

**2011 FALL TECHNICAL MEETING**  
**EASTERN STATES SECTIONS OF THE COMBUSTION INSTITUTE**  
**University of Connecticut**  
**Monday, October 10, 2011**

7:30	Registration: Student Union Ballroom Foyer ( <i>Continental Breakfast Student Union Ballroom – Room 331 starting at 7am</i> )
8:15	Student Union Ballroom: Welcome Remarks: Prof. Baki M. Cetegen, Chair, Eastern States Section Prof. Mun Y. Choi, Dean of Engineering, University of Connecticut
8:30	Invited Speaker: Charles K. Westbrook, Lawrence Livermore National Laboratory <i>Combustion and combustion research: Do we have a future?</i> Session Chair: Daniel C. Haworth, The Pennsylvania State University Announcements: Michael Renfro, University of Connecticut

	A-1: Reaction Kinetics I Student Union 304A Session Chair: P. Zhang	B-1: Piston and Gas Turbine Engines Student Union 304B Session Chair: T. Lu	C-1: Turbulent Flames Student Union 304C Session Chair: Z. Ren
9:30	A-01 Comparative investigation of the high pressure autoignition of the butanol isomers <i>Bryan Weber, Chih-Jen Sung University of Connecticut</i>	B-01 Hydrocarbon fingerprint in gas turbine emissions <i>Stephen Zeppieri, Meredith B. Colket United Technologies Research Center</i>	C-01 Calculations of a bluff-body-stabilized non-premixed flame using a reduced description with tabulation of chemistry <i>Zhuyin Ren<sup>1</sup>, Graham M. Goldin<sup>2</sup>, Varun Hiremath<sup>3</sup>, Stephen B. Pope<sup>3</sup></i> <sup>1</sup> <i>University of Connecticut</i> <sup>2</sup> <i>ANSYS, Inc.</i> <sup>3</sup> <i>Cornell University</i>
9:45	A-02 <i>Ab initio</i> kinetics for the decomposition of <i>a</i> -hydroxybutyl radicals of <i>n</i> -butanol <i>Peng Zhang<sup>1</sup>, Stephen Klippenstein<sup>2</sup>, Chung K. Law<sup>1</sup></i> <sup>1</sup> <i>Princeton University</i> <sup>2</sup> <i>Argonne National Laboratory</i>	B-02 Extended kernel lifetimes during altitude relight <i>Meredith B. Colket, Stephen Zeppieri, Heidi Hollick, Shiling Zhang United Technologies Research Center</i>	C-02 Turbulence-chemistry closure method using graphics processing units: A preliminary test <i>Kyle E. Niemeyer<sup>1</sup>, Chih-Jen Sung<sup>2</sup>, Catalin G. Fotache<sup>3</sup>, Jeremiah Lee<sup>3</sup></i> <sup>1</sup> <i>Case Western Reserve University</i> <sup>2</sup> <i>University of Connecticut</i> <sup>3</sup> <i>United Technologies Research Center</i>
10:00	A-03 Water elimination rate measurements for tertiary-butanol <i>Joshua Heyne, Stephen Dooley, Frederick L. Dryer Princeton University</i>	B-03 Response of non-premixed flames to bulk flow perturbations <i>Nicholas Magina, Vishal Acharya, Timothy Liewen Georgia Institute of Technology</i>	C-03 Large eddy simulation of turbulence and surface catalysis interaction in a variable pressure flow reactor <i>Tanvir Farouk, Stephen Dooley, Frederick L. Dryer Princeton University</i>

10:15	<b>BREAK</b> Student Union 331		
	<b>A-1: Reaction Kinetics I (cont.)</b> Student Union 304A Session Chair: P. Zhang	<b>B-1: Piston and Gas Turbine Engines (cont.)</b> Student Union 304B Session Chair: T. Lu	<b>C-1: Turbulent Flames (cont.)</b> Student Union 304C Session Chair: Z. Ren
10:45	<b>A-04 Shock tube studies on the decomposition of 2-butanol</b> <i>Claudette Rosado-Reyes, Wing Tsang National Institute of Standards and Technology</i>	<b>B-04 Three dimensional simulations of diesel sprays using n-dodecane as a surrogate</b> <i>Sibendu Som<sup>1</sup>, Douglas E. Longman<sup>1</sup>, Zhaoyu Luo<sup>2</sup>, Max Plomer<sup>2</sup>, Tianfeng Lu<sup>2</sup></i> <sup>1</sup> <i>Argonne National Laboratory</i> <sup>2</sup> <i>University of Connecticut</i>	<b>C-04 Large eddy simulation of local entropy generation in a turbulent mixing layer</b> <i>M.R.H. Sheikhi, M. Safari, H. Metghalchi Northeastern University</i>
11:00	<b>A-05 High pressure study of 1,3,5-trimethylbenzene oxidation</b> <i>Soumya Gudiyella, Kenneth Brezinsky University of Illinois, Chicago</i>	<b>B-05 Thermodynamics of a rotating detonation engine with micro-injectors</b> <i>Douglas A. Schwer, Kailas Kailasanath Naval Research Laboratory</i>	<b>C-05 Direct numerical simulation of soot formation and oxidation in temporally evolving turbulent luminous non-premixed flames</b> <i>P.G. Arias<sup>1</sup>, V.R. Lecoultre<sup>2</sup>, S. Roy<sup>3</sup>, W. Wang<sup>4</sup>, Z. Luo<sup>5</sup>, D.C. Haworth<sup>3</sup>, H.G. Im<sup>1</sup>, T.F. Lu<sup>5</sup>, K.L. Ma<sup>6</sup>, R. Sankaran<sup>7</sup>, A. Trouve<sup>2</sup></i> <sup>1</sup> <i>University of Michigan</i> <sup>2</sup> <i>University of Maryland</i> <sup>3</sup> <i>Pennsylvania State University</i> <sup>4</sup> <i>University of Tennessee</i> <sup>5</sup> <i>University of Connecticut</i> <sup>6</sup> <i>University of California, Davis</i> <sup>7</sup> <i>Oak Ridge National Laboratory</i>
11:15	<b>A-06 Autoignition of selected alkyl-benzenes in a rapid compression machine</b> <i>Kamal Kumar, Chih-Jen Sung University of Connecticut</i>	<b>B-06 Thermodynamics of rotating detonation performance</b> <i>Craig A. Nordeen<sup>1</sup>, D. Schwer<sup>2</sup>, F. Schauer<sup>3</sup>, J. Hoke<sup>4</sup>, T. Barber<sup>1</sup>, B.M. Cetegen<sup>1</sup></i> <sup>1</sup> <i>University of Connecticut</i> <sup>2</sup> <i>Naval Research Laboratory</i> <sup>3</sup> <i>Air Force Research Laboratory</i> <sup>4</sup> <i>Innovative Scientific Solutions Inc.</i>	<b>C-06 A computational study on the influence of exhaust gas recirculation on NO<sub>x</sub> emissions for a swirl combustor using steady and time dependent RANS simulations</b> <i>Sergio Escobar, Jose Escobar, Ismail Celik National Energy Technology Laboratory and West Virginia University</i>
11:30			<b>C-07 Auto-ignition and low temperature combustion in HCCI for nonhomogeneous DME/air mixtures</b> <i>Hossam A. El-Asrag, Yiguang Ju Princeton University</i>

11:45	<b>LUNCH – On Your Own</b>		
1:00	<b>Student Union Ballroom 331</b> <b>Invited Speaker: Arvind Atreya, University of Michigan</b> <i>The state of federal support for combustion research and our challenges</i> <b>Session Chair: Phil Westmoreland</b>		
	<b>Session A-2: Reaction Kinetics II</b> Student Union 304A Session Chair: H. Sun	<b>Session B-2: Soot</b> Student Union 304B Session Chair: M. Colket	<b>Session C-2: Turbulent Flames</b> Student Union 304C Session Chair: V. Akkerman
2:00	<b>A-08 Kinetics of H atom attack on unsaturated hydrocarbons using spectral uncertainty propagation and minimization techniques</b> <i>David Sheen<sup>1,2</sup>, Claudette Rosado-Reyes<sup>1</sup>, Wing Tsang<sup>1</sup></i> <sup>1</sup> National Institute of Standards and Technology <sup>2</sup> University of Virginia	<b>B-08 Combustion particulate detection and analysis via a micro-glow discharge</b> <i>Chethan K. Gaddam<sup>1</sup>, Ganesh R. Bhimanapati<sup>1</sup>, Amrita Mukherjee<sup>1</sup>, Jane H.F. Novak<sup>1</sup>, Randy L. Vander Wal<sup>1</sup>, Benjamin Ward<sup>2</sup></i> <sup>1</sup> Pennsylvania State University <sup>2</sup> Makel Engineering, Inc	<b>C-08 PDF-based simulations of turbulent spray combustion in a constant-volume chamber</b> <i>Subhasish Bhattacharjee, Jaishree Jaishree, Vivek Raj Mohan, Heda Zhang, Daniel C. Haworth</i> Pennsylvania State University
2:15	<b>A-09 Methodology to account for multi-stage ignition events during simulations of RCM experiments</b> <i>S. Scott Goldsborough<sup>1</sup>, Gaurav Mittal<sup>2</sup>, Colin Banyon<sup>1</sup></i> <sup>1</sup> Marquette University <sup>2</sup> University of Akron	<b>B-09 Quantification of hydrocarbon condensation on combustion soot particles</b> <i>David Liscinsky<sup>1</sup>, Zhenhong Yu<sup>2</sup>, Scott Herndon<sup>2</sup>, Jon Franklin<sup>2</sup>, Jay Peck<sup>2</sup>, Hsi-Wu Wong<sup>2</sup>, Mina Jun<sup>3</sup>, Ian Waitz<sup>3</sup>, Archer Jennings<sup>1</sup>, Bruce True<sup>1</sup>, Meredith B. Colket<sup>1</sup>, R. Miake-Lye<sup>2</sup></i> <sup>1</sup> United Technologies Research Center <sup>2</sup> Aerodyne <sup>3</sup> Massachusetts Institute of Technology	<b>C-09 LES/PDF studies of turbulent premixed jet flames</b> <i>Haifeng Wang, Stephen B. Pope</i> Cornell University
2:30	<b>A-10 Experimental and surrogate modeling study of gasoline ignition in a rapid compression machine</b> <i>Goutham Kukkadapu<sup>1</sup>, Kamal Kumar<sup>1</sup>, Chih-Jen Sung<sup>1</sup>, Marco Mehl<sup>2</sup>, W.J. Pitz<sup>2</sup></i> <sup>1</sup> University of Connecticut <sup>2</sup> Lawrence Livermore National Laboratory	<b>B-10 Molecular-weight growth in fuel-rich toluene + methane and toluene + acetylene flames</b> <i>Wenjun Li<sup>1</sup>, Phillip R. Westmoreland<sup>1</sup>, Bin Yang<sup>2</sup>, Nils Hansen<sup>2</sup></i> <sup>1</sup> North Carolina State University <sup>2</sup> Sandia National Laboratories	<b>C-10 Transported PDF modeling of non-premixed turbulent syngas flames and 0.8 MW oxy-natural gas furnace</b> <i>Xinyu Zhao<sup>1</sup>, Daniel C. Haworth<sup>1</sup>, E. David Huckabee<sup>2</sup></i> <sup>1</sup> Pennsylvania State University <sup>2</sup> National Energy Technology Laboratory
2:45	<b>BREAK - Student Union 331</b>		

	Session A-2: Reaction Kinetics II (cont.) Student Union 304A	Session B-2: Soot (cont.) Student Union 304B	Session C-2: Turbulent Flames (cont.) Student Union 304C
3:15	<b>A-11 Emulating the combustion behavior of real jet aviation fuels by surrogate mixtures from solvent blends</b> <i>Saeed Jahangirian<sup>1</sup>, Stephen Dooley<sup>1</sup>, Venkatesh Iyer<sup>2</sup>, Thomas A. Litzinger<sup>2</sup>, Robert J. Santoro<sup>2</sup>, Frederick L. Dryer<sup>1</sup></i> <sup>1</sup> <i>Princeton University</i> <sup>2</sup> <i>Pennsylvania State University</i>	<b>B-11 XPS &amp; HRTEM characterization of PM</b> <i>R.L. Vander Wal<sup>1</sup>, V. Bryg<sup>2</sup>, M.D. Hays<sup>3</sup></i> <sup>1</sup> <i>Penn State University</i> <sup>2</sup> <i>NASA-Glenn Research Center</i> <sup>3</sup> <i>National Risk Management Laboratory</i>	<b>C-11 Blowoff dynamics of acoustically coupled bluff body stabilized flames using proper orthogonal decomposition</b> <i>Kristin Kopp-Vaughan, Trevor R. Jensen, John J. Turner, Baki M. Cetegen, Michael W. Renfro</i> <i>University of Connecticut</i>
3:30	<b>A-12 A theoretical study of H-abstraction reactions of monomethylhydrazine by OH radical</b> <i>Hongyan Sun, Peng Zhang, Chung K. Law</i> <i>Princeton University</i>	<b>B-12 Effects of m-xylene, dodecane and JP-8 addition on soot in laminar, N<sub>2</sub>-diluted ethylene co-flow diffusion flames from 1 to 5 atm</b> <i>Anne G. Mouis, Venkatesh R. Iyer, Milton J. Linevsky, Thomas A. Litzinger, Robert J. Santoro</i> <i>Pennsylvania State University</i>	<b>C-12 Blowoff scaling of bluff body stabilized flames</b> <i>C.W. Foley, J. Seitzman, T. Lieuwen</i> <i>Georgia Institute of Technology</i>
3:45	<b>A-13 Ab initio multireference study of the reactions of CH<sub>3</sub>N•NH<sub>2</sub> + OH</b> <i>Hongyan Sun, Chung K. Law</i> <i>Princeton University</i>	<b>B-13 Comparison of sooting propensity of JP-8 with its surrogates in a wick burner and a model gas turbine combustor</b> <i>Venkatesh Iyer<sup>1</sup>, Suresh Iyer<sup>1</sup>, Stephen Dooley<sup>2</sup>, Milton Linevsky<sup>1</sup>, Frederick Dryer<sup>2</sup>, Thomas Litzinger<sup>1</sup>, Christopher Mordaunt<sup>3</sup>, Robert Santoro<sup>1</sup></i> <sup>1</sup> <i>Pennsylvania State University</i> <sup>2</sup> <i>Princeton University</i> <sup>3</sup> <i>Bucknell University</i>	<b>C-13 Phase-resolved characterization of conical premixed flames near and far from blowoff</b> <i>Sayan Biswas, Kristin M. Kopp-Vaughan, John Turner, Michael W. Renfro, Baki M. Cetegen, University of Connecticut</i>
