-Berkeley; Guang Zeng Yuan, NASA Glenn Research Center</i> |
| 15:15 | D14 | The combustion of aluminized propellants and related topics. | <i>John Buckmaster, Buckmaster Research; Thomas L. Jackson, University of Illinois at Urbana-Champaign</i> |
| 15:30–16:00 | BREAK | | |
| Session D3 - Fundamentals | | | |
| 16:00 | D15 | Low temperature oxidation of selected jet fuel and diesel fuel components at elevated pressure. | <i>Robert Natelson, Rodney Johnson, Matthew Kurman, Nicholas Cernansky, David Miller, Department of Mechanical Engineering and Mechanics, Drexel University</i> |
| 16:15 | D16 | Intermediate species analysis of Fischer-Tropsch JP-8 surrogate components in the low and intermediate temperature regime. | <i>Matthew Kurman, Robert Natelson, Nicholas Cernansky, David Miller, Department of Mechanical Engineering and Mechanics, Drexel University</i> |

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| 16:30 | D17 | Methylcyclohexane oxidation: shock tube experiments and modeling over a wide range of pressures and temperatures. | <i>Subith Vasu, Nihir Parikh, David Davidson, Ronald Hanson, Stanford University</i> |
| 16:45 | D18 | Exergy analysis of fuels. | <i>Hari Bhaskaran, R. Saravanan, Institute for Energy Studies, Chennai, India</i> |
| 17:00 | D19 | Improvements to a cylindrical wick lamp, torch, and smoke-eater. | <i>Susumu Matsuyama</i> |

Tuesday, March 27, 2007

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| Session Chair: Chung K. Law | | | |
| 8:00 | The effect of thermal expansion on flame dynamics, | | |
| | <i>Moshe Matalon, Northwestern University</i> | | |
| 8:55 | A career in combustion diagnostics: Fruitful insights and lessons learned, | | |
| | <i>Normand Laurendau, Purdue University</i> | | |

Session D4 - Catalytic

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| 10:30 | D20 | Room-temperature catalysis using sub-micron size platinum particles. | <i>Christopher Ricciuti, Jason Maguire, Howard Pearlman, Tiffany Miller, Dept. of Mechanical Engineering, Drexel University</i> |
| 10:45 | D21 | Experimental investigation of gaseous reactive flows around catalytically coated micro-wires. | <i>Kowtilya Bijjula¹, Subir Roychoudhury², Dimitrios C. Kyritsis¹ ¹University of Illinois at Urbana-Champaign ²Precision Combustion, Inc.</i> |
| 11:00 | D22 | Importance of thermal processes in catalytic partial oxidation of <i>n</i>-butane. | <i>Seyed-A. Seyed-Reihani, Gregory S. Jackson, Michael R. Zachariah, University of Maryland</i> |
| 11:15 | D23 | A discrete dynamical system low-dimensional model of homogeneous and heterogeneous H₂-O₂ reactions in a turbulent flow field. | <i>R. Saffell, J.M. McDonough, University of Kentucky</i> |
| 11:30 | D24 | The effect of oxygen storage capacity on the dynamic characteristics of an automotive catalytic converter. | <i>Tariq Shamim, Department of Mechanical Engineering, University of Michigan-Dearborn</i> |
| 11:45 | D25 | Combustion of methane over palladium based catalysts: a study of catalytic deactivation and the use of electrochemical oxygen pumping. | <i>William Schwartz¹, Katarina Persson², Lisa Pfefferle¹ ¹Yale University ²KTH</i> |

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| 12:00–13:30 | LUNCH | | |
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Session D5 - Diagnostics

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| 13:30 | D26 | Determination of soot refractive index as a function of height in an inverse diffusion flame. | <i>Tara Henriksen, Terry Ring, Derrick Call, Eric Eddings, Adel Sarofim, Department of Chemical Engineering, University of Utah</i> |
| 13:45 | D27 | Optical levitation of absorbing particles for combustion analysis. | <i>Skig Lewis, Jeff Ashton, Larry Baxter, Brigham Young University</i> |
| 14:00 | D28 | Performance of a differential mobility analyzer for the size classification of aggregated soot particles from a laboratory flame. | <i>Yingwu Teng, Umit O. Koynu, Department of Mechanical and Aerospace Engineering, University of Missouri-Rolla</i> |
| 14:15 | D29 | Characterization of the ash deposits in an IGCC gasifier. | <i>Travis Moore, Matthew Jones, Brigham Young University</i> |
| 14:30 | D30 | A fast sampling valve for acquisition and quenching of in-cylinder reacting species. | <i>Cosmin Dumitrescu, Paulius Puzinauskas, Dan Daly, Ajay Agrawal, University of Alabama</i> |
| POSTER Session - 15:00:17:00 | | | |
| Wednesday, March 28, 2007 | | | |
| Session Chair: Adel F. Sarofim | | | |
| 8:00 | Fuel structure relationships in combustion chemistry: Dealing with complexity | | |
| | <i>Lisa D. Pfefferle, Yale University</i> | | |
| 8:55 | "Non-burning" issues of Combustion Fundamentals, | | |
| | <i>Donald Lucas, Lawrence Berkeley National Laboratory</i> | | |
| Session D6 - Soot | | | |
| 10:30 | D31 | Graphene layer growth chemistry: five-six-ring flip reaction. | <i>Russell Whitesides, University of California, Berkeley and Environmental Energy Technologies Division, Lawrence Berkeley National Laboratory; Dominik Domin, William A. Lester Jr., Michael Frenklach, University of California, Berkeley</i> |
| 10:45 | D32 | Laminar smoke points of candle flames. | <i>K.M. Allan¹, J.R. Kaminski¹, J.C. Bertrand², J. Head³, P.B. Sunderland¹ ¹University of Maryland ²CW Group Inc. ³Atkins and Pearce Inc.</i> |
| 11:00 | D33 | Characterization of young soot from an inverse diffusion flame. | <i>J.S. Lighty, E.G. Eddings, N.B. Orton, A.F. Sarofim, University of Utah; N. Yang, Sandia National Laboratories</i> |
| 11:15 | D34 | An experimental and theoretical approach to soot particle inception in laminar diffusion flames. | <i>Scott Skeen, Ben Kumfer, Richard Axelbaum, Washington University in St. Louis</i> |

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| 11:30 | D35 | Thermal decomposition of tricyclo[5.2.1.0^{2,6}]decane. Experiments and kinetic modelling. | <i>Olivier Herbinet, Baptiste Sirjean, Roda Bounaceur, René Fournet, Frédérique Battin-Leclerc, Paul-Marie Marquaire, Département de Chimie Physique des Réactions, UMR 7630 CNRS, INPL-ENSIC, Nancy, France</i> |
| 11:45 | D36 | 1-Propylnaphthalene pyrolysis in a tubular reactor. | <i>Jun Yang, Mingming Lu, Department of Civil and Environmental Engineering, University of Cincinnati</i> |
| 12:00 | D37 | Predictions on sooting behavior of recirculation-zone-supported flames. | <i>Viswanath Katta, ISSI; William Roquemore, Air Force Research Laboratory</i> |
| 12:15 | D38 | Study of soot deposition and its effect on heat transfer from a pool fire to an engulfed container. | <i>Ignacio Preciado, Eric Eddings, Adel Sarofim, University of Utah</i> |
| Monday, March 26, 2007 | | | |
| 7:45 | Opening remarks: Dr. William Pitz, Chairman of the Board, Western States Section of the Combustion Institute | | |
| 7:50 | Welcome: Dr. Arthur B. Ellis, Vice Chancellor for Research, University of California at San Diego | | |
| | Session Chair: Forman A. Williams | | |
| 8:05 | Combustion in a carbon constrained era | | |
| | <i>Robert F. Sawyer, California Air Resources Board & University of California at Berkeley</i> | | |
| | The central role of the scalar dissipation rate in non-premixed combustion | | |
| 9:00 | <i>Norbert Peters, RWTH Aachen, Germany</i> | | |
| Session E1 -Engine | | | |
| 10:30 | E01 | Experimental study of ignition delay for application to hydrogen and syngas fired lean premixed gas turbine engines. | <i>David Beerer, Vincent McDonell, University of California-Irvine</i> |
| 10:45 | E02 | Fuel/air mixing in a model turbine burner section. | <i>Nicola Sarzi-Amadé, Derek Dunn-Rankin, William A. Sirignano, University of California-Irvine</i> |
| 11:00 | E03 | Experimental analysis of flashback in lean premixed swirling flames: conditions close to flashback. | <i>A. Nauert, FG Energie- und Kraftwerkstechnik, TU Darmstadt, Germany; P. Petersson, Department of Combustion Physics, Lund Institute of Technology, Sweden; M. Linne, Combustion Research Facility, Sandia National Laboratory; A. Dreizler, FG Energie- und Kraftwerkstechnik, TU Darmstadt</i> |

