### Sunday, March 8, 2020

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>15:00 – 17:00</td>
<td><strong>ESSCI Executive Board Meeting</strong>, University of South Carolina McNair Aerospace Center, Board Room</td>
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<tr>
<td>18:00 – 20:00</td>
<td><strong>Welcome Reception</strong>, Liberty Tap Room</td>
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### Monday, March 9, 2020

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>7:00 – 18:00</td>
<td><strong>Registration</strong>, University of South Carolina Alumni Center - Lobby</td>
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<tr>
<td>8:30 – 8:50</td>
<td><strong>Welcome Remarks/Announcements</strong></td>
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<td>Hossein Haj-Hariri, Dean, <em>College of Engineering and Computing, The University of South Carolina</em></td>
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<tr>
<td>8:50 – 9:45</td>
<td><strong>University of South Carolina Alumni Center – Grand Ballroom</strong></td>
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<td><strong>Plenary Lecture</strong>: Chris Shaddix, <em>Sandia National Laboratories</em></td>
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<tr>
<td></td>
<td><strong>Title</strong>: Pasteur’s Quadrant and Fundamental Insights into Oxyfuel Combustion</td>
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<tr>
<td></td>
<td><strong>Session Chair</strong>: Sang Hee Won, <em>University of South Carolina</em></td>
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### Reaction Kinetics (Ballroom 1)

<table>
<thead>
<tr>
<th>Session</th>
<th>Title</th>
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<tbody>
<tr>
<td>10:10</td>
<td>1A01: The effect of hot radical reactions in the low-temperature oxidation of diethyl ether</td>
</tr>
<tr>
<td></td>
<td>A.D. Danilack&lt;sup&gt;1&lt;/sup&gt;, S.J. Klippenstein&lt;sup&gt;2&lt;/sup&gt;, Y. Georgievskii&lt;sup&gt;2&lt;/sup&gt;, C.F. Goldsmith&lt;sup&gt;2&lt;/sup&gt;</td>
</tr>
</tbody>
</table>
|         | <sup>1</sup>Brown University  
|         | <sup>2</sup>Argonne National Laboratory                                                  |
| 10:30   | 1A02: Reaction mechanisms of a cyclic ether intermediate: cis-2,3-dimethyloxirane      |
|         | B. Rotavera<sup>1</sup>, M. Christianson<sup>1</sup>, A. Doner<sup>1</sup>, M.M. Davis<sup>1</sup>, A.L. Korić<sup>1</sup>, J.M. Turney<sup>1</sup>, H.F. Schaeffer III<sup>1</sup>, L. Sheps<sup>2</sup>, D.L. Osborn<sup>2</sup>, C.A. Taatjes<sup>2</sup> |
|         | <sup>1</sup>University of Georgia  
|         | <sup>2</sup>Sandia National Laboratories                                                  |

### Fire Research (Ballroom 2)

<table>
<thead>
<tr>
<th>Session</th>
<th>Title</th>
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<tbody>
<tr>
<td>10:10</td>
<td>1B01: Computed operational envelopes for avoiding spontaneous ignition of methane-containing gases</td>
</tr>
</tbody>
</table>
|         | M. Barhoumi, F.M. Haas  
|         | Rowan University                                                                         |
| 10:30   | 1B02: Methane-induced explosions in cylindrical vented enclosures                        |
|         | H. Sezer<sup>1</sup>, S. Ogunfuye<sup>2</sup>, J. Hashempour<sup>1</sup>, V. Akkerman<sup>2</sup> |
|         | <sup>1</sup>Western Carolina University  
|         | <sup>2</sup>Sandia National Laboratories                                                  |

### Laminar Flames (Ballroom 3)

<table>
<thead>
<tr>
<th>Session</th>
<th>Title</th>
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<tbody>
<tr>
<td>10:10</td>
<td>1C01: Effects of carbon dioxide on laminar burning speed and flame instability of isobutane air mixture at high temperature and pressures</td>
</tr>
<tr>
<td></td>
<td>Northeastern University</td>
</tr>
<tr>
<td>10:30</td>
<td>1C02: Kinetic similarity between extinction strain rate and laminar flame speed</td>
</tr>
<tr>
<td></td>
<td>W. Ji&lt;sup&gt;1&lt;/sup&gt;, T. Yang&lt;sup&gt;2&lt;/sup&gt;, Z. Ren&lt;sup&gt;2&lt;/sup&gt;, S. Deng&lt;sup&gt;1&lt;/sup&gt;</td>
</tr>
</tbody>
</table>
|         | <sup>1</sup>Massachusetts Institute of Technology  
<p>|         | &lt;sup&gt;2&lt;/sup&gt;Tsinghua University                                                          |</p>
<table>
<thead>
<tr>
<th>Time</th>
<th>Session 1</th>
<th>Session 2</th>
<th>Session 3</th>
</tr>
</thead>
</table>
| 10:50  | 1A03: Dioxane ring formation during xylan torrefaction  
A. Bose, P.R. Westmoreland  
North Carolina State University | 1B03: The effects of obstructions and gas compressibility on a fire scenario in a coal mining passage  
F. Kodakoglu, L. Kareem, V. Akkerman  
West Virginia University | 1C03: Local statistics of Darrieus-Landau instability in laminar expanding flames  
Z. Liu1, V.R. Unni2, S. Chaudhuri2, C.K. Law2, A. Saha2  
1Princeton University  
2University of California San Diego  
3University of Toronto |
| 11:10  | 1A04: Nonthermal reactions: The final frontier in understanding the kinetics of hydrogen oxidation  
Y. Tao1, S.J. Klippenstein1, Y. Georgievskii1, J.A. Miller2, L. Lei2, M.P. Burke2, A.W. Jasper2, R. Sivaramakrishnan1  
1Argonne National Laboratory  
2Columbia University | 1B04: Estimating flammability limits using predictive modeling of laminar flame speeds  
V. Mascarenhas, P.R. Westmoreland  
North Carolina State University | 1C04: Determination of laminar flame speed of methane by optical analysis: Experimental setup and results  
C. Ulishney1, J. Liu2, C. Dumitrescu1  
1West Virginia University  
2Purdue University |
| 11:30  | 1A05: Plug flow reactor network model for high pressure combustor with after-burner capability  
A. Kumar, B. Hugger, J.W. Meadows  
Virginia Tech | 1B05: Combustion characteristics of difluoromethane- and 2,3,3,3-tetrafluoropropene/air mixtures  
P. Papas  
United Technologies Research Center | 1C05: Impact of fuel nonequidiffusivity and wall conditions on premixed flame propagation in channels with open ends  
O. Abidakun1, A. Adebiyi1, D. Valiev2, V. Akkerman1  
1West Virginia University  
2Tsinghua University |
<p>| 11:50 – 12:50 | <strong>Lunch</strong> | | |</p>
<table>
<thead>
<tr>
<th>Time</th>
<th>Applied Combustion/Diagnostics</th>
<th>Turbulent Flames</th>
<th>Novel Combustion Techniques</th>
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<tbody>
<tr>
<td></td>
<td>Ballroom 1</td>
<td>Ballroom 2</td>
<td>Ballroom 3</td>
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<tr>
<td></td>
<td>Session Chair: A. Karmarkar</td>
<td>Session Chair:  C. Dedic</td>
<td>Session Chair:  S. Deng</td>
</tr>
</tbody>
</table>
| 14:00 | 1A06: Hybrid fs/ps CARS system for counterflow flame investigation  
C.M. Geipel, A.H. Rauch, H.K. Chelliah, C.E. Dedic  
University of Virginia  
1B06: In-Situ Adaptive Manifolds: Enabling simulations of complex turbulent reacting flows  
C.E. Lacey, A.G. Novoselov, M.E. Mueller  
Princeton University  
1C06: KiNet: A deep neural network representation of chemical kinetics  
W. Ji, S. Deng  
Massachusetts Institute of Technology |
| 14:20 | 1A07: Assessment of turbulence models for simulating confined swirling flows  
J. Toumey¹, P. Zhang¹, R. Hadef², X. Zhao¹  
¹University of Connecticut  
²Larbi Ben M’hidi University  
1B07: A novel framework for experiment-based turbulent combustion modeling  
R. Ranade, T. Echekki  
North Carolina State University  
1C07: Dynamics of laminar ethylene lifted flame with ozone addition  
B. Wu¹, M. Hastings², Z. Wang², W. Sun¹  
¹Georgia Institute of Technology  
²Chongqing University |
| 14:40 | 1B08: Closure modeling for the conditional momentum equation in low Karlovitz number turbulent premixed flames  
J. Lee, M.E. Mueller  
Princeton University  
1C08: Homogeneous ignition of syngas over palladium at pressures 1-8 bar  
R. Sui¹, J. Mantzaras², C.K. Law¹, R. Bombach²  
¹Princeton University  
²Paul Scherrer Institute |
| 15:00 – 15:30 | BREAK | |
| 15:30 | 1A09: Shock tube autoignition delay study of ammonia  
Y. Peng, M. Karimi, D. Ranjan, W. Sun  
Georgia Institute of Technology  
1B09: Multi-modal manifold-based modeling of turbulent lifted flames  
A.G. Novoselov, C.E. Lacey, M.E. Mueller  
Princeton University  
1C09: Pressure dependence of catalytic oxidation of propane over rhodium  
R. Sui¹, J. Mantzaras², C.K. Law¹, R. Bombach²  
¹Princeton University  
²Paul Scherrer Institute |
| Time  | Session 1: Reaction Kinetics Ballroom 1  
Session Chair: B. Rotavera | Session 2: Turbulent Flames Ballroom 2  
Session Chair: M.E. Mueller | Session 3: Novel Combustion Techniques Ballroom 3  
Session Chair: J. Meadows |
|-------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| 15:50 | 1A10: Methyl butene isomers ignition inside a shock tube  
University of Central Florida | 1B10: Impact of air splits in a dual-stream swirler on fuel-air mixing and thermoacoustic instability in a swirl stabilized high pressure combustor  
A. Karmarkar\(^1\), J. Yoon\(^2\), I. Boxx\(^2\), J. O’Connor\(^1\)  
\(^1\)Pennsylvania State University  
\(^2\)German Aerospace Centre (DLR) | 1C10: Simulation of methanol-air hydrothermal flames during supercritical water oxidation: Impact of kinetic parameters  
S. Saha, T. Farouk  
University of South Carolina |
|       | 1A11: Automated generation of detailed kinetic models for the combustion of Hydrofluorocarbon (HFC) refrigerants using the reaction mechanism generator  
D. Farina Jr., N.D. Harms, S.K. Sirumalla, R.H. West  
Northeastern University | 1B11: Soot temperature distributions in a turbulent non-premixed ethylene jet flame  
C.R. Shaddix, J. Zhang, T.C. Williams  
Sandia National Laboratories | 1C11: Effect of fuel inhomogeneity in 2-D simulation of a Rotating Detonation Combustor (RDC)  
P. Raj, J. Meadows  
Virginia Tech |
| 17:00 | Career Development Mentor-Mentee Workshop – Ballroom 1  
Hosted by Jacqueline O’Connor, Pennsylvania State University and Perrine Pepiot, Cornell University | 19:00 – 20:00  
Early Career Faculty Mixer – Liberty Tap Room |
Tuesday, March 10, 2020

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<tr>
<th>Time</th>
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<tr>
<td>8:00 – 16:00</td>
<td><strong>Registration</strong>, University of South Carolina Alumni Center - Lobby</td>
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</table>
| 8:20 – 8:30 | **Welcome Remarks**, University of South Carolina Alumni Center – Grand Ballroom  
Jamil Khan, Chair, *Department of Mechanical Engineering, The University of South Carolina*  
**Announcements**, Paul Papas, Sang Hee Won, Tanvir Farouk |
| 8:30 – 9:30 | **University of South Carolina Alumni Center – Grand Ballroom**  
**Plenary Lecture**: Hasan Karim, General Electric Power and Water  
**Title**: *Impact of Changing Landscape of Power Generation on Innovations in Gas Turbines*  
**Session Chair**: Sang Hee Won, *University of South Carolina* |

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9:30 – 9:40 **Transition to Morning Sessions**

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<thead>
<tr>
<th>Time</th>
<th>Reaction Kinetics Ballroom 1</th>
<th>Alternative Fuels/Emissions Ballroom 2</th>
<th>Heterogeneous Combustion Ballroom 3</th>
</tr>
</thead>
</table>
| 9:40 | **2A01**: Effect of trace amount nitric oxide addition on iso-octane autoignition: Experiment and modeling  
*R. Fang*¹, *C. Saggese*², *S.W. Wagon*², *G. Kukkadapa*², *W.J. Pitz*³, *C.-J. Sung*¹  
¹University of Connecticut  
²Lawrence Livermore National Laboratory |
|      | **2B01**: Prediction of research/motor octane number and octane sensitivity using artificial neural networks  
*T.J. Kessler*¹, *C. Hudson*², *L. Whitmore*¹, *J.H. Mack*¹  
¹University of Massachusetts Lowell  
²Sandia National Laboratories  
³University of Washington |
|      | **2C01**: Burn rate and micro-explosion of colloidal droplets of carbon-based nanoparticles in water-in-oil emulsions  
*L. Festa*, *C. Hefner*, *M. Ghamari*  
Wilkes University |
| 10:00| **2A02**: An analysis of NO production via the N₂O + O channel  
*M.C. Barbet*¹, *R.E. Cornell*¹, *F.M. Haas*², *M.P. Burke*¹  
¹Columbia University  
²Rowan University |
|      | **2B02**: Impact of side-chain structure of cycloalkanes on ignition propensity measured as Derived Cetane Number  
*D. Carpenter*, *S. Nates*, *F.L. Dryer*, *S.H. Won*  
University of South Carolina |
|      | **2C02**: Assessment of discrete-phase models to be employed for modeling coal particle feeding in a Staged, Pressurized Oxy-fuel Combustor (SPOC)  
*A. Islas*, *A. Pokharel*, *V. Akkerman*, *Z. Yang*, *R.L. Axelbaum*  
West Virginia University |
| 10:20| **2A03**: Towards resolution of lingering discrepancies in the H₂O₂ decomposition system: HO₂ + HO₂  
*C.E. LaGrotta*¹, *L. Lei*¹, *M.C. Barber*¹, *Z. Hong*², *D.F. Davidson*³, *R.K. Hanson*¹, *M.P. Burke*¹  
¹Columbia University  
²National Research Council of Canada  
³Stanford University |
|      | **2B03**: An investigation into the potential of biomass derived fuel alcohol mixtures for improved engine performance  
*L. Behnke*¹, *E. Monrow*², *A. Landera*³, *R.W. Davis*², *A. George*², *K. Opacich*¹, *J. Heyne*¹  
¹University of Dayton  
²Sandia National Laboratories  
³University of South Carolina |
|      | **2C03**: Impacts of autoignition and vaporization characteristics on flashback behaviors of liquid fuels  
*S.L. Lim*, *A.K. Alwahaibi*, *S.H. Won*, *F.L. Dryer*  
University of South Carolina |
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Chair</th>
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<tr>
<td>10:40 – 10:50</td>
<td><strong>Reaction Kinetics</strong>&lt;br&gt;<strong>Ballroom 1</strong>&lt;br&gt;Session Chair: P. Pepiot</td>
<td><strong>2A04</strong>: Accurate prediction of secondary chemical processes in pre-partitioned adaptive chemistry&lt;br&gt;<em>P. Sharma, P. Pepiot</em>&lt;br&gt;Cornell University</td>
<td><strong>Break</strong></td>
</tr>
<tr>
<td>10:50</td>
<td><strong>2B04</strong>: Impacts of syngas composition on its combustion characteristics in micro-channels&lt;br&gt;<em>S. Pokharel¹, V. Akkerman¹, M. Ayoobi²</em>&lt;br&gt;¹West Virginia University&lt;br&gt;²Wayne State University</td>
<td><strong>2B05</strong>: A GCxGC tier alpha and combustor figure-of-merit approach on sustainable aviation fuels prescreening&lt;br&gt;<em>Z. Yang, J. Heyne</em>&lt;br&gt;University of Dayton</td>
<td><strong>2C04</strong>: On the modeling of mass loss rate of interacting rectangular pool fires using Fire Dynamic Simulator (FDS)&lt;br&gt;<em>P. Mohammadpour¹, J. Hashempour¹, H. Sezer²</em>&lt;br&gt;¹University of North Carolina&lt;br&gt;²Western Carolina University</td>
</tr>
<tr>
<td>11:10</td>
<td><strong>2A05</strong>: An error-controlled pre-partitioned adaptive chemistry methodology for accelerating particle PDF methods&lt;br&gt;<em>A.S. Newale, S.B. Pope, P. Pepiot</em>&lt;br&gt;Cornell University</td>
<td></td>
<td><strong>2C05</strong>: Microgravity observations of a burning emulator to investigate material flammability&lt;br&gt;<em>P. Dehghani¹, E. Auth¹, C. Cut¹, D.P. Stocker², J.L. deRis¹, P.B. Sunderland¹, J.G. Quintiere¹</em>&lt;br&gt;¹University of Maryland&lt;br&gt;²NASA Glenn Research Center</td>
</tr>
<tr>
<td>11:20</td>
<td><strong>2A06</strong>: Understanding the distinct kinetics of chemically termolecular reactions across various pressures&lt;br&gt;<em>L. Lei, M.P. Burke</em>&lt;br&gt;Columbia University</td>
<td><strong>2B06</strong>: Electric field assisted reduction of NO&lt;sub&gt;x&lt;/sub&gt; emission: A numerical study&lt;br&gt;<em>S.F. Ahmed³, A.C. Aghdam⁴, J. Pleis⁵, R. Geiger⁵, T. Farouk⁴</em>&lt;br&gt;³University of South Carolina&lt;br&gt;⁴ClearSign Combustion Corporation</td>
<td><strong>2C06</strong>: Prediction of drag coefficient and Nusselt number for flow through vegetation at high Reynolds numbers using the Lattice Boltzmann Method&lt;br&gt;<em>H. Sezer⁴, S.P. Koizumal², A. Simeoni¹</em>&lt;br&gt;¹Western Carolina University&lt;br&gt;²Eastern Kentucky University&lt;br&gt;³Worcester Polytechnic Institute</td>
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<td>11:40</td>
<td><strong>2A07</strong>: Experimentally testing the performance of small molecule chemistry relevant to energetic materials&lt;br&gt;<em>R.E. Cornell¹,², M.C. Barbet¹, M.P. Burke¹</em>&lt;br&gt;¹Columbia University&lt;br&gt;²CCDC Armaments Center</td>
<td><strong>2B07</strong>: High-performance jet fuel optimization and aircraft performance analysis considering O-ring volume swell&lt;br&gt;<em>S. Kosir¹, J. Heyne¹, M. Kirby²</em>&lt;br&gt;¹University of Dayton&lt;br&gt;²Georgia Institute of Technology</td>
<td><strong>2C07</strong>: A data based approach for soot prediction in a laminar diffusion flame&lt;br&gt;<em>J.N. Squeo, X. Zhao</em>&lt;br&gt;University of Connecticut</td>
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<tr>
<td>12:00 – 13:00</td>
<td><strong>Lunch</strong></td>
<td><strong>Irv Glassman Young Investigator Lecture</strong>: Xinyu Zhao, University of Connecticut&lt;br&gt;Title: Local extinction and its role in global flame propagation&lt;br&gt;Session Chair: Paul Papas, United Technologies Research Center</td>
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<tr>
<td>Time</td>
<td>Irvin Glassman Memorial Session</td>
<td>Laminar Flames</td>
<td>Fire Research</td>
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| 14:00 | 2A08: Memorial Resolution: A Tribute to Irvin Glassman  
F.L. Dryer¹, C.K. Law², W.A. Sirignano³,  
F.A. Williams⁴  
¹University of South Carolina  
²Princeton University  
³University of California at Irvine  
⁴University of California at San Diego | 2B08: Numerical study on the burning of methanol fed porous sphere using short chemical kinetics mechanism  
S. Nair¹, V. Raghavan¹  
¹Indian Institute of Technology Madras  
²Worcester Polytechnic Institute | 2C08: Simulations of the unsteady response of biomass burning particles exposed to oscillatory heat flux conditions  
M.M. Ahmed, A. Trouvé  
University of Maryland |
| 14:20 | 2A09: Some Reflections on Irv Glassman, his Life and Legacy  
Frederick L. Dryer  
University of South Carolina | 2B09: An experimental and modeling study of NO effect on flame dynamics of n-dodecane cool and warm diffusion flame  
M. Zhou¹,², O.R. Yehia¹, C.B. Reuter¹, C.M. Burger¹,  
Y. Murakami¹, H. Zhao¹, Y. Ju¹  
¹Princeton University  
²Wuhan University of Technology | 2C09: The unsteady response of radiating laminar diffusion flames exposed to decreasing mixing rate conditions representative of fires  
R. Xu¹, V.M. Le², A. Marchand², T. Rogaume², F. Richard²,  
J. Luche², A. Trouvé¹  
¹University of Maryland  
²Institut PPRIME, Poitiers University (UPR 3346 CNRS) |
| 14:40 | 2A10: Effect of vitiation on flow reactor studies of pyrolysis and oxidation of jet fuels: Jet A and JP 10  
C. Thomas Bowman  
Stanford University | 2B10: A second-order dynamic adaptive hybrid scheme for time-integration of stiff chemistry  
Y. Wu, Y. Gao, T. Lu  
University of Connecticut | 2C10: Simulations of the coupling between combustion and radiation in a turbulent line fire using an unsteady flamelet model  
R. Xu¹, V.M. Le², A. Marchand², S. Verma², T. Rogaume²,  
F. Richard², J. Luche², A. Trouvé¹  
¹University of Maryland  
²Institut PPRIME, Poitiers University (UPR 3346 CNRS) |
| 15:00 | 2A11: Irvin Glassman's contributions to our understanding of soot formation  
Robert J. Santoro  
Pennsylvania State University |  |  |
<p>| 15:20 – 15:40 | BREAK |  |  |</p>
<table>
<thead>
<tr>
<th>Time</th>
<th>Session 1</th>
<th>Session 2</th>
<th>Session 3</th>
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</table>
| 15:40 | 2A12: Glassman's criterion  
Richard Yetter  
Pennsylvania State University  | 2B12: Plasma-assisted Dry Methane  
Reforming for syngas production  
H. Pearlman\(^1\), M. Giles\(^1\), C.-H. Chen\(^1\),  
M. Demydovych\(^1\), D. Kiani\(^2\), J. Baltusaitis\(^2\)  
\(^1\)Advanced Cooling Technologies Inc.  
\(^2\)Lehigh University  | 2C12: A data-based hybrid model for complex fuel  
combustion using PCA and ANN  
S. Alqahtani\(^1\), T. Echekki\(^2\)  
\(^1\)North Carolina State University  
\(^2\)King Khalid University  |
| 16:00 | 2A13: From qualitative studies on sooting  
heights of the late ‘70s to quantitative studies on  
soot (inception) in the past decade  
Alessandro Gomez  
Yale University  | 2B13: Computational study of  
oxo-combustion of a two-phase fuel consisting  
of pulverized coal and methane at elevated  
pressure  
G. Udochukwu, A. Pokharel, A.I. Montero,  
V. Akkerman  
West Virginia University  | 2C13: Studies of nonpremixed cool flames  
stabilized by autoignition  
Y. Murakami\(^1\), C.B. Reuter\(^1\), O.R. Yehia\(^1\), Y. Ju\(^1\)  
\(^1\)Princeton University  
\(^2\)Tohoku University  |
| 16:20 | 2A14: Critical properties of synthetic jet fuels  
that ensure combustor operability; Key  
findings of the NJFCP  
Meredith B. Colket  
Retired, United Technologies Research Center  | 2B14: Direct numerical simulation of a  
turbulent premixed flame kernel  
P. Meagher, X. Zhao  
University of Connecticut  | 2C14: Combustion and flame analysis of byproduct  
fuel mixture with high CO\(_2\) dilution from the  
CL-ODH process of ethane to ethylene conversion  
K.N. Vinod, M. Gore, A. Lee, L. Neal, F. Li, T. Fang  
North Carolina State University  |