4:00	<b>A-14 Chemical activation and thermal reactions at higher temperatures</b> <i>Wing Tsang</i> <i>National Institute of Standards and Technology</i>	<b>B-14 Sooting formation from oxygenated hydrocarbons</b> <i>Charles S. McEnally, Lisa D. Pfefferle</i> <i>Yale University</i>	<b>C-14 Analysis of intrinsic flamefront instabilities in response to external acoustic forcing</b> <i>V'yacheslav B. Akkerman Chung K. Law</i> <i>Princeton University</i>
4:15	<b>A-15 Stoichiometric effects on oxidation and benzene-formation chemistry in premixed 1-hexene flames</b> <i>Wenjun Li<sup>1</sup>, Phillip R. Westmoreland<sup>1</sup>, Bin Yang<sup>2</sup>, Nils Hansen<sup>2</sup></i> <sup>1</sup> <i>North Carolina State University</i> <sup>2</sup> <i>Sandia National Laboratories</i>	<b>B-15 Experimental and numerical study of JP-8 coflow flames</b> <i>Luca Tosatto<sup>1</sup>, Federico Mella<sup>2</sup>, Beth Anne V. Bennett<sup>1</sup>, Marshall B. Long<sup>1</sup>, Mitchell D. Smooke<sup>1</sup></i> <sup>1</sup> <i>Yale University</i> <sup>2</sup> <i>Politecnico di Milano</i>	<b>C-15 Darrieus-Landau and Rayleigh-Taylor instabilities in outwardly-propagating, accelerating flames</b> <i>V'yacheslav B. Akkerman, Chung K. Law</i> <i>Princeton University</i>
4:45	<b>GENERAL BUSINESS MEETING Room 304C</b>		

Tuesday, October 11, 2011

7:30	<b>Registration Student Union Theatre Foyer 1<sup>st</sup> Floor (Continental Breakfast starting at 7 am)</b>		
8:15	Announcements  <b>Irvin Glassman Award</b>		
8:30	<b>Invited Speaker: Tianfeng Lu, University of Connecticut</b> <i>Chemical Explosive Mode Analysis for Computational Flame Diagnostics with Detailed Chemical Kinetics</i> <b>Session Chair: Chung K. Law</b>		
	<b>Session A-3: Reaction Kinetics I II</b> Student Union 304A Session Chair: M. Zachariah	<b>Session B-3 : Laminar Flames</b> Student Union 304B Session Chair: B. Bennett	<b>Session C-3: Turbulent Flames and Stationary Combustion</b> Student Union 304C Session Chair: S. Chaudhuri
9:30	<b>A-16 Experimental and theoretical study on the reactions of CHF radicals with C<sub>2</sub>H<sub>2</sub>, C<sub>2</sub>H<sub>4</sub> and NO in the temperature range of 296–670 K</b> Xueliang Yang <sup>1,2</sup> , Congxiang Chen <sup>1</sup> , Phillip Westmoreland <sup>2</sup> <sup>1</sup> University of Science and Technology <sup>2</sup> North Carolina State University	<b>B-16 Laminar flame speeds of cyclohexane and mono-alkylated cyclohexanes at elevated pressures</b> Fujia Wu, Andrew Kelley, Chung K. Law Princeton University	<b>C-16 Effect of coal particles on the turbulent burning velocity of methane-air premixed flames</b> Scott Rockwell, Ali S. Rangwala Worchester Polytechnical University
9:45	<b>A-17 Thermochemical properties of hydrofluorocarbons</b> Eugene Paulechka <sup>1</sup> , Kenneth Kroenlein <sup>2</sup> , Andrei Kazakov <sup>2</sup> <sup>1</sup> Belarusian State University <sup>2</sup> National Institute of Standards and Technology	<b>B-17 NTC-affected ignition in nonpremixed counterflow</b> Chung K. Law, Peng Zhao Princeton University	<b>C-17 Temperature of inverse diffusion flames in a vitiated cross-flow using two-color PLIF thermometry</b> Stanislav Kostka <sup>1</sup> , David Blunck <sup>2</sup> , Naibo Jiang <sup>1</sup> , Amy Lynch <sup>2</sup> , Marc Polanka <sup>2</sup> , Scott Stouffer <sup>3</sup> , James R. Gord <sup>2</sup> , Sukesh Roy <sup>1</sup> <sup>1</sup> Spectral Energies, LLC <sup>2</sup> Wright Patterson Air Force Base <sup>3</sup> University of Dayton Research Institute
10:00	<b>A-18 A high temperature model for the combustion of methylbutanoate</b> Raghu Sivaramakrishnan, Wei Liu, Michael J. Davis, Sibendu Som, Douglas E. Longman Argonne National Laboratory	<b>B-18 Prediction of electron and ion concentrations in low pressure premixed acetylene and ethylene flames</b> John Cancian <sup>1</sup> , Beth Anne V. Bennett <sup>2</sup> , Meredith B. Colket <sup>3</sup> , Mitchell D. Smooke <sup>2</sup> <sup>1</sup> Pratt & Whitney <sup>2</sup> Yale University <sup>3</sup> United Technologies Research Center	<b>C-18 Turbulent flame speed and self-similar propagation of expanding premixed flames</b> Swetaprovo Chaudhuri, Fujia Wu, Delin Zhu, Chung K. Law Princeton University

10:15	<b>BREAK</b> <b>Student Union 303</b>		
	<b>Session A-3: Reaction Kinetics I II</b> <b>Student Union 304A</b> <b>Session Chair: M. Zachariah</b>	<b>Session B-3 : Laminar Flames</b> <b>Student Union 304B</b> <b>Session Chair: B. Bennett</b>	<b>Session C-3: Turbulent Flames and Stationary Combustion</b> <b>Student Union 304C</b> <b>Session Chair: S. Chaudhuri</b>
10:45	<b>A-19 Density functional theory study of the ignition mechanism of 2-azido-<i>N,N</i>-dimethylethanamine (DMAZ)</b> <i>Peng Zhang, Chung K. Law</i> <i>Princeton University</i>	<b>B-19 Laminar burning speed of 1,1-difluoroethane (R152a)/air mixtures</b> <i>Casey Bennett, Ali Moghaddas, Hameed Metghalchi</i> <i>Northeastern University</i>	<b>C-19 Use of exhaust gas recirculation as a control approach for thermoacoustic instabilities</b> <i>Joseph Ranalli, D. Ferguson</i> <i>National Energy Technology Laboratory</i>
11:00	<b>A-20 Reaction kinetics for TMEDA combustion with red fuming nitric acid</b> <i>Nicole J. Labbe<sup>1</sup>, Phillip R. Westmoreland<sup>2</sup></i> <sup>1</sup> <i>University of Massachusetts</i> <sup>2</sup> <i>North Carolina State University</i>	<b>B-20 Laminar flame speeds of hydrofluorocarbon-air mixtures</b> <i>Paul Papas, Shiling Zhang, S.P. Zappieri, M.B. Colket, K. Smith, Susnane M. Opalka, Parmesh Verma</i> <i>United Technologies Research Center</i>	<b>C-20 An experimental study on hydrocarbon emissions in glycerol combustion utilizing GC/TCD/FID</b> <i>Myles D. Bohon, William L. Roberts</i> <i>North Carolina State University</i>
11:15	<b>A-21 Metal oxide oxygen carriers in chemical looping combustion of carbon: Evidence for condensed phase reaction</b> <i>Nicholas Piekiel, Garth Egan, Michael Zachariah</i> <i>University of Maryland</i>	<b>B-21 Computational and experimental study of laminar coflow methane-air diffusion flames under elevated pressures</b> <i>Su Cao, Beth Anne V. Bennett, Bin Ma, Marshall B. Long, Mitchell D. Smooke</i> <i>Yale University</i>	<b>C-21 Pressurized glycerin combustion in a gas turbine GPU</b> <i>Joseph A. Scroggins, Brian J. McCann, Myles D. Bohon, Joel C. Lisanti, Prithwish Kundu, William L. Roberts</i> <i>North Carolina State University</i>
11:30	<b>A-22 Probing oxygen release kinetics of nanosized metal oxides by temperature-jump time of flight mass spectrometry</b> <i>Guoqiang Jian, Lei Zhou, Nicholas Piekiel, Michael Zachariah</i> <i>University of Maryland</i>	<b>B-22 Sustained methane/air combustion by pulsed microwave energy deposition</b> <i>James B. Michael, Richard B. Miles</i> <i>Princeton University</i>	<b>C-22 Acrolein and other volatile organic emissions from the combustion of crude glycerol</b> <i>Scott A. Steinmetz<sup>1</sup>, Jason S. Herrington<sup>2</sup>, Chris Winterrowd<sup>3</sup>, Daniel Janek<sup>2</sup>, William L. Roberts<sup>1</sup>, Jost O.L. Wendt<sup>4</sup>, William P. Linak<sup>2</sup></i> <sup>1</sup> <i>North Carolina State University</i> <sup>2</sup> <i>Environmental Protection Agency</i> <sup>3</sup> <i>ARCADIS Geraghty &amp; Miller, Inc.</i> <sup>4</sup> <i>University of Utah</i>

11:45	<b>LUNCH – On Your Own</b>		
1:00	<p><b>Student Union Theatre (1<sup>st</sup> Floor)</b>  <b>Invited Speaker:</b> Marios Soteriou, United Technologies Research Center  <i>Modeling and simulation of fuel atomization for aerospace combustion applications</i>  <b>Session Chair:</b> Baki Cetegen</p>		
	<b>Session A-4: Reaction Kinetics IV</b> Student Union 304A Session Chair: H. Chelliah	<b>Session B-4: Laminar Flames</b> Student Union 304B Session Chair: M. Smooke	<b>Session C-4: Heterogeneous Combustion</b> Student Union 304C Session Chair: L. Qiao
2:00	<p><b>A-23 Analysis of chemical and physical processes during pyrolysis of a single cylinder of poplar wood in flow reactor</b>  <i>Hayat Bennadji, Elizabeth M. Fisher, Shaka Velaphi Shabangu, Krystle Smith Cornell University</i></p>	<p><b>B-23 Direct ignition and the S-curve transition by <i>in-situ</i> nano-second pulsed discharge in methane/oxygen/helium counterflow flame</b>  <i>Wenting Sun, Sang Hee Won, Yiguang Ju Princeton University</i></p>	<p><b>C-23 Differences of single-coal particle ignition mechanisms in N<sub>2</sub> and CO<sub>2</sub>-rich environments</b>  <i>Reza Khatami, Yiannis A. Levendis Northeastern University</i></p>
2:15	<p><b>A-24 Experimental and modeling study of 2-methylheptane oxidation in a flow reactor, shock tube, and rapid compression machine</b>  <i>Saeed Jahangirian<sup>1</sup>, D. Healy<sup>2</sup>, S. Mani Sarathy<sup>3</sup>, Stephen Dooley<sup>1</sup>, Marco Mehl<sup>3</sup>, William J. Pitz<sup>3</sup>, Frederick L. Dryer<sup>1</sup>, Henry J. Curran<sup>3</sup>, Charles K. Westbrook<sup>3</sup></i>  <sup>1</sup><i>Princeton University</i>  <sup>2</sup><i>National University of Ireland</i>  <sup>3</sup><i>Lawrence Livermore National Laboratory</i></p>	<p><b>B-24 An implicit-compact finite difference method with application to forced and unforced oscillating laminar jet diffusion flames</b>  <i>Richard Dobbins, Mitchell D. Smooke Yale University</i></p>	<p><b>C-24 Gaseous and particulate emissions from conventional combustion and oxy-combustion of a lignite coal</b>  <i>Feyza Kazanci, Yiannis Levendis Northeastern University</i></p>
2:30	<p><b>A-25 1,3,5-trimethyl benzene: Laminar flame speeds measurements and kinetic modeling</b>  <i>Pascal Dievart, Hwan Ho Kim, Stephen Dooley, Sang Hee Won, Yiguang Ju Princeton University</i></p>	<p><b>B-25 Computational and experimental study of an axisymmetric laminar coflow <i>n</i>-heptane flame</b>  <i>Beth Anne V. Bennett, Charles S. McEnally, Lisa D. Pfefferle, Mitchell D. Smooke Yale University</i></p>	<p><b>C-25 Catalytic ignition and heat release of ethylene/air mixtures over palladium oxide</b>  <i>Yuxuan Xin, Chung K. Law Princeton University</i></p>

2:45	<b>BREAK</b> <b>Student Union 303</b>		
	<b>Session A-4: Reaction Kinetics IV (cont.)</b> Student Union 304A Session Chair: H. Chelliah	<b>Session B-4: Laminar Flames (cont.)</b> Student Union 304B Session Chair: M. Smooke	<b>Session C-4: Heterogeneous Combustion (cont.)</b> Student Union 304C Session Chair: L. Qiao
3:15	<b>A-26 An updated combustion kinetic model for syngas fuels and C<sub>1</sub> oxygenates</b> <i>F.M. Haas<sup>1</sup>, Stijn Vranckx<sup>2</sup>, Marcos Chaos<sup>3</sup>, Ravi X. Fernandes<sup>1</sup>, Frederick L. Dryer<sup>1</sup></i> <sup>1</sup> Princeton University <sup>2</sup> RWTH Aachen <sup>3</sup> FM Global	<b>B-26 Effects of variable specific heats on Markstein lengths and flame front stability</b> <i>Fujia Wu<sup>1</sup>, John K. Bechtold<sup>2</sup>, Chung K. Law<sup>1</sup></i> <sup>1</sup> Princeton University <sup>2</sup> New Jersey Institute of Technology	<b>C-26 Multiphysics modeling of coal gasification processes in a well-stirred reactor with detailed gas-phase chemistry</b> <i>Li Qiao, Jian Xu, Jay Gore</i> Purdue University
3:30	<b>A-27 Rate coefficients for H + O<sub>2</sub> + CO<sub>2</sub> → HO<sub>2</sub> + CO<sub>2</sub> determined in a new high pressure laminar flow reactor</b> <i>F.M. Haas<sup>1</sup>, Tanvir I. Farouk<sup>1</sup>, Marcos Chaos<sup>2</sup>, Michael P. Burke<sup>3</sup>, Frederick L. Dryer<sup>1</sup></i> <sup>1</sup> Princeton University <sup>2</sup> FM Global <sup>3</sup> Argonne National Laboratory	<b>B-27 On self-acceleration of cellular spherical flames</b> <i>Fujia Wu, Grunde Jomaas, Chung K. Law</i> <sup>1</sup> Princeton University	<b>C-27 Combustion of nanofluid fuels with the addition of boron and iron particles at dilute and dense concentrations</b> <i>Yanan Gan, Yi Syuen Lim, Li Qiao</i> Purdue University
3:45	<b>A-28 Extinction limits of non-premixed counterflow hydrogen/oxygen/nitrogen flames: Comparison between experiments and predictions with kinetic and transport uncertainties</b> <i>Gaetano Esposito, Brendyn G. Sarnacki, Harsha K. Chelliah</i> University of Virginia	<b>B-28 A comprehensive evaluation of Soret diffusion in heptane-air flames</b> <i>Yuxuan X. Xin<sup>1</sup>, Chih-Jen Sung<sup>2</sup>, Chung K. Law<sup>1</sup></i> <sup>1</sup> Princeton University <sup>2</sup> University of Connecticut	<b>C-28 Enhanced evaporation of nanofluids by radiation absorption of nanoparticles</b> <i>Yanan Gan, Li Qiao</i> Purdue University
4:30	<b>Buses depart from Nathan Hale Inn for Banquet</b>		
5:00	<b>Banquet at Pratt &amp; Whitney Engine Museum</b>		
8:00	<b>Buses return to campus</b>		

**Wednesday, October 12, 2011**

<p><b>7:00</b>      Student Union Theatre Foyer 1<sup>st</sup> Floor Continental Breakfast</p>			
<p><b>8:30</b>      <b>Invited Speaker:</b> Alessandro Gomez, Yale University  <i>Highly turbulent counterflow flames: A laboratory-scale benchmark for turbulent combustion studies</i>  <b>Session Chair:</b> Michael Renfro</p>			
	<b>Session A-5: Reaction Kinetics V</b> Student Union 304A <b>Session Chair:</b> M. Raju	<b>Session B-5: Sprays, Droplets &amp; Diagnostics</b> Student Union 304B <b>Session Chair:</b> T. Avedesian	<b>Session C-5: Fire</b> Student Union 304C <b>Session Chair:</b> R. Acharya
<p><b>9:30</b></p> <p><b>A-29 Efficient development of accurate detailed combustion chemistry models</b>  <i>William H. Green</i>  <i>Massachusetts Institute of Technology</i></p>	<p><b>B-29 Methanol droplet extinction in oxygen/carbon-dioxide/nitrogen mixtures in microgravity: Results from the international space station experiments</b>  <i>Vedha Nayagam<sup>1</sup>, Daniel Dietrich<sup>2</sup>, Paul Ferkul<sup>1</sup>, Michael Hicks<sup>2</sup>, Forman Williams<sup>3</sup></i>  <sup>1</sup><i>National Center for Space Exploration Research</i>  <sup>2</sup><i>NASA Glenn Research Center</i>  <sup>3</sup><i>University of California, San Diego</i></p>	<p><b>C-29 Study of interaction of entrained coal dust particles in lean methane-air premixed flames</b>  <i>Yanxuan Xie<sup>1</sup>, Vasudevan Raghavan<sup>2</sup>, Ali S. Rangwala<sup>1</sup>,</i>  <sup>1</sup><i>Worcester Polytechnic Institute</i>  <sup>2</sup><i>Indian Institute of Technology Madras</i></p>	
<p><b>9:45</b></p> <p><b>A-30 A multi-scale approach to model development</b>  <i>Michael P. Burke, Stephen J. Klippenstein, Lawrence B. Harding</i>  <i>Argonne National Laboratory</i></p>	<p><b>B-30 Flash atomization of a superheated jet fuel</b>  <i>Jeremiah Lee<sup>1</sup>, May Corn<sup>1</sup>, W. Zhao<sup>1</sup>, C. Fotache<sup>1</sup>, S. Gopalakrishnan<sup>2</sup>, David Schmidt<sup>2</sup></i>  <sup>1</sup><i>United Technologies Research Center</i>  <sup>2</sup><i>University of Massachusetts</i></p>	<p><b>C-30 Numerical modeling of spontaneous ignition of coal dust layers deposited over hot surfaces</b>  <i>Kulbhushan A. Joshi<sup>1</sup>, Ali S. Rangwala<sup>1</sup>, V. Raghavan<sup>2</sup></i>  <sup>1</sup><i>Worcester Polytechnic Institute</i>  <sup>2</sup><i>Indian Institute of Technology Madras</i></p>	
