Michael P. Burke

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PROFESSIONAL EXPERIENCE

Columbia University New York, NY
2020 – present
Associate Professor of Mechanical Engineering
Affiliated Associate Professor of Chemical Engineering
Affiliated Member of the Data Science Institute

2014 – 2020
Assistant Professor of Mechanical Engineering
Affiliated Assistant Professor of Chemical Engineering
Affiliated Member of the Data Science Institute

Argonne National Laboratory Argonne, IL
2011 – 2014
Director's Postdoctoral Fellow/Argonne Scholar

Princeton University Princeton, NJ
2005 – 2011
Research Assistant/Wallace Memorial Honorific Fellow

The Pennsylvania State University University Park, PA
2004 – 2005
Research Assistant

EDUCATION AND TRAINING

Argonne National Laboratory Argonne, IL
2011 – 2014
Director's Postdoctoral Fellow/Argonne Scholar
- Sponsor: Stephen J. Klippenstein
- Chemical Sciences and Engineering Division

Princeton University Princeton, NJ
2005 – 2011
Ph.D. in Mechanical and Aerospace Engineering
- Advisors: Frederick L. Dryer and Yiguang Ju
- Major: Combustion and Energy Conversion; Minors: Fluid Mechanics and Mathematics
- Thesis: Experiments and Kinetic Modeling of High-Pressure Hydrogen/Oxygen Flames (with Carbon Monoxide, Carbon Dioxide, and Methane Addition)

The Pennsylvania State University University Park, PA
2001 – 2005
B.S. in Mechanical Engineering with Highest Distinction
- Advisor: Richard A. Yetter
- Schreyer Honors College

AWARDS AND RECOGNITIONS

- Invited Headline Speaker for the Faraday Discussion on Unimolecular Reactions in Oxford, UK (2022)
- Hiroshi Tsuji Early Career Researcher Award from the Combustion Institute (2021)[⊥]
- National Science Foundation CAREER Award (2020)
- Research Excellence Award from the Combustion Institute (2020)[‡]
- Article highlighted in the "News and Views" section of Nature Chemistry (2017)
- Invitee and Travel Scholarship Recipient for the International Bunsen Discussion Meeting on Chemistry and Diagnostics for Clean Combustion in Bielefeld, