2024 SPRING TECHNICAL MEETING
EASTERN STATES SECTIONS OF THE COMBUSTION INSTITUTE
University of Georgia
Athens, Georgia
March 10 - 13, 2024

Sunday, March 10, 2024

15:00 – 17:00	**ESSCI Executive Board Meeting -** Old College, North Campus, Room 100
18:00 – 20:00	**Welcome Reception -** Pecan Tree Galleria, Georgia Center

Monday, March 11, 2024

8:00 – 16:00	**Registration -** Masters Hall Atrium
8:00 – 8:20	**Welcome Remarks/Announcements -** Masters Hall

Donald Leo, Dean and UGA Foundation Professor in Engineering, College of Engineering, *University of Georgia*
S. Jack Hu, Senior Vice President for Academic Affairs and Provost, UGA Foundation Distinguished Professor, *University of Georgia*

8:20 – 9:20   **Plenary Lecture –** Masters Hall
Timothy Lieuwen, *Georgia Institute of Technology*
Title: Combustion in a Net Zero World: Outlook and R&D Needs
Session Chair: Wyatt Culler, *Honeywell International Inc.*

9:20 – 9:30 Transfer

	Ammonia Kinetics I Suite TU Session Chair: Z. Wang	Gas Turbine Operability Suite VW Session Chair:	Soot/Aerosols I Suite YZ Session Chair: R. Falkenstein-Smith
9:30	**1A01: 227LFQ-0055 The kinetic coupling effect on the extinction characteristic of NH₃ with n-heptane, iso-octane, and toluene** *M.K. Yoon, F.L. Dryer, S.H. Won*	**1B01: 227ICEQ-0029 Effect of diluents on flame stability in constant flame speed mixtures for piloted, swirl-stabilized flames** *J. Rodriguez Camacho, J. O'Connor*	**1C01: 227RKFQ-0070 Oxygenated organic aerosol formation in low-temperature combustion of *n*-heptane blends** *A.G. Conroy, O. El Hajj, R. Saleh, B. Rotavera*
9:50	**1A02: 227RKFQ-0048 Study of ammonia/methanol oxidation up to 100 atm** *Z. Wang, B. Mei, N. Liu, A. Thawko, X. Mao, P. Glarborg, S.J. Klippenstein, Y. Ju*	**1B02: 227TFQ-0094 Capturing sustainable aviation fuel ignition using empirical manifolds** *N. Kincaid, S. Habibi, P. Pepiot*	**1C02: 227SCAQ-0089 Secondary organic aerosol formation potential of toluene and products of toluene combustion** *A. Anosike, O. El Hajj, C.K. Glenn, S.W. Hartness, A.R. Webb, N.S. Dewey, B. Rotavera, R. Saleh*

	Ammonia Kinetics I Suite TU Session Chair: Z. Wang	Gas Turbine Operability Suite VW Session Chair:	Soot/Aerosols I Suite YZ Session Chair: R. Falkenstein-Smith
10:10	**1A03: 227RKFQ-0107 Closing the gap between kinetics predictions and measurements from NH_3 combustion experiments** *R.E. Cornell, M.J. McQuaid*	**1B03: 227ICEQ-0057 Flashback characterization of additively manufactured swirl-stabilized fuel injector with varying surface roughness** *P. Mohanty, S. Jalui, G. Manogharan, J. O'Connor, Y. Xuan*	**1C03: 227SCAQ-0095 An NSF user facility for measuring soot aerosol** *A.R. Metcalf, J. Henry, D. Wang*
	10:30 – 10:50 Break - Pecan Tree Galleria		
	Ammonia Kinetics II Suite TU Session Chair: Y. Peng	Alternative Gas Turbine Fuels Suite VW Session Chair:	Innovative Experiments Suite YZ Session Chair:
10:50	**1A04: 227RKFQ-0100 Theoretical kinetics for modeling NH_3 oxidation and pyrolysis** *S.J. Klippenstein, R. Sivaramakrishnan, A.W. Jasper, C.R. Mulvihill, P. Glarborg*	**1B04: 227ICEQ-0014 Fuel property impact on flame behavior of sustainable aviation fuels** *D. Dasgupta, S. Som*	**1C04: 227FRQ-0017 Total absorptivity of glass in a non-gray absorbing/emitting N_2/CO_2/H_2O mixture environment** *W.C. Tam, W.W. Yuen*
11:10	**1A05: 227RKFQ-0115 Implementation of new mixture rules in Cantera and implications for H_2 and NH_3 combustion simulations** *P. Singal, J. Lee, L. Lei, R.L. Speth, M.P. Burke*	**1B05: 227ICEQ-0122 Influence of airflow and fuel pressure on swirling JP-8 and diesel flames** *S.K. Das, B. Nawaz, M.N. Nasim, J. Landis, O. Dyakov, N. Van Dam, J.H. Mack*	**1C05: 227FRQ-0030 Estimating fire heat release rate from video data and deep learning techniques** *K. Prasad, M. Bundy, A. Hamins*
11:30	**1A06: 227RKFQ-0124 Prediction of minimum NO_x emission for cracked ammonia combustion** *S. Gubbi, R. Cole, B. Emerson, D. Noble, R. Steele, W. Sun, T. Lieuwen*	**1B06: 227ICEQ-0075 Outlook for renewable liquid fuels in dual-fuel gas turbine combustors** *M. Webb, J. O'Connor, D.R. Noble, R. Steele*	**1C06: 227DIAQ-0111 Implementation of a dielectric-barrier discharge reactor for ammonia generation and NO_x destruction** *J. Landis, V. Veng, Y. Zhang, B. Nawaz, M. Nasim, S.K. Das, J.P. Trelles, J.H. Mack*

11:50 – 13:00   Lunch - Magnolia Ballrooms – Salons 3,4,5
11:50 – 13:00   Mentor/Mentee Event – Magnolia Ballrooms – Salon 3

13:00 – 13:50   ESSCI General Member Meeting – Masters Hall

	Hydrocarbon Kinetics Suite TU Session Chair: P. Pepiot	Detonations & Supersonic Combustion Suite VW Session Chair: J. O'Connor	Flame Speed Suite YZ Session Chair:
14:00	**1A07: 227RKFQ-0012 Probing O_2-dependence of cyclopentyl reactions via isomer-resolved speciation** *A.W. Hill, D.A. Moore, N.S. Dewey, S.W. Hartness, B. Rotavera*	**1B07: 227DSCQ-0036 Acoustic scattering from an array of injectors in annular geometries** *N. Mignano, V. Acharya, T. Lieuwen*	**1C07: 227DIAQ-0093 Detection of flame wrinkling in spherically expanding flames using time series classification with pressure traces** *B. Nawaz, M.N. Nasim, S.K. Das, J.H. Mack*
14:20	**1A08: 227RKFQ-0042 Modeling stereochemical-dependent chemical kinetics of cyclic ethers: *Cis-* and *trans-* isomers of 2,3-dimethyloxirane** *N.S. Dewey, S.N. Elliott, S.J. Klippenstein, B. Rotavera*	**1B08: 227DSCQ-0039 Numerical and theoretical analysis of shock wave interactions with abrupt area changes: Reflection and transmission behavior** *T. Kickliter, V. Acharya, T. Lieuwen*	**1C08: 227LFQ-0026 Measurement of laminar burning speed of propylene, carbon dioxide and air mixtures at a high temperatures** *Z. Lu, H. Metghalchi*
14:40	**1A09: 227RKFQ-0069 Numerical investigation of CO and NO production from premixed hydrogen/methane fuel blends** *S. Singh, H. Rajagopalan, B. Emerson, D. Noble, R. Steele, T. Lieuwen*	**1B09: 227DSCQ-0015 Effect of flameholding cavity geometry on the flowfield characteristics of a solid fuel scramjet** *Y. Prokesch, E. Schlussel1, D. Gallegos, A. Duran, D. May, G. Young*	**1C09: 227LFQ-0043 Propagation rates and chemistry of oxygen-enriched methane flames** *A. Kokernak, J. Mathew, R. Sivaramakrishnan, J. Jayachandran*
15:00	**1A10: 227RKFQ-0072 Direct kinetic measurements of singlet oxygen atom reaction with dimethyl ether** *H. Zhong, Q. Meng, B. Mei, A. Thawko, Z. Wang, Y. Ju*	**1B10: 227DSCQ-0040 Numerical and theoretical analysis of shock wave interactions with abrupt area changes: Flow energetics** *T. Kickliter, V. Acharya, T. Lieuwen*	**1C10: 227LFQ-0134 Laminar burning speed measurements of natural gas/hydrogen mixtures at elevated pressures** *A.F. Safdari, L. Yovino, G. Kim, R.K. Rahman, S. Vasu*

15:20 – 15:40 Break - Pecan Tree Galleria

	Kinetics Methods Suite TU Session Chair: R. West	Flame Blowoff Suite VW Session Chair: M. Webb	Instability & Extinction in Laminar Flames Suite YZ Session Chair: G. Young
15:40	**1A11: 227RKFQ-0102 Theory informed kinetics (ThInK 1.0) model for core combustion species** *R. Sivaramakrishnan, D.H. Bross, M.P. Burke, S.N. Elliot, P. Glarborg, C.F. Goldsmith, N. Hansen, A.W. Jasper, N.J. Labbe, J.A. Miller, C.R. Mulvihill, B. Ruscic, Y. Tao, J. Zádor, S.J. Klippenstein*	**1B11: 227TFQ-0049 Swirl number effects on the blowoff limits of swirl-stabilized flames** *I. Rivera, C. Birkbeck, C. Torres, N. Subasic, J. Rodriguez Camacho, A. Karmarkar, J. O'Connor*	**1C11: 227LFQ-0062 Effect of thermodiffusive instabilities on the formation of N_2O and NO_x in lean partially cracked NH_3-air laminar premixed flames** *S.L. Rzepka, H. Maldonado Colmán, M.E. Mueller*
16:00	**1A12: 227RKFQ-0117 Resolving discrepancies among experimental and theoretical data for the $CH_3 + OH$ Reaction using Multiscale Informatics** *J.M. Pankauski, C.E. LaGrotta, J. Lee, M.P. Burke*	**1B12: 227ICEQ-0081 Effects of ammonia addition on lean blowout of methane flames in a model gas turbine combustor** *A. Shealy, F.L. Dryer, S.H. Won*	**1C12: 227LFQ-0101 Instability growth rates in hydrofluorocarbon/air flames: Analysis of the Rayleigh-Taylor instability** *J.K. Tavares, J. Jayachandran*
16:20	**1A13: 227RKFQ-0125 Constructing an online database for accessible, theory-based, thermodynamic and kinetic properties** *S.N. Elliot, S.J. Klippenstein*	**1B13: 227ICEQ-0053 The effect of centerbody geometry on lean blowoff in a swirl-stabilized flame** *C. Birkbeck, I. Rivera, C. Torres, J. Rodriquez Camacho, J. O'Connor*	**1C13: 227LFQ-0109 Extinction of premixed counterflow ammonia-air flames** *P. Papas, J.F. Stevens, R. Fang, C.-J. Sung, L.L. Smith*
16:40	**1A14: 227RKFQ-0063 Uncertainty quantification and constraint of chemical kinetic mechanisms based on flow reactor experiments** *A.V. Kock, M.K. Yoon, F.L. Dryer, S.H. Won*	**1B14: 227TFQ-0088 Large Eddy Simulation of a turbulent lifted flame using a multi-modal manifold-based combustion model and nonlinear generalized progress variable** *I.J. Bonilla, C.E. Lacey, M.E. Mueller*	**1C14: 227LFQ-0128 Extinction limits of formaldehyde-rich counterflow diffusion flames supplied by dissolved trioxane** *G. Vosgerichian, M.K. Yoon, G. Capellades, S.H. Won, F.M. Haas*

17:00 – 17:20 Break - Pecan Tree Galleria

	Low-Temperature Chemistry Suite TU Session Chair: M.P. Burke	Battery Fires Suite VW Session Chair: P. Westmoreland	Soot/Aerosols II Suite YZ Session Chair: H. Maldonado Colmán
17:20	**1A15: 227LFQ-0083 New pressure-dependent correlation for the heat release rate of non-premixed cool flame** *A. Thawko, T. Akiba, Z. Wang, B. Mei, Y. Ju*	**1B15: 227FRQ-0018 Uncertainty quantification in lithium-ion battery thermal runaway modelling** *B.C. Koenig, H. Chen, Q. Li, P. Zhao, S. Deng*	**1C15: 227SCAQ-0076 Low-temperature combustion emits primary organic aerosol resembling secondary organic aerosol** *O. El Hajj, S.W. Hartness, G.W. Vandergrift, Y. Park, C.K. Glenn, A. Anosike, A.R. Webb, N.S. Dewey, A.C. Doner, Z. Cheng, G.S. Jatana, M. Moses-DeBusk, S. China, B. Rotavera, R. Saleh*

	Low-Temperature Chemistry Suite TU Session Chair: M.P. Burke	Battery Fires Suite VW Session Chair: P. Westmoreland	Soot/Aerosols II Suite YZ Session Chair: H. Maldonado Colmán
17:40	**1A16: 227RKFQ-0019 Low-temperature ignition and oxidation mechanisms of tetrahydropyran** *S.W. Hartness, M. Saab, M. Preußker, R. Mazzotta, N.S. Dewey, A.W. Hill, G. Vanhove, Y. Fenard, K. Alexander Heufer, B. Rotavera*	**1B16: 227FRQ-0112 Mathematical modeling of heat-induced decomposition kinetics leading to thermal runaway in lithium-ion batteries** *S. Khan, M. Hasnain, J. Casa, A.O. Said, V. Akkerman, M.K. Selvaraj, A. Simeoni, H. Sezer*	**1C16: 227SCAQ-0099 A photoacoustic technique for measuring soot deposition on surfaces** *A. Mensch, R. Falkenstein-Smith*
18:00	**1A17: 227LFQ-0119 Experimental investigation of slowly propagating flames in microgravity** *J. Mathew, J. Jayachandran*	**1B17: 227FSNQ-0113 Electrical characteristics of particle laden flames** *A. Jerome, A. Saveliev*	**1C17: 227FRQ-0090 Estimations of photophoresis and thermophoresis impacts on soot particle velocity** *E.M. Veley, A.E. Mensch, R. Falkenstein-Smith, T.G. Cleary*

18:45 – 19:30	**Dinner** – Magnolia Ballrooms – Salons 4,5
19:30 – 21:00	**Industry Panel -** Masters Hall

8:00 – 16:00	**Registration -** Masters Hall Atrium
7:55 – 8:00	**Announcements -** Masters Hall
8:00 – 9:00	**Plenary Lecture –** Masters Hall Jillian Goldfarb, *Cornell University* **Title:** Wanted: Fugitive Carbon. Holistic Valorization Pathways for the Integrated Biorefiner **Session Chair:** TBD, *Affiliation*

9:00 – 9:10 Transition to Morning Sessions

	Wildland Fire **Suite TU** **Session Chair:**	**Gas Turbine Heat Transfer** **Suite VW** **Session Chair:**	**Chemical Modeling** **Suite YZ** **Session Chair: R. Sivaramakrishnan**
9:10	**2A01: 227FRQ-0051 Analyzing the ignition capabilities of glowing firebrand accumulations** *L. Zhu, J.L Urban*	**2B01: 227ICEQ-0038 Experimental design for testing the total heat flux through high-temperature components in high-hydrogen combustion environments** *P. Richins, C. Surrency, J. O'Connor, S. Lynch*	**2C01: 227RKFQ-0129 Targeting the HNNO pathway to NO_x formation with jet-stirred reactor experiments selected by optimal experimental design** *J. Lee, M.C. Barbet, M.P. Burke*
9:30	**2A02: 227FRQ-0064 Flammability of ornamental vegetation under convective heating** *J. Valdivia, X. Xi, A. Simeoni, J. Urban*	**2B02: 227ICEQ-0071 Effect of centerbody temperature on blowoff limits of a swirl-stabilized flame** *C. Clark, C. Torres Hernandez, S. Markle, J. Colborn, J. O'Connor*	**2C02: 227HCSQ-0021 Modeling chemical kinetics and combustion properties from constant-volume combustion of energetic materials** *S. Kim, S. Deng*
9:50	**2A03: 227FRQ-0077 Towards parcel-scale WUI fire modelling: Morphology and bulk density estimation of ornamental vegetation** *X. Xi, J. Valdivia, A. Simeoni, J. Urban*	**2B03: 227ICEQ-0087 Effect of inlet boundary layer development and fluctuations on reacting flow in a backward-facing step combustor at varying Re numbers** *N. Tricard, B. Bojko*	**2C03: 227RKFQ-0079 Computationally efficient boundary-layer code for incinerator modeling with detailed PFOA chemistry** *G. Kogekar, C.F. Goldsmith*
10:10	**2A04: 227CDRQ-0123 Mathematical model for predicting injuries and temperature distributions in stem exposed to fire** *M.U. Khan, M. Hasnain, S. Khan, A. Simeoni, R. Ziazi, H. Sezer*	**2B04: 227ICEQ-0056 Impact of flame-wall interactions on combustor liner heat flux** *J. Colborn, J. O'Connor*	**2C04: 227RKFQ-0096 Reactive molecular dynamics simulation of high-pressure ignition under rocket engine conditions** *J.H. Martin, B. Akih-Kumgeh*

	10:30 – 10:50 Break - Pecan Tree Galleria		
	Biomass Combustion **Suite TU** **Session Chair: L. Wang**	**Ammonia Combustors** **Suite VW** **Session Chair:**	**Combustion Diagnostics** **Suite YZ** **Session Chair: R. Vishwanath**
10:50	**2A05: 227HCSQ-0020 Combustion of solid biofuels from hydrothermal carbonization of food waste** *M. Pecchi, P. Motiei, J.L. Adair, J. O'Connor, J.L. Goldfarb*	**2B05: 227ICEQ-0068 Minimizing reactive nitrogen emissions in ammonia combustion: A novel rush-to-equilibrium concept** *H. Maldonado Colmán, M.E. Mueller*	**2C05: 227DIAQ-0060 Diode laser absorption sensor near 2.2 μm for NH_3 detection in a shock tube** *Y. Peng, W. Sun*
11:10	**2A06: 227HCSQ-0033 Ignition characteristics of cellulose hydrochar using in-situ diagnostics** *P. Motiei, M. Pecchi, J.L. Adair, J.L. Goldfarb, J. O'Connor*	**2B06: 227NETQ-0045 NH/NH2 laser-induced fluorescence measurements in plasma-assisted ammonia swirling flames** *H. Tang, S. Gubbi, W. Sun*	**2C06: 227DIAQ-0037 Reaction zone visualization of an ethylene-air flame in a dual-mode scramjet using CH C-X PLIF** *A.J. Metro, R.D. Rockwell, A.D. Cutler, C.E. Dedic*
11:30	**2A07: 227CDRQ-0027 Rebuilding 3-D temperature field in industrial-sized biomass furnace by machine learning-based surrogate modelling** *L. Wang, S. Deng*	**2B07: 227RKFQ-0028 Rich ammonia flame shapes and NO relaxation: Facility development and characterization** *R. Cole, H. Rajagopalan, S. Gubbi, D. Wu, B. Emerson, D.R. Noble, R. Steele, W. Sun, T. Lieuwen*	**2C07: 227DIAQ-0086 CARS spectral fitting using a gradient descent optimization algorithm and spectral library interpolation** *O.T. Petito, C.E. Dedic, A.D. Cutler*
11:50 – 13:00	Lunch - Magnolia Ballrooms – Salons 3,4,5		
13:00 – 14:00	**Irv Glassman Young Investigator Lecture:** Sili Deng, *Massachusetts Institute of Technology* **Title:** Advancing Kinetic Modeling with Scientific Machine Learning **Session Chair:** TBD, *Affiliation*		
	14:00 – 14:10 Transition to Afternoon Sessions		