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| 11:15 | E04 | An augmented skeletal mechanism for PRFs and oxygenated additives. | <i>Ashutosh Gupta, David L. Miller, Nicholas P. Cernansky, Department of Mechanical Engineering and Mechanics, Drexel University</i> |
| 11:30 | E05 | Structures in a reacting and non-reacting model gas turbine combustor. | <i>S.K. Dhanuka, J.F. Driscoll, University of Michigan; H.C. Mongia, General Electric Aircraft Engines</i> |
| 11:45 | E06 | Effects of propane/natural gas blended fuels on gas turbine pollutant emissions. | <i>Doug Straub, Don Ferguson, Kent Casleton, Geo. Richards, NETL</i> |
| 12:00 | E07 | Study of combustion-driven acoustic instabilities in premixed gas-turbines using an acoustic energy framework. | <i>Zuhair M. Ibrahim, Forman A. Williams, Steven G. Buckley, UCSD</i> |
| 12:15 | E08 | Tunable diode laser measurements of equivalence-ratio fluctuations for premixed gas-turbine applications | <i>R. Gharavi, Z.M. Ibrahim, F.A. Williams, S.G. Buckley, University of California-San Diego; L. Arellano, Solar Turbines Inc.</i> |
| 12:30–14:00 | LUNCH | | |
| Session E2 - Engine | | | |
| 14:00 | E09 | Investigation on thermoacoustic instabilities in a Rijke combustor via simultaneous time-series measurements of [OH] and pressure. | <i>Matthew M. Gluesenkamp, Galen B. King, Normand M. Laurendeau, Purdue University</i> |
| 14:15 | E10 | Impact of fuel interchangeability on dynamic instabilities in gas turbine engines. | <i>Don Ferguson, Doug Straub, Geo. Richards, US DOE/National Energy Technology Laboratory; Ed Robey, Parsons Project Services, Inc.</i> |
| 14:30 | E11 | Enabling efficient clean combustion modes with water emulsions in Diesel fuels. | <i>Robert Wagner, Michael Kass, Shean Huff, Oak Ridge National Laboratory</i> |
| 14:45 | E12 | Two-stage ignition and unburned fuel emissions for heavy duty Diesel low-temperature combustion of neat <i>n</i>-heptane. | <i>Thierry Lachaux, Mark P.B. Musculus, Sandia National Laboratories</i> |
| 15:00 | E13 | Ignition of methane/ethane/propane mixtures at engine pressures. | <i>Victor Antonovski, Chris Zinner, Alexander Barrett, Danielle Kalitan, Eric Petersen, University of Central Florida; Darren Healy, Henry Curran, John Simmie, National University of Ireland, Galway</i> |
| 15:15 | E14 | The sensitivity of PCI to EGR in a light-duty Diesel engine. | <i>Timothy Jacobs, Texas A&M University; Dennis Assanis, University of Michigan</i> |
| 15:30–16:00 | BREAK | | |
| Session E3 - Engine | | | |

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| 16:00 | E15 | An investigation of the HCCI autoignition and combustion process for single- and two-stage ignition fuels. | <i>Wontae Hwang, John Dec, Magnus Sjoberg, Sandia National Laboratories</i> |
| 16:15 | E16 | Probability density function modeling of ignition in a temperature stratified mixture for application to HCCI engines. | <i>Fabrizio Bisetti, Jyh-Yuan Chen, University of California at Berkeley; Evatt R. Hawkes, Jacqueline H. Chen, Sandia National Laboratories</i> |
| 16:30 | E17 | Homogeneous charge compression ignition of water-in-ethanol mixtures: experiments and numerical modeling. | <i>J. Hunter Mack¹, Daniel L. Flowers², Andrew Army¹, Salvador M. Aceves², Robert W. Dibble¹ ¹ University of California at Berkeley ² Lawrence Livermore National Lab.</i> |
| 16:45 | E18 | Hybrid SI-HCCI combustion modes and the potential for control. | <i>K. Dean Edwards, Robert M. Wagner, C. Stuart Daw, Johny B. Green Jr., Fuels, Engines, and Emissions Research Group, Oak Ridge National Laboratory</i> |
| 17:00 | E19 | A model of gasoline HCCI engine combustion for control. | <i>Nick Killingsworth¹, Salvador Aceves², Daniel Flowers², Mrdjan Jankovic³, Miroslav Krstic¹ ¹ UCSD ² LLNL ³ Ford</i> |
| Tuesday, March 27, 2007 | | | |
| Session Chair: Chung K. Law | | | |
| 8:00 | The effect of thermal expansion on flame dynamics, | | |
| | <i>Moshe Matalon, Northwestern University</i> | | |
| 8:55 | A career in combustion diagnostics: Fruitful insights and lessons learned, | | |
| | <i>Normand Laurendau, Purdue University</i> | | |
| Session E4 - Engine | | | |
| 10:30 | E20 | Two conserved scalar modeling for HCCI and PPCI for engine applications. | <i>Vasileios Hamosfakidis¹, Arkadiusz Kobiera², Hong Im¹, Dennis Assanis¹ ¹ Department of Mechanical Engineering, University of Michigan ² Institute of Heat Engineering, Warsaw University of Technology</i> |
| 10:45 | E21 | Homogeneous charge compression ignition of binary blends relevant to gasoline surrogates. | <i>Gaurav Mittal, Chih-Jen Sung, Case Western Reserve University</i> |
| 11:00 | E22 | A rapid compression expansion machine for chemical kinetic (HCCI) studies. | <i>S. Scott Goldsborough, Marquette University</i> |

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| 11:15 | E23 | Modeling turbocharged engine operation under restricted flow intake conditions. | <i>Chuck Dean, University of Idaho</i> |
| 11:30 | E24 | Experimental and computational investigations of small internal combustion engine performance. | <i>S. Menon, C. Cadou, Aerospace Engrg Dept., University of Maryland</i> |
| 11:45 | E25 | The effect of compression ratio on engine performance and exhaust emissions using DTBP/n-heptane blends. | <i>Rodney Johnson, Nicholas Cernansky, David Miller, Drexel University</i> |
| 12:00–13:30 | LUNCH | | |
| Session E5 - Engine | | | |
| 13:30 | E26 | A PRF + toluene surrogate fuel model for simulating gasoline kinetics. | <i>Zhenwei Zhao, Marcos Chaos, Andrei Kazakov, Ponnuthurai Gokulakrishnan, Michele Angioletti, Frederick L. Dryer, Mechanical and Aerospace Engineering, Princeton University</i> |
| 13:45 | E27 | Modeling cyclic variability during the transition between spark-ignited combustion and HCCI. | <i>C. Stuart Daw, K. Dean Edwards, Robert M. Wagner, Johny B. Green Jr., Fuels, Engines, and Emissions Research Group, Oak Ridge National Laboratory</i> |
| 14:00 | E28 | Application of model fuels to Diesel engine simulation. | <i>E. Meeks, A.M. Dean, J.M. Deur, W.H. Green, D. Hodgson, M. Koshi, U. Maas, S.F. Miller, M.V. Petrova, K.V. Puduppakkam, C. Wang, C.K. Westbrook</i> |
| 14:15 | E29 | Comparison of emissions analyzers for exhaust sampling from IC engines. | <i>Dan Cordon, Steve Beyerlein, Judi Steciak, University of Idaho</i> |
| 14:30 | E30 | Measurement of particulate matter within school bus passenger compartments under realistic operating conditions. | <i>David Martinez, Anthony Marchese, Krishan, Bhatia, Robert Hesketh, Rowan University</i> |
| POSTER Session - 15:00:17:00 | | | |
| Wednesday, March 28, 2007 | | | |
| Session Chair: Adel F. Sarofim | | | |
| 8:00 | Fuel structure relationships in combustion chemistry: Dealing with complexity | | |
| | <i>Lisa D. Pfefferle, Yale University</i> | | |
| 8:55 | "Non-burning" issues of Combustion Fundamentals, | | |
| | <i>Donald Lucas, Lawrence Berkeley National Laboratory</i> | | |
| Session E6 - Engine | | | |

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| 10:30 | E31 | Chamber pressure perturbation coupling with a swirl-stabilized lean premixed flame at elevated pressures. | <i>Yun Huang, Albert Ratner, University of Iowa</i> |
| 10:45 | E32 | Flow structure and flame stability in a opposite flow micro can combustor with a baffle plate. | <i>Yuji Yahagi, Masaki Sekiguti, Kenjiro Suzuki, Shibaura Institute of Technology</i> |
| 11:00 | E33 | PIV measurements in H₂/CH₄ swirling flames under near blowoff conditions. | <i>Qingguo Zhang, David R. Noble, Santosh J. Shanbhogue, Tim Lieuwen, Georgia Institute of Technology</i> |
| 11:15 | E34 | Effective use of ISAT-based storage/retrieval chemistry acceleration in CFD. | <i>Yuhui Wu, Daniel C. Haworth, Penn State University</i> |
| 11:30 | E35 | CFD modeling of NO_x reduction of monolith catalytic reactors. | <i>Yong Miao, Lea-Der Chen, Department of Mechanical and Industrial Engineering, University of Iowa</i> |
| 11:45 | E36 | Development of a partially-premixed coherent flame model (PCFM) for turbulent combustion. | <i>Yongzhe Zhang, Rajesh Rawat, CD-adapco</i> |
| 12:00 | E37 | PDF methods in real engine geometries. | <i>Eugene Kung, Daniel Haworth, Dept. of Mechanical and Nuclear Eng., Pennsylvania State University</i> |
| 12:15 | E38 | NO_x from gaseous and prevaporized fuels burned in jet-stirred combustors. | <i>Philip Malte¹, Ryan Edmonds², Andrew Campbell Lee³, Brian Polagye¹, Igor Novosselov¹ ¹ University of Washington ² Ramgen Power Systems ³ Stanford University</i> |

Monday, March 26, 2007

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| | Session Chair: Forman A. Williams | | |
| 8:05 | Combustion in a carbon constrained era | | |
| | <i>Robert F. Sawyer, California Air Resources Board & University of California at Berkeley</i> | | |
| | The central role of the scalar dissipation rate in non-premixed combustion | | |
| 9:00 | <i>Norbert Peters, RWTH Aachen, Germany</i> | | |

Session F1 - Soot

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| 10:30 | F01 | Experimental and modeling study of the pyrolysis of diacetylene at high temperatures and pressures. | <i>Ashwin Raman, Raghu Sivaramakrishnan, Kenneth Brezinsky, Department of Mechanical & Industrial Engineering, University of Illinois at Chicago</i> |
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| 10:45 | F02 | Improved sooting tendency determinations for aromatic hydrocarbons. | <i>Charles S. McEnally, Lisa D. Pfefferle, Department of Chemical Engineering, Yale University</i> |
| 11:00 | F03 | The effects of oxygenated compounds on PAH and soot across a suite of laboratory devices. | <i>Tom Litzinger¹, Med Colket², Vish Katta³, Dave Liscinsky², Kevin McNesby⁴, Robert Pawlik⁵, Mel Roquemore⁶, Bob Santoro¹, Sukh Sidu⁶, Scott Stouffe⁶</i> ¹ Penn State University ² United Technologies Research Center ³ ISSI ⁴ Army Research Lab ⁵ AFRL, ⁶ University of Dayton Research Lab |
| 11:15 | F04 | The effects of nitrogen-containing compounds on PAH and soot across a suite of laboratory devices. | <i>Tom Litzinger¹, Med Colket², Vish Katta³, Dave Liscinsky², Kevin McNesby⁴, Mel Roquemore⁵, Bob Santoro¹, Scott Stouffer⁶</i> ¹ Penn State University ² United Technologies Research Center ³ ISSI ⁴ Army Research Lab ⁵ AFRL, ⁶ University of Dayton Research Lab |
| 11:30 | F05 | Laser-induced incandescence for soot volume fraction measurements in steady and pulsed ethylene/air non-premixed flames. | <i>Hayri Sapmaz, Boston Scientific/Miami; Chaouki Ghenai, Florida Atlantic University; Cheng-Xian Lin, University of Tennessee</i> |
| 11:45 | F06 | Detailed modeling and analysis of aromatic additive effects in ethylene-air flames. | <i>Colleen Stroud, Wing Tsang, Chemical Science and Technology Laboratory; Samuel Manzello, Building and Fire Research Laboratory, National Institute of Standards and Technology</i> |
| 12:00 | F07 | Temperature dependence of soot onset threshold in premixed ethylbenzene flames. | <i>Ali Ergut¹, Rick J. Therrien¹, Yiannis A. Levendis¹, Henning Richter², Jack Howard³, Joel Carlson³</i> ¹ Mechanical and Industrial Engineering, Northeastern University ² Chemical Engineering, Massachusetts Institute of Technology ³ US Army SBCCOM-Natick Soldier Center |

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| 12:15 | F08 | A study on the effect of experimental setup configuration on soot formation in laminar premixed ethylene-air flame. | <i>Gagan Gothaniya, Seong-Young Lee, Arvind Menon, Suresh Iyer, Milton J. Linevsky, Thomas A. Litzinger, Robert J. Santoro, Propulsion Engineering Research Center and Department of Mechanical and Nuclear Engineering, Pennsylvania State University</i> |
| 12:30–14:00 | LUNCH | | |
| Session F2 - Soot | | | |
| 14:00 | F09 | The effects of benzene and naphthalene on soot particle size distribution and species concentration in a well stirred reactor/plug flow reactor. | <i>Samuel L. Manzello¹, David B. Lenhart², Colleen B. Stoud¹, Wing Tsang¹ ¹NIST, ²Praxair</i> |
| 14:15 | F10 | Modeling soot growth and activity with heterogeneous kinetics and method of moments. | <i>Chen-Pang Chou, Devin Hodgson, Maria Petrova, Ellen Meeks, Reaction Design</i> |
| 14:30 | F11 | Relations between particle size distribution function and morphology of soot formed in atmospheric-pressure, premixed ethylene-oxygen-argon flames. | <i>Aamir D. Abid, Erik D. Tolmachoff, Denis J. Phares, Hai Wang, Department of Aerospace and Mechanical Engineering, University of Southern California</i> |
| 14:45 | F12 | Experimental study on primary soot particle inception in laminar premixed and diffusion flames. | <i>Chul H. Kim, Purdue University; Fang Xu, University of Central Florida; Gerard M. Faeth, University of Michigan</i> |
| 15:00 | F13 | Soot surface temperature measurements in pure and diluted flames at atmospheric and elevated pressures. | <i>T.L. Berry Yelverton, W.L. Roberts, North Carolina State University</i> |
| 15:15 | F14 | Health effects of partially oxidized soot. | <i>Amara Holder¹, Donald Lucas², Regine Goth-Goldstein², Catherine Koshland¹ ¹University of California Berkeley ²Lawrence Berkeley National Lab</i> |
| 15:30–16:00 | BREAK | | |
| Session F3 - Emissions | | | |
| 16:00 | F15 | Optimization of fuel preparation for emissions reduction from a small scale gas turbine engine operated on biodiesel. | <i>Christopher Bolszo, Vincent McDonell, UC-Irvine</i> |

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| 16:15 | F16 | Comparisons of sub-micron particulate structures emitted from a Diesel engine, a gasoline engine, and a power plant. | <i>M.F. Chandler, U.O. Koylu, J.A. Drallmeier, Department of Mechanical and Aerospace Engineering; F.S. Miller, Department of Materials Science and Engineering, University of Missouri-Rolla</i> |
| 16:30 | F17 | The effects of phosphorus compounds on PAH and soot across a suite of laboratory devices. | <i>Sukh Sidhu¹, Mel Roquemore², Med Colket³, Vish Katta⁴, Dave Liscinsky³, Tom Litzinger⁵, Kevin McNesby⁶, Bob Santoro⁵, Scott Stouffer¹ ¹University of Dayton Research Institute ²AFRL Wright Patterson ³United Technologies Research Center ⁴ISS, ⁵Penn State University ⁶Army Research Lab</i> |
| 16:45 | F18 | Combustion and ignition of bio-ester fuel droplets in microgravity. | <i>Timothy Vaughn, Mark Wessel, Anthony Marchese, Rowan University</i> |
| 17:00 | F19 | Effect of mercury removal treatment on NO_x emission and ash deposition characteristics in PC combustion. | <i>Shrinivas Lokare, Dale Tree, Larry Baxter, Brigham Young University; Krzysztof Waclawiak, Department of Process Energy, University of Katowice, Poland</i> |
| Tuesday, March 27, 2007 | | | |
| Session Chair: Chung K. Law | | | |
| 8:00 | The effect of thermal expansion on flame dynamics, | | |
| | <i>Moshe Matalon, Northwestern University</i> | | |
| 8:55 | A career in combustion diagnostics: Fruitful insights and lessons learned, | | |
| | <i>Normand Laurendau, Purdue University</i> | | |
| Session F4 - Soot | | | |
| 10:30 | F20 | Parameter free aggregation model for soot formation. | <i>Guillaume Blanquart, Heinz Pitsch, Stanford University</i> |
| 10:45 | F21 | Molecular dynamics simulations of PAH dimerization. | <i>David K. Wong, Charles A. Schuetz, Michael Frenklach, ME, University of California-Berkeley & Environmental Energy Technologies Division, Lawrence Berkeley National Laboratory</i> |
| 11:00 | F22 | Selection of inception species for soot modeling in premixed flames. | <i>Zhiwei Yang, Hongzhi Zhang, Eric Eddings, Adel Sarofim, Departments of Chemical Engineering, University of Utah</i> |

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| 11:15 | F23 | A computational and analytical investigation of sooting limits of spherical diffusion flames. | <i>V.R. Lecoustre¹, S.A. Skeen², B.H. Chao³, P.B. Sunderland¹, D.L. Urban⁴, D.P. Stocker⁴, R.L. Axelbaum²</i> ¹ University of Maryland ² Washington University ³ University of Hawaii ⁴ NASA GRC |
| 11:30 | F24 | Coagulation of soot aggregates: self preserving distributions and the thermal equilibration of electrical charge. | <i>Matti Maricq, Ford Motor Company</i> |
| 11:45 | F25 | Characterization of the properties of soot for aromatic and aliphatic fuels. | <i>C.A. Echavarria, A.F. Sarofim, J.S. Lighty, University of Utah</i> |
| 12:00–13:30 | LUNCH | | |
| Session F5 - Fire | | | |
| 13:30 | F26 | Material flammability test methods for achieving simulated low-gravity conditions. | <i>Fletcher Miller¹, Sandra Olson², Suleyman Gokoglu², Paul Ferkul¹</i> ¹ National Center for Microgravity Research ² NASA Glenn Research Center |
| 13:45 | F27 | The effect of the curvature on the downward flame spread over charring material. | <i>Hwang Sungjoon, Arvind Atreya, Mechanical Engineering, University of Michigan</i> |
| 14:00 | F28 | On buoyancy suppression in two-dimensional opposed-flow flame spread over thin solid fuels in a narrow channel. | <i>Saeed Jahangirian, Indrek S. Wichman, Department of Mechanical Engineering, Michigan State University</i> |
| 14:15 | F29 | Diffusion flame over a rotating and melting polymer disk. | <i>Vedha Nayagam, R. Balasubramaniam, National Center for Space Exploration Research NASA Glenn Research Center; Forman Williams, Department of Mechanical Engineering, UCSD</i> |
| 14:30 | F30 | Theoretical and experimental study on fully-developed compartment fires. | <i>Yunyong Utiskul, James G. Quintiere, University of Maryland</i> |
| POSTER Session - 15:00:17:00 | | | |
| Wednesday, March 28, 2007 | | | |
| | Session Chair: Adel F. Sarofim | | |
| 8:00 | Fuel structure relationships in combustion chemistry: Dealing with complexity | | |
| | <i>Lisa D. Pfefferle, Yale University</i> | | |
| 8:55 | "Non-burning" issues of Combustion Fundamentals, | | |
| | <i>Donald Lucas, Lawrence Berkeley National Laboratory</i> | | |
| Session F6 - New Technology | | | |

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| 10:30 | F31 | Miniature liquid film combustors with double wall and central porous fuel inlets. | <i>Nicola Sarzi Amadé¹, Yueh-Heng Li², Trinh K. Pham¹, Derek Dunn-Rankin¹, William A. Sirignano¹</i> ¹ <i>University of California-Irvine</i> ² <i>National Cheng-Kung University</i> |
| 10:45 | F32 | Effects of fuel injection and mixing on NOx performance of a liquid-fueled stagnation point reverse flow combustor. | <i>Priya Gopalakrishnan, Patton Allison, Jerry Seitzman, Georgia Institute of Technology</i> |
| 11:00 | F33 | On <i>in-situ</i> oil recovery from tar sands. | <i>Timothy R. Kennelly, Lea-Der Chen, Department of Mechanical and Industrial Engineering, University of Iowa</i> |
| 11:15 | F34 | Combustion of boronhydride/metal/water mixtures for hydrogen generation. | <i>Moiz Diwan, Evgeny Shafirovich, Victor Diakov, Arvind Varma, School of Chemical Engineering, Purdue University</i> |
| 11:30 | F35 | Non-thermal ignition enhancement by magnetically stabilized gliding arc plasma discharge. | <i>Timothy Ombrello, Yiguang Ju, Department of Mechanical and Aerospace Engineering, Princeton University; Shailesh Gangoli, Alexander Gutsol, Alexander Fridman, Drexel Plasma Institute, Drexel University</i> |
| 11:45 | F36 | Use of functional group analysis for the selection of surrogates for jet fuels. | <i>Hongzhi R. Zhang¹, Eric G. Eddings¹, Adel F. Sarofim¹, Charles L. Mayne², Zhiwei Yang¹, Ronald J. Pugmire^{1,2}</i> ¹ <i>Department of Chemical Engineering, University of Utah</i> ² <i>Department of Chemistry, University of Utah</i> |
| 12:00 | F37 | The carbonyl emissions from petroleum diesel and biodiesel. | <i>Ming Chai, Mingming Lu, Fuyan Liang, Libya Watson, Dept. of Civil and Environmental Engineering, University of Cincinnati</i> |
| 12:15 | F38 | Performance of small scale boiler burner fired with blends of coal and dairy biomass. | <i>Ben Lawrence, Kalyan Annamalai, Texas A&M University; John M. Sweeten, Agricultural Research and Extension Center</i> |
| Monday, March 26, 2007 | | | |
| 7:45 | Opening remarks: Dr. William Pitz, Chairman of the Board, Western States Section of the Combustion Institute | | |
| 7:50 | Welcome: Dr. Arthur B. Ellis, Vice Chancellor for Research, University of California at San Diego | | |
| | Session Chair: Forman A. Williams | | |
| 8:05 | Combustion in a carbon constrained era | | |
| | <i>Robert F. Sawyer, California Air Resources Board & University of California at Berkeley</i> | | |

| The central role of the scalar dissipation rate in non-premixed combustion | | | |
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| 9:00 | | <i>Norbert Peters, RWTH Aachen, Germany</i> | |
| Session G1 - Diagnostics | | | |
| 10:30 | G01 | Comparison of wavelength modulation and direct absorption spectroscopy for measurements of gas temperature in a scramjet combustor. | <i>Gregory B. Rieker, Jay B. Jeffries, Ronald K. Hanson, Stanford University; Tarun Mathur, ISSI; Cambell D. Carter, Mark R. Gruber, Air Force Research Laboratory (AFRL/PRAS)</i> |
| 10:45 | G02 | Application of a diode-laser-based ultraviolet absorption sensor for <i>in situ</i> measurements of atomic mercury in coal combustion exhaust. | <i>Jesse K. Magnuson, Thomas N. Anderson, Robert P. Lucht, School of Mechanical Engineering, Purdue University; Udayasarathy A. Vijayasarathy, Hyukjin Oh, Kalyan Annamalai, Department of Mechanical Engineering, Texas A&M University</i> |
| 11:00 | G03 | Two-wavelength mid-IR absorption sensor for simultaneous temperature and <i>n</i>-heptane concentration measurements. | <i>Adam E. Klingbeil, Jason M. Porter, Jay B. Jeffries, Ronald K. Hanson, Stanford University</i> |
| 11:15 | G04 | Nitric oxide concentration profiles in atmospheric-pressure flames using electronic-resonance-enhanced coherent anti-Stokes Raman scattering (ERE-CARS). | <i>Ning Chai, Waruna D. Kulatilaka, Sameer V. Naik, Robert P. Lucht, Normand M. Laurendeau, Flame Diagnostics Laboratory, School of Mechanical Engineering Purdue University; Sukesh Roy, Viswanath R. Katta, Innovative Scientific Solutions; Joel P. Kuehner, Department of Physics and Engineering, Washington and Lee University; James R. Gord, Air Force Research Laboratory</i> |
| 11:30 | G05 | Detection of trace NO concentrations using 1-D NO-LIF imaging. | <i>Ji Hyung Yoo¹, Tonghun Lee², Jay B. Jeffries¹, Ronald K. Hanson¹ ¹Stanford University ²Michigan State University</i> |
| 11:45 | G06 | High-resolution two-photon laser-induced fluorescence spectroscopy of nitric oxide. | <i>Waruna D. Kulatilaka, Robert P. Lucht, School of Mechanical Engineering, Purdue University</i> |
| 12:00 | G07 | Simultaneous stereo particle image velocimetry and double pulsed planar laser induced fluorescence of turbulent premixed flames. | <i>Sergei A. Filatyev, Mathew P. Thariyan, Robert P. Lucht, Jay P. Gore, School of Mechanical Engineering, Purdue University</i> |
| 12:15 | G08 | On the use of endwall emission as a shock-tube ignition diagnostic. | <i>Eric Petersen, University of Central Florida</i> |
| 12:30–14:00 | | LUNCH | |

| Session G2 - Spray | | | |
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| 14:00 | G09 | Acoustically coupled droplet combustion with alternative fuels. | <i>Juan I. Rodriguez, Owen I. Smith, Ann R. Karagozian, UCLA</i> |
| 14:15 | G10 | On the controlling mechanisms in multicomponent droplet gasification. | <i>Huiqiang Zhang, Chung K. Law, Princeton University</i> |
| 14:30 | G11 | Experimental investigation of combustion of electrostatically charged ethanol blended gasoline droplets. | <i>Eric Anderson, Dimitrios Kyritsis, University of Illinois at Urbana-Champaign</i> |
| 14:45 | G12 | Effects of supporting fibers on water condensation in vaporizing and burning methanol droplets. | <i>Dushyant Shringi, Harry Dwyer, Benjamin Shaw, MAE Dept, UC-Davis</i> |
| 15:00 | G13 | Composition and temperature measurements of evaporating propanol-acetone droplets. | <i>Jinsheng Xiao¹, Jingbin Wei², Benjamin D. Shaw², Zheng Davis Peng¹ Wuhan University of Technology, China² University of California-Davis</i> |
| 15:15 | G14 | Fuel drop dynamics for solid surface impact at conditions below the splash limit. | <i>Brett Bathel, Albert Ratner, University of Iowa</i> |
| 15:30–16:00 | BREAK | | |
| Session G3 - Spray | | | |
| 16:00 | G15 | Large-eddy simulation/probability density function formulation for turbulent spray combustion. | <i>Venkatramanan Raman, Department of Aerospace Engineering and Engineering Mechanics, University of Texas at Austin; Olivier Desjardins, Center for Turbulence Research, Stanford University</i> |
| 16:15 | G16 | Theory of bouncing and coalescence in droplet collision. | <i>P. Zhang, C.K. Law, Department of Mechanical and Aerospace Engineering, Princeton University</i> |
| 16:30 | G17 | WITHDRAWN Oxygen-enriched combustion for stable, soot-free heptane flames. | <i>Scott Skeen, Richard Axelbaum, Washington University in St. Louis</i> |
| 16:45 | G18 | Microgravity droplet combustion in CO₂ enriched environments at elevated pressures. | <i>Michael Hicks, NASA Glenn Research Center; Vedha Nayagam, National Center for Space Exploration; Forman Williams, University of California at San Diego</i> |
| 17:00 | G19 | Ceramic formation in liquid precursor droplets injected into plasmas and premixed flames. | <i>Saptarshi Basu, Baki Cetegen, Mechanical Engineering Department, University of Connecticut</i> |
| Tuesday, March 27, 2007 | | | |

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| | Session Chair: Chung K. Law | | |
| 8:00 | The effect of thermal expansion on flame dynamics, | | |
| | <i>Moshe Matalon, Northwestern University</i> | | |
| 8:55 | A career in combustion diagnostics: Fruitful insights and lessons learned, | | |
| | <i>Normand Laurendau, Purdue University</i> | | |
| Session G4 - Heterogeneous | | | |
| 10:30 | G20 | Combustion of single titanium and coated aluminum particles. | <i>Timothy A. Andrzejak, Evgeny Shafirovich, Soon Kay Teoh, Arvind Varma, School of Chemical Engineering, Purdue University</i> |
| 10:45 | G21 | Selective catalytic combustion for synthesis of micropatterned carbon thin films. | <i>Lutfiye Bulut, Aihui Yan, Robert Hurt, Brown University</i> |
| 11:00 | G22 | The impact of the distribution of surface-oxides and their migration on characterization of the heterogeneous carbon-oxygen reaction. | <i>Paul Campbell, University of Technology, Jamaica; Reginald Mitchell, Stanford University</i> |
| 11:15 | G23 | Predicting product gas compositions from coal gasifiers operated at moderate temperatures. | <i>Chitralkumar Naik, Stephen Niksa, Niksa Energy Associates</i> |
| 11:30 | G24 | Influence of CO₂ on coal char combustion kinetics in oxy-fuel applications. | <i>Christopher Shaddix, Sandia National Labs; Alejandro Molina, Universidad Nacional de Colombia, Sede Medellin, Colombia</i> |
| 11:45 | G25 | Experimental and 3-D CFD model study of carbon combustion in low pressure H₂/O₂/air lifted flames. | <i>Patti Sheaffer, Paul Zittel, Aerospace Corporation</i> |
| 12:00–13:30 | LUNCH | | |
| POSTER Session - 15:00:17:00 | | | |
| Wednesday, March 28, 2007 | | | |
| | Session Chair: Adel F. Sarofim | | |
| 8:00 | Fuel structure relationships in combustion chemistry: Dealing with complexity | | |
| | <i>Lisa D. Pfefferle, Yale University</i> | | |
| 8:55 | "Non-burning" issues of Combustion Fundamentals, | | |
| | <i>Donald Lucas, Lawrence Berkeley National Laboratory</i> | | |
| Session G6 - Modeling | | | |
| 10:30 | G31 | Toward next-generation reacting flow simulation capability. | <i>James C. Sutherland, University of Utah</i> |
| 10:45 | G32 | Novel subgrid modeling of the LES equations under supercritical pressure. | <i>Laurent Selle, Josette Bellan, Kenneth Harstad, Jet Propulsion Laboratory, California Institute of Technology</i> |

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| 11:00 | G33 | Direct quadrature method of moments for modeling soot formation in turbulent non-premixed flames. | <i>Qing Tang, Ying Huang, Mike Bockelie, Reaction Engineering International; Rodney Fox, Dept. of Chemical and Biological Engineering, Iowa State University</i> |
| 11:15 | G34 | Modeling of an autothermal heat integrated wall reactor for simulation of hydrogen production for fuel cells. | <i>Cihan Banu Biçici, Hasan Bedir, Mechanical Engineering Department, Bogaziçi University</i> |
| 11:30 | G35 | Effect of oxygen enhancement on radiation characteristics of normal and inverse diffusion flames. | <i>Manish Saini¹, Sivakumar Krishnan², Yuan Zheng¹, Jay Gore¹¹ Purdue University² Indiana University-Purdue University Indianapolis</i> |
| 11:45 | G36 | Mathematical modeling of entrained flow coal gasifier using free energy minimization. | <i>E. Lakshmanan, R. Saravanan, Institute for Energy Studies, Anna University</i> |
| 12:00 | G37 | Modeling multicomponent solid-liquid phase equilibrium of salts and silicates in coal combustion/gasification processes. | <i>Bing Liu, John L. Oscarson, Larry L. Baxter, University of Utah; Reed M. Izatt, Brigham Young University</i> |
| 12:15 | G38 | Computational fluid dynamics modeling of the operation of a flame ionization sensor. | <i>E. David Huckaby, Benjamin Chorpening, Jimmy Thornton, U.S. Department of Energy, National Energy Technology Laboratory</i> |
| POSTER Session - 15:00:17:00 | | | |
| Monday, March 26, 2007 | | | |
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| | <i>Robert F. Sawyer, California Air Resources Board & University of California at Berkeley</i> | | |
| | The central role of the scalar dissipation rate in non-premixed combustion | | |
| 9:00 | <i>Norbert Peters, RWTH Aachen, Germany</i> | | |
| Session H1 - New Technology | | | |
| 10:30 | H01 | A detailed chemical kinetics in multiple zone numerical model of Diesel combustion. | <i>Daniel L. Flowers, Lawrence Livermore National Laboratory; J. Hunter Mack, Robert W. Dibble, University of California-Berkeley</i> |

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| 10:45 | H02 | Reverse annulus single ended radiant tube (RASERT). | <i>Mark Khinkis¹, Harry Kurek¹, Dennis Quinn², Martin Linck¹, Tanya Tickel¹, Brian Masterson¹ ¹Gas Technology Institute, ²North American Manufacturing Company</i> |
| 11:00 | H03 | Combustion in a flow cavity. | <i>Ben Colcord, William A. Sirignano, University of California-Irvine</i> |
| 11:15 | H04 | Effect of wall thermal conductivity and thickness on the performance of heat-recirculating reactors. | <i>Jeongmin Ahn, Washington State University; Paul Ronney, University of Southern California</i> |
| 11:30 | H05 | Superadiabatic combustion in parallel channels. | <i>Ingmar Schoegl, Janet Ellzey, University of Texas at Austin</i> |
| 11:45 | H06 | Experimental burning velocity characteristics for premixed methane/propane-air laminar flames in a simulated microcombustor. | <i>Ananthanarayanan Veeraragavan, Christopher Cadou, University of Maryland</i> |
| 12:00 | H07 | Experimental investigation of species and temperature characteristics of intermediate Reynolds number reactive boundary layers in micro-combustion flows. | <i>Suzanne A. Smyth, Dimitrios C. Kyritsis, Univeristy of Illinois at Urbana-Champaign</i> |
| 12:15 | H08 | Flame synthesis and characterization of carbon nanopearls using ferrofluid as catalyst. | <i>Sayangdev Naha¹, Swarnendu Sen², Ishwar K. Puri¹ ¹Virginia Polytechnic Inst. and State University ²Jadavpur University, India</i> |
| 12:30–14:00 | LUNCH | | |
| Session H2 - Stationary Combustion | | | |
| 14:00 | H09 | Predicting Hg emissions rates from coal-fired utility gas cleaning systems. | <i>Chitralkumar Naik, Stephen Niksa, Niksa Energy Associates</i> |
| 14:15 | H10 | Fuel-nitrogen chemistry in coal, biomass, and cofired flames. | <i>Bradley D. Damsted¹, Dane C. Hansen¹, Justin J. Jones¹, Craig Christensen¹, Chris Johnson¹, Tom Jones¹, Mads V. Muff², Dale R. Tree¹, Larry L. Baxter¹ ¹ChE, Brigham Young University ²ME, Aalborg University</i> |
| 14:30 | H11 | Thermal transport to a reactor wall with a time varying ash layer. | <i>Darron Cundick, Ryan Blanchard, Daniel Maynes, Dale Tree, ME, Brigham Young University; Larry Baxter, ChE, Brigham Young University</i> |

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| 14:45 | H12 | Formation temperature of ammonium bisulfate at simulated air preheater conditions. | <i>J.Y. Wei¹, L. Muzio², D. Dunn-Rankin¹ ¹ Department of Mechanical and Aerospace Engineering, University of California-Irvine ² Fossil Energy Research Corporation</i> |
| 15:00 | H13 | Development of the low swirl injector for fuel-flexible gas turbines. | <i>David Littlejohn, Robert K. Cheng, Lawrence Berkeley National Laboratory; Waseem Nazeer, Ken O. Smith, Solar Turbines, Inc.</i> |
| 15:15 | H14 | The influence of large centrifugal forces on step-stabilized flames. | <i>Andrew Lapsa, Werner Dahm, Department of Aerospace Engineering, University of Michigan</i> |
| 15:30–16:00 | BREAK | | |
| Session H3 - New Technology | | | |
| 16:00 | H15 | Flame synthesis of nano-phase TiO₂ crystalline films. | <i>Erik D. Tolmachoff, Guillermo Garcia, Denis J. Phares, Charles S. Campbell, Hai Wang, University of Southern California</i> |
| 16:15 | H16 | Effect of ammonia treatment on Pt catalyst used for low-temperature reaction. | <i>Jeongmin Ahn, Washington State University; Paul Ronney, University of Southern California</i> |
| 16:30 | H17 | Numerical and experimental conversion of liquid heptane to syngas through a porous inert media | <i>Michael J. Dixon, C. Brad Hull, Janet L. Ellzey, Department of Mechanical Engineering, University of Texas at Austin</i> |
| 16:45 | H18 | Combustion of liquid fuels using porous inert media with annular heat recirculation. | <i>Cristina Dumitrescu, Ajay K. Agrawal, University of Alabama</i> |
| 17:00 | H19 | Effect of scale and fuel type on heat-recirculation combustor performance. | <i>Younho Kim, Hwanil Huh, Jeongmin Ahn, Paul D. Ronney, University of Southern California</i> |
| Tuesday, March 27, 2007 | | | |
| Session Chair: Chung K. Law | | | |
| 8:00 | The effect of thermal expansion on flame dynamics, | | |
| | <i>Moshe Matalon, Northwestern University</i> | | |
| 8:55 | A career in combustion diagnostics: Fruitful insights and lessons learned, | | |
| | <i>Normand Laurendau, Purdue University</i> | | |
| Session H4 - Fire | | | |
| 10:30 | H20 | Developing extinction criteria for fire. | <i>Justin Williamson, André Marshall, Arnaud Trouvé, Department of Fire Protection Engineering, University of Maryland</i> |

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| 10:45 | H21 | Fuel effects in cup-burner flame extinguishment. | <i>Gregory Linteris, Fire Research Division, National Institute of Standards and Technology; Fumiaki Takahashi, National Center for Space Exploration Research on Fluids and Combustion; Viswanath Katta, Innovative Scientific Solutions, Inc.</i> |
| 11:00 | H22 | An elliptic solution to the Emmons' problem. | <i>Howard R. Baum, National Institute of Standards and Technology Building and Fire Research Laboratory; Arvind Atreya, Department of Mechanical Engineering, University of Michigan</i> |
| 11:15 | H23 | Large eddy simulation of flash fires following ignition of a fuel vapor cloud. | <i>Jennifer Wiley, University of Maryland; Arnaud Trouvé, University of Maryland and National Institute of Standards and Technology</i> |
| 11:30 | H24 | Extinguishment of cylindrical diffusion flames in a coaxial air stream. | <i>Fumiaki Takahashi, National Center for Space Exploration Research, NASA Glenn Research Center; Viswanath Katta, Innovative Scientific Solutions, Inc.</i> |
| 11:45 | H25 | Quenching limits and materials degradation of hydrogen diffusion flames. | <i>N.R. Morton, P.B. Sunderland, University of Maryland; B.H. Chao, University of Hawaii; R.L. Axelbaum, Washington University at St. Louis</i> |
| 12:00–13:30 | LUNCH | | |
| POSTER Session - 15:00:17:00 | | | |
| Wednesday, March 28, 2007 | | | |
| | Session Chair: Adel F. Sarofim | | |
| 8:00 | Fuel structure relationships in combustion chemistry: Dealing with complexity | | |
| | <i>Lisa D. Pfefferle, Yale University</i> | | |
| 8:55 | "Non-burning" issues of Combustion Fundamentals, | | |
| | <i>Donald Lucas, Lawrence Berkeley National Laboratory</i> | | |
| Session H6 - Fire | | | |
| 10:30 | H31 | Fire induced thermal and structural response of the World Trade Center Towers. | <i>Kuldeep Prasad, NIST</i> |
| 10:45 | H32 | Quantification of fire signatures for practical spacecraft materials. | <i>Randy Vander Wal, Jane Novak, NCSER, NASA-Glenn</i> |
| 11:00 | H33 | Determination of pyrolysis temperature for infinite rate kinetics models of charring materials. | <i>Won Chan Park, Arvind Atreya, Department of Mechanical Engineering, University of Michigan</i> |

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| 11:15 | H34 | Ultra fine water mist extinction of a diffusion flame. | <i>Ramagopal Ananth, Richard C. Mowrey, Navy Technology Center for Safety and Survivability, Chemistry Division, Naval Research Laboratory</i> |
| 11:30 | H35 | Interaction of small water droplets with a methane non-premixed jet flame. | <i>G.J. Liao¹, R.J. Kee², J.-P. Delplanque¹ A.U. Modak³, ¹ University of California, Davis, ² Colorado School of Mines, ³ Reaction Design</i> |
| 11:45 | H36 | Evacuation study using integrated fire/evacuation environment. | <i>Sergei A. Filatyev¹, Angela K. Mellema², Alok R. Chaturvedi², Jay P. Gore,¹ ¹ School of Mechanical Engineering, Purdue University ² Purdue Homeland Security Institute</i> |
| 12:00 | H37 | Effect of soot model on radiative heat transfer in LES simulations of a 30-cm heptane pool fire. | <i>Jennifer Spinti, David Lignell, Niveditha Krishnamoorthy, Philip Smith, University of Utah</i> |
| 12:15 | H38 | Piloted ignition to flaming in smoldering fire-retarded polyurethane foam. | <i>Olivier Putzeys, A. Carlos Fernandez-Pello, University of California-Berkeley; David Urban, NASA Glenn Research Center</i> |
| POSTER Session - 15:00:17:00 | | | |
| Tuesday, March 27, 2007 | | | |
| 15:00-17:00 | P01 | Developing a test stand to study homogeneous autoignition during catalytic combustion of H₂-CH₄-air mixtures on heat exchange surfaces. | <i>Jeroen Valensa, S. Scott Goldsborough, Marquette University</i> |
| 15:00-17:00 | P02 | Catalytic ignition temperatures of propane-oxygen mixtures. | <i>B. Lounsbury, K. Leichliter, J. Steciak, S. Beyerlein, University of Idaho</i> |
| 15:00-17:00 | P03 | Linear stability of detonations with reversible chemical reactions. | <i>S.T. Browne, J.E. Shepherd, California Institute of Technology</i> |
| 15:00-17:00 | P04 | Investigation of laser-induced polarization spectroscopy of nitric oxide. | <i>Waruna Kulatilaka, Robert Lucht, Purdue University</i> |
| 15:00-17:00 | P05 | Femtosecond coherent anti-Stokes Raman scattering measurement of gas temperatures from frequency-spread dephasing of the Raman coherence. | <i>Robert P. Lucht, School of Mechanical Engineering, Purdue University; Sukesh Roy, Innovative Scientific Solutions, Inc.; Terrence R. Meyer, Department of Mechanical Engineering, Iowa University; James R. Gord, Air Force Research Laboratory</i> |
| 15:00-17:00 | P08 | Experimental and numerical investigation of ion sensors in a homogeneous charge compression engine fueled by n-heptane. | <i>Gregory E. Bogin, J. Hunter Mack, Shuo Yang, Robert W. Dibble, University of California-Berkeley</i> |

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| 15:00-17:00 | P10 | Ignition of moist syngas in a rapid compression machine. | <i>Gaurav Mittal, Chih-Jen Sung, Case Western Reserve University</i> |
| 15:00-17:00 | P11 | Upstream catalytic flame propagation in a platinum channel: a comparison of model and experiment. | <i>Fletcher Miller, National Center for Space Exploration Research; Peter Struk, Daniel Dietrich, NASA Glenn Research Center; James T'ien, Case Western Reserve University; Benjamin Mellish, Lockheed Martin</i> |
| 15:00-17:00 | P13 | Fire extinction by direct application of liquid nitrogen. | <i>Yiannis A. Levendis, Department of Mechanical and Industrial Engineering, Northeastern University; Michael Delichatsios School of the Built Environment, University of Ulster, Northern Ireland, UK</i> |
| 15:00-17:00 | P14 | An investigation of canopy bulk density effects on the dynamics of crown fire initiation. | <i>Watcharapong Tachajapong, Shankar Mahalingam, ME, University of California; David Weise, Forest Fire Laboratory, Pacific Southwest Research Station, USDA Forest Service</i> |
| 15:00-17:00 | P15 | A multiblock technique for simulating fires in complex geometries. | <i>Kuldeep Prasad, NIST</i> |
| 15:00-17:00 | P16 | Flammability of high boiling, hydrocarbon liquid, aerosols. | <i>Ramagopal Ananth, Heather D. Willauer, Fredrick W. Williams, Navy Technology Center for Safety & Survivability, Chemistry Division, Naval Research Laboratory</i> |
| 15:00-17:00 | P17 | Droplet evaporation in a quiescent, micro-gravity atmosphere. | <i>Paul R. Cole, Indrek S. Wichman, Michigan State University</i> |
| 15:00-17:00 | P18 | Modeling char oxidation behavior under zone II burning conditions at elevated pressures. | <i>Liqiang Ma, Reginald Mitchell, Stanford University</i> |
| 15:00-17:00 | P19 | A study of the ignition of nano-Aluminum behind reflected shock waves. | <i>Danielle M. Kalitan, Eric Petersen, University of Central Florida</i> |
| 15:00-17:00 | P20 | Toward predictability in computing heat flux to an object in a large pool fire using validation as a tool. | <i>Jennifer Spinti, Jeremy Thornock, Stas Borodai, Steve Brown, Philip Smith, University of Utah</i> |
| 15:00-17:00 | P22 | Pressure dependent mechanism for H/O/C(1) chemistry. | <i>Joseph W. Bozzelli, Rubik Asatryan, Chris J. Montgomery, New Jersey Institute of Technology</i> |
| 15:00-17:00 | P24 | Spectral expansion analysis of kinetic model uncertainty beyond parameter optimization. | <i>David A. Sheen, Hai Wang, University of Southern California</i> |
| 15:00-17:00 | P25 | A reaction mechanism for the premixed flame extinction of methanol and ethanol. | <i>P. Saxena, K. Seshadri, F.A. Williams, UC-San Diego</i> |