16:40 – 17:40 **Glassman Academic Tree Event** *(All welcome to attend)* – Ballroom 1  
Hosted by Frederick L. Dryer, University of South Carolina and Paul Papas, United Technologies Research Center

17:45– 18:15 **ESSCI General Member Meeting** *(All welcome to attend)* – Ballroom 1

18:00 – 19:00 Cocktail Hour

19:00 – 22:00 **ESSCI Banquet**
**Wednesday, March 11, 2020**

<table>
<thead>
<tr>
<th>Time</th>
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<th>Location</th>
<th>Chair</th>
<th>Title</th>
<th>Authors</th>
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<tr>
<td>8:20 – 8:30</td>
<td><strong>Announcements</strong> - University of South Carolina Alumni Center – Grand Ballroom</td>
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<tr>
<td>8:30 – 9:30</td>
<td><strong>University of South Carolina Alumni Center</strong> – Grand Ballroom</td>
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<td></td>
<td><strong>Plenary Lecture:</strong> Dr. John Monnier, University of South Carolina</td>
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<td><em>The selective epoxidation of olefins using molecular O₂. An exercise in catalyst design and process control</em></td>
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<td><strong>Session Chair:</strong> Tanvir Farouk, University of South Carolina</td>
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<td>9:30 – 9:40</td>
<td><strong>Transition to Morning Session</strong></td>
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<td>9:40</td>
<td><strong>Heterogenous/Applied Combustion</strong> Ballroom 1</td>
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<td><strong>Session Chair:</strong> J.A. Palmore Jr.</td>
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<td><strong>3A01:</strong> Method to study effect of straining flow on droplet vaporization at low Reynolds number</td>
<td>M. Setiya, J.A. Palmore Jr.</td>
<td>Virginia Tech</td>
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<td>10:00</td>
<td><strong>3A02:</strong> High Stokes number droplets in homogeneous isotropic turbulent flow</td>
<td>C. Miranda, J. Palmore Jr.</td>
<td>Virginia Tech</td>
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<td>10:20</td>
<td><strong>3A03:</strong> Development of high-fidelity numerical models for supercritical CO₂ oxy-combustion</td>
<td>K. Davis¹, D. Wang², A. Chiado³, M. Cremer⁴, S.H. Won⁵, T. Farouk⁶, F. Dryer⁷</td>
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<td>¹Reaction Engineering International ²University of South Carolina</td>
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<td>⁳University of Notre Dame ⁴Worcester Polytechnic Institute ⁵USDA Forest Service ⁶Korea University</td>
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<td>10:40</td>
<td><strong>Adjourn</strong></td>
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<td>12:30 – 14:30</td>
<td><strong>McNair Aerospace Center Lab Tour</strong></td>
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