	Hydrocarbon Fires Suite TU Session Chair:	PFAS Kinetics Suite VW Session Chair: C.-J. Sung	Propellant Combustion Suite YZ Session Chair:
14:10	**2A08: 227FRQ-0106 Measurements of burning behavior and fire properties of diesel, canola oil, and diesel/canola oil blends using the Cone Calorimeter** *W. Gong, M.K. Selvaraj, A. Simeoni*	**2B08: 227RKFQ-0120 Computational insight into the degradation pathways for transforming perfluorobutane sulfonic acid to perfluorobutanoic acid** *S. Sharma, C. Rocchio, C.F. Goldsmith*	**2C08: 227HCSQ-0013 Ignition study of hypergolic solid fuels through counterflow experiment using hydrogen peroxide spray** *W.-C. Lin, G. Young*
14:30	**2A09: 227FRQ-0110 Examining the structure of propane fires in a vitiated environment** *R. Falkenstein-Smith, T. Cleary*	**2B09: 227RKFQ-0136 Comprehensive gas-phase kinetics model and mechanism for incineration of C_2 to C_8 perfluorinated carboxylic acids** *C.C. Murphy, H. Ram, T.P. Sadej, T.J. Mallo, P.R. Westmoreland*	**2C09: 227HCSQ-0022 Inert additive scaling effects on flame propagation in nanothermites** *G. Tsai, S. Kim, S. Deng*
14:50	**2A10: 227FRQ-0130 Experimental and numerical investigation of canola oil-diesel pool fire** *N. Muniraj, W. Gong, M.K. Selvaraj, A. Simeoni*	**2B10: 227RKFQ-0108 Impact of low-temperature oxidation pathways on the thermal decomposition of PFAS at incinerator conditions** *R.E. Cornell, M.J. McQuaid*	**2C10: 227HCSQ-0082 Active burning rate control of solid propellant via RF frequency hysteresis heating of magnetic nanoparticles** *D.J. Ramirez, K. Walz, M. Zhao, E. Boyer, Q. Wang, R. Yetter*
15:10	**2A11: 227FRQ-0127 Numerical modeling of spontaneous ignition in large coal stockpiles using finite volume method** *A. Idris, S. Khan, M. Hasnain, M.K. Selvaraj, A. Simeoni, H. Sezer*	**2B11: 227RKFQ-0035 Computational thermochemistry for gas-phase thermal oxidation of PFAS components of AFFF** *H. Ram, T.P. Sadej, C.C. Murphy, T.J. Mallo, P.R. Westmoreland*	**2C11: 227HCSQ-0092 Simulating HTPB pyrolysis and combustion in an opposed-flow burner with detailed kinetics in a quasi-one-dimensional model** *C.P. Stone, C.-C. Chen, R. Cornell, M.J. Mcquaid*
15:30 – 15:50 Break - Pecan Tree Galleria			

	Fire Fundamentals Suite TU Session Chair: P. Motiei	Complex Kinetics Suite VW Session Chair:	Turbulent Flames Suite YZ Session Chair:
15:50	**2A12: 227FRQ-0024 Horizontal concurrent flame spread response to non-steady airflow** *P. Pinto, A. Miska, X. Xi, J.L. Urban*	**2B12: 227RKFQ-0066 Computational investigation of the reaction mechanism for the thermal treatment of Hexafluoropropylene Oxide Dimer Acid (HFPO-DA) [GenX]** *C. Rocchio, C.F. Goldsmith*	**2C12: 227TFQ-0061 Large-scale turbulence effects on turbulent premixed planar flames** *K. VanderKam, M.E. Mueller*
16:10	**2A13: 227FRQ-0025 Downward opposed flame spread response to non-steady airflow** *A. Miska, P. Pinto, X. Xi, J. Urban*	**2B13: 227RKFQ-0073 Construction of a chemical kinetic mechanism for a difluoromethane/propane system and extension of the database in reaction mechanism generator** *N. Khalil, E.H. Guzman, C.F. Goldsmith, R.H. West*	**2C13: 227TFQ-0065 Data assimilation for reacting flows: Deep learning PDE models to augment turbulent combustion simulations** *P.R. Kakka, J.F. MacArt*
16:30	**2A14: 227FRQ-0074 Three-dimensional mathematical modeling of heat and mass transfer during calcination of gypsum board exposed to fire** *M. Hasnain, R. Paye, T. Borth, G.E. Gorbett, S.P. Kozhumal, H. Sezer*	**2B14: 227RKFQ-0103 Probing mechanisms of polymer pyrolysis in polyoxymethylene homopolymer and copolymer** *A. Dumas, T.J. Mallo, P.R. Westmoreland*	**2C14: 227TFQ-0067 Manifold-based modeling of supersonic turbulent combustion: Accounting for compressibility effects** *J.B. Boerchers, H. Sitaraman, M.E. Mueller*
16:50	**2A15: 227FRQ-0044 Toxicant measurements from well-ventilated fires in reduced-scaled compartments** *R. Harter, I. Sanders, X. Xi, N. Kuenning, J.L. Urban, R.M. Spearrin*	**2B15: 227RKFQ-0118 Toward molecular mechanisms of poly(methyl methacrylate) pyrolysis** *T.J. Mallo, A. Dumas, P.R. Westmoreland*	**2C15: 227TFQ-0098 DNS and manifold-based modeling for argon power cycles** *D.A. Quan Reyes, D. Roekaerts, M.E. Mueller, J. van Oijen*
17:10	**2A16: OUT-01 Quantifying firebrand generation from Douglas Fir: An intermediate-scale wind tunnel analysis with probabilistic modeling for wildfire spread prediction** *F. Ebensperger, A. Simeoni*		**2C16: 227ICEQ-0005 Flexi-alcohol and advance RCCI combustion strategy to control NOx formation** *V. Sharma, J.J. Thomas, G. Nagarajan, D. Ganesh*
18:30 – 21:00 Banquet - State Botanical Gardens of Georgia, Conservatory Room			

Wednesday, March 13, 2024

7:55 – 8:00   **Announcements -** Masters Hall

8:00 – 9:00   **Plenary Lecture –** Masters Hall
Sibendu Som, *Argonne National Laboratory*
Title: Accelerating Decarbonization of Transportation and Power Generation Sectors: Leveraging Leadership Computing & High-Fidelity Experiments
Session Chair: Sili Deng, *Massachusetts Institute of Technology*

9:00 – 9:10 Transition to Morning Session

	Computational Kinetic Techniques Suite TU Session Chair: K. Prasad	Heterogeneous Combustion Suite VW Session Chair: Y. Shi	IC Engines Suite YZ Session Chair: J.H. Mack
9:10	**3A01: 227CDRQ-0031 Radical stereochemistry: Accounting for diastereomers in kinetic mechanism development** *A.V. Copan, K.B. Moore III, S.N. Elliott, C.R. Mulvihill, L. Pratali Maffei, S.J. Klippenstein*	**3B01: 227NETQ-0132 Large eddy simulation of particle dispersion and clustering analysis in a pressurized reactive fluid-particle system** *L. Li, V. Akkerman, D. Magalhaes, R.L. Axelbaum*	**3C01: 227ICEQ-0023 An experimental investigation on the combustion process of a direct injection heavy-duty diesel engine** *A. Kutkut, J. Kim, H. Li*
9:30	**3A02: 227CDRQ-0059 Application of variational transition state theory, towards accurate calculations of combustion reactions** *Y. Kim, C.F. Goldsmith*	**3B02: 227NETQ-0135 Large eddy simulation of a pressurized reactive fluid–particle system: Analysis of single-particle dynamics** *L. Li, V. Akkerman, D. Magalhaes, M. Cheng, R.L. Axelbaum*	**3C02: 227ICEQ-0003 Development of a quasi-dimension GCI combustion model guided by CFD** *J. Kim, H. Sun, A. Kutkut, H. Li*
9:50	**3A03: 227CDRQ-0084 Gradient-based fast Bayesian experimental design for kinetic uncertainty reduction** *H. Chen, Q. Li, S. Deng*	**3B03: 227HCSQ-0133 High-speed imaging of particle jetting in solid-state combustion** *S. Kesharwani, J. Goodenough, R.G. Blair, S.S. Vasu*	**3C03: 227ICEQ-0116 The dark side of hydrogen combustion in reciprocating engine** *A. Thawko, B.B.B.D. Holtzer, L. Tartakovsky*
10:10	**3A04: 227CDRQ-0078 Machine learning driven prediction of key physical properties of real fuels using NMR spectra data** *M. Burnett, F.L. Dryer, S.H. Won*	**3B04: 227HCSQ-0126 Combustion of slurry droplets of magnesium hydride and *n*-dodecane** *R. Brunelle, J. Jayachandran*	

10:30 – 10:50 Break - Pecan Tree Galleria

	Neural Networks Suite TU Session Chair: J.F. MacArt	Computational Techniques for Realistic Systems Suite VW Session Chair: S.H. Won	DDT Suite YZ Session Chair: J. Jayachandran
10:50	**3A05: 227CDRQ-0041 Physics informed neural networks with elemental and energy conservation for combustion kinetics calculations** *A. Almeldein, N. Van Dam*	**3B05: 227CDRQ-0016 Computational fluid dynamics modeling of jet-stirred reactors** *J.F. DeJongh, B. Rotavera*	**3C05: 227DSCQ-0114 Numerical modeling of plasma assisted deflagration to detonation transition in a microscale channel** *Z. Shi, X. Mao, A. Thawko, Y. Ju*
11:10	**3A06: 227CDRQ-0047 Modeling 1D premixed hydrogen blended flames using Physics Informed Neural Networks (PINNs)** *S. Stoknes, H.P. Rajagopalan, V. Acharya, T. Lieuwen*	**3B06: 227HCSQ-0002 Predicting hydrogen output through gasification via interpretable machine learning** *Y. Shi, D.M. Yepes Maya*	**3C06: 227DSCQ-0104 Ignition-shock coupling via ignition kinetic enhancement in deflagration to detonation transition of dimethyl ether mixture** *A. Thawko, Z. Wang, B. Mei, Z. Shi, Y. Ju*
11:30	**3A07: 227CDRQ-0105 Neural network coupled binary trees for reducing memory requirements of in-situ adaptive manifolds** *S.T. Fush, I.J. Bonilla, M.E. Mueller*	**3B07: 227CDRQ-0085 Autonomous identification of heat release rate markers using integer optimization** *E.R. Madriz, V. Pannell, H. Chen, S. Deng*	**3C07: 227DSCQ-0050 Theoratical analysis of detonation for Majda's model with more general ignition function** *Y. Sun*

11:50 – **Adjourn**

And mark your calendars now for the:

14th United States National Combustion Meeting
16 to 19 March 2025
Boston, Massachusetts