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| 15:00-17:00 | P27 | Experimental and computational investigation of the interaction of soot and NO_x in coflow diffusion flames. | <i>Blair C. Connelly, Mitchell D. Smooke, Marshall, B. Long, Yale University; Robert J. Hall, Meredith B. Colket, United Technologies Research Center</i> |
| 15:00-17:00 | P28 | Edge-flames and other structural complexities supported by spinning fuel disks. | <i>Kishwar Hossain, Thomas L. Jackson, University of Illinois; John Buckmaster, Buckmaster Research</i> |
| 15:00-17:00 | P29 | Kinetic and radiative extinction of spherical diffusion flames. | <i>Qian Wang, Beei-Huan Chao, University of Hawaii at Manoa</i> |
| 15:00-17:00 | P30 | Level set method applied to flame front numerical study. | <i>Ivanka Nikolova, Department of Computer Science, University of Pittsburgh</i> |
| 15:00-17:00 | P31 | The effects of kinetic coupling and radical transport on ignition and extinction of non-premixed PRF and toluene surrogate fuel mixtures. | <i>Yiguang Ju, Fredrick L. Dryer, Princeton University</i> |
| 15:00-17:00 | P32 | Second law analysis of H₂-enriched CH₄-air flame propagation and stabilization. | <i>Alejandro M. Briones, Achintya Mukhopadhyay, Suresh K. Aggarwal, University of Illinois at Chicago</i> |
| 15:00-17:00 | P33 | Analytical solution for flame speed in micro channels. | <i>Ananthanarayanan Veeraragavan, Christopher Cadou, University of Maryland</i> |
| 15:00-17:00 | P34 | Experimental and computational studies of partially premixed flame in a mesoscale channel. | <i>Bo Xu, Yiguang Ju, Princeton University</i> |
| 15:00-17:00 | P35 | Jet fuel and its surrogates. | <i>Stefan Humer, Kalyanasundaram Seshadri, University of California-San Diego; Eliseo Ranzi, Dipartimento di Chimica, Materiali e Ingegneria Chimica, Politecnico di Milano</i> |
| 15:00-17:00 | P37 | Development of <i>in-situ</i> measurements of mass loading within powdered activated carbon suspensions for mercury emissions control. | <i>Eric Monsu Lee, Herek L. Clack, Illinois Institute of Technology</i> |
| 15:00-17:00 | P38 | Numerical analysis of coal combustion in a blast furnace. | <i>Mingyan Gu¹, N.K.C. Selvarasu¹, Yongfu Zhao², Lu Dennis Munhall³, Chenn Q. Zhou¹ ¹ Department of Mechanical Engineering, Purdue University-Calumet ² United States Steel Corp., Research and Technology Center ³ United States Steel Corp., Gary Works Blast Furnace Engineering and Technology</i> |
| 15:00-17:00 | P39 | The image of natural gas industry in Iran. | <i>Hedayat Omidvar, Iran</i> |

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| 15:00-17:00 | P40 | Flame synthesis of tungsten oxide-carbon composite nanowires. | <i>V. Alexei Saveliev, Department of Mechanical and Industrial Engineering, University of Illinois at Chicago; Wilson Merchan-Merchan, M. Aaron Taylor, School of Aerospace and Mechanical, University of Oklahoma</i> |
| 15:00-17:00 | P41 | Flame synthesis of nanostructures of semiconducting metal oxides. | <i>Fusheng Xu, Stephen D. Tse, Department of Mechanical and Aerospace Engineering, Rutgers University</i> |
| 15:00-17:00 | P42 | The effect of diluent gases in the shock tube and rapid compression machine. | <i>Emma J. Silke¹, J. Würmel², M.S. O'Conaire², J.M. Simmie², H.J. Curran^{2 1} Lawrence Livermore National Lab² Department of Chemistry, National University of Ireland, Galway, Ireland</i> |
| 15:00-17:00 | P44 | Experimental and numerical investigations on centerbody flames. | <i>Vincent Belovich¹, Robert Pawlik¹, Amy Lynch¹, Joseph Miller¹, Scott Stouffer², Joseph Zelina¹, Viswanath Katta³, William Roquemore^{1 1} Air Force Research Laboratory, Wright Patterson Air Force Base² UDRI, Dayton³ ISSI</i> |
| 15:00-17:00 | P45 | Thermochemical properties of polycyclic aromatic hydrocarbons (PAH) from G₃MP₂B₃ calculations. | <i>Guillaume Blanquart, Heinz Pitsch, Stanford University</i> |
| 15:00-17:00 | P46 | Combustion performance of a novel injector using flow-blurring for efficient fuel atomization. | <i>Heena Panchasara, Daniel Sequera, William Schreiber, Ajay K. Agrawal, University of Alabama</i> |
| 15:00-17:00 | P47 | Influence of gravity on combustion and flammability of heptane droplets in air-diluent environments. | <i>Benjamin D. Shaw, Jingbin Wei, University of California-Davis</i> |
| 15:00-17:00 | P48 | Comparison of two mixing models with experimental solid fuel, swirl-stabilized flame data. | <i>Bradley, D. Damstedt¹, Dane C. Hansen¹, Justin J. Jones¹, Craig Christensen¹, Chris Johnson¹, Tom Jones¹, Mads V. Muff², Dale R. Tree¹, Larry L. Baxter^{1 1} ChE, Brigham Young University² ME, Aalborg University</i> |
| 15:00-17:00 | P50 | Aerosol growth of carbon nanotubes and in-flight growth kinetics measured by electrical mobility classification. | <i>Soo Kim, Bin Zhao, Michael Zachariah, University of Maryland</i> |

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| 15:00-17:00 | P51 | Rijke tube testing of a low-swirl burner. | <i>Soulak Abbilian, Derek Dunn-Rankin, MAE, University of California-Irvine</i> |
| 15:00-17:00 | P52 | Scalar filtered mass density functions in non-premixed turbulent jet flames. | <i>Tomasz G. Drozda, Guanghua Wang, Vaidyanathan Sankaran, Jose Oefelein, Robert S. Barlow, Combustion Research Facility, Sandia National Laboratories</i> |
| 15:00-17:00 | P53 | Measurements of scalar dissipation and some related characteristics in turbulent non-premixed jet flames. | <i>Guanghua Wang, Robert S. Barlow, Combustion Research Facility, Sandia National Laboratories</i> |
| 15:00-17:00 | P54 | Validity of diagnostics for premixed turbulent swirl-stabilized flames. | <i>Marcus Day, Lawrence Berkeley National Laboratory</i> |
| 15:00-17:00 | P55 | Comparison of reaction mechanisms in non-premixed combustion. | <i>Haifeng Wang, Stephen B. Pope, Cornell University</i> |
| 15:00-17:00 | P56 | Stability regimes of turbulent nitrogen-diluted hydrogen jet flames. | <i>Nathan Weiland, National Energy Technology Laboratory, Pittsburgh; Peter Strakey, National Energy Technology Laboratory, Morgantown</i> |