<p><b>10:00</b></p> <p><b>A-31 Parallel computation of chemical mechanism reduction</b>  <i>Mandhapati P. Raju, Mingjie Wang</i>  <i>Convergent Science Inc.</i></p>	<p><b>B-31 Comparison of the spherically symmetric droplet burning characteristics of Jet-A with three and four component surrogate blends</b>  <i>Yu-Cheng Liu, Anthony J. Savas, C. Thomas Avedesian</i>  <i>Cornell University</i></p>	<p><b>C-31 Catalytic ignition of enclosed hydrogen leaks</b>  <i>Kyle Brady<sup>1</sup>, Chih-Jen Sung<sup>1</sup>, James S. Tien<sup>2</sup></i>  <sup>1</sup><i>University of Connecticut</i>  <sup>2</sup><i>Case Western Reserve University</i></p>	
<p><b>10:15</b></p>	<b>BREAK</b> Student Union 303		

	Session A-5: Reaction Kinetics V (cont.) Student Union 304A Session Chair: M. Raju	Session B-5: Sprays, Droplets & Diagnostics (cont.) Student Union 304B Session Chair: T. Avedesian	Session C-5: Fire (cont.) Student Union 304C Session Chair: R. Acharya
10:45	A-32 Computationally-efficient parallel implementation of combustion chemistry in LES/PDF computations <i>Varun Hiremath, Steven R. Lantz, Haifeng Wang, Stephen B. Pope</i> <i>Cornell University</i>	B-32 On the extinction characteristics of alcohol droplet combustion under microgravity conditions-a numerical study <i>Tanvir Farouk, Frederick L. Dryer</i> <i>Princeton University</i>	C-32 Piloted ignition regimes of wildland fuel beds <i>J.C. Thomas<sup>1</sup>, Albert Simeoni<sup>1</sup>, Francesco Colella<sup>2</sup>, Jose L. Torero<sup>3</sup></i> <sup>1</sup> <i>Worcester Polytechnic Institute</i> <sup>2</sup> <i>Politecnico di Torino</i> <sup>3</sup> <i>Edinburgh University</i>
11:00	A-33 Development of a detailed zero- and one-dimensional aromatic and cyclo-C <sub>5</sub> model <i>Ryan Closson, Vik Gill, Adam Hashemi, Yelena Kozachkova, Thomas Toshkoff, Yevgeniy Tsypin, Robert G. Butler</i> <i>Baruch College</i>	B-33 A film boiling reactor for decomposition of subcooled organic liquids <i>Wei-Chih Kuo<sup>1</sup>, C. Thomas Avedesian<sup>1</sup>, Wing Tsang<sup>2</sup></i> <sup>1</sup> <i>Cornell University</i> <sup>2</sup> <i>National Institute of Standards and Technology</i>	C-33 Stirred-reactor simulations of enhanced reaction in the presence of fire suppressants <i>G.T. Linteris<sup>1</sup>, D.R. Burgess<sup>2</sup>, F. Takahashi<sup>2</sup>, V.R. Katta<sup>3</sup>, O. Meier<sup>4</sup></i> <sup>1</sup> <i>National Institute of Standards and Technology</i> <sup>2</sup> <i>Case Western Reserve University</i> <sup>3</sup> <i>Innovative Scientific Solutions</i> <sup>4</sup> <i>The Boeing Company</i>
11:15	A-34 Elementary-reaction kinetics of glucose pyrolysis <i>Vikram Seshadri, Jordan R. Keith, Phillip R. Westmoreland</i> <i>North Carolina State University</i>	B-34 Absolute light calibration in combustion experiments <i>Bin Ma, Marshall Long</i> <i>Yale University</i>	C-34 Dynamics of interactions of a watermist spray with a buoyant plume <i>Ragini Acharya, Guido Poncia</i> <i>United Technologies Research Center</i>
11:30		B-35 Selective observation of the anomalous Zeeman effect using magneto-optic rotation <i>Jamie Lane, Michael Stichter, Nicholas Cernansky, David Miller</i> <i>Drexel University</i>	C-35 Conditions affecting external flame propagation into a portable gasoline container: A summary of test methods and experimental findings <i>Brian E. Elias, Robert G. Zalosh, Ali S. Rangwala</i> <i>Worcester Polytechnic Institute</i>
11:45		B-36 H <sub>2</sub> O number density and temperature measurements in a rapid compression machine using Mid-IR absorption spectroscopy <i>Mruthunjaya Uddi<sup>1</sup>, Apurba K. Das<sup>2</sup>, Goutham Kukkadapu<sup>3</sup>, Chih-Jen Sung<sup>3</sup></i> <sup>1</sup> <i>Princeton University</i> <sup>2</sup> <i>Case Western Reserve University</i> <sup>3</sup> <i>University of Connecticut</i>	
12:00	ADJOURN – See you at the 34 <sup>th</sup> International Symposium on Combustion in Warsaw, Poland – July 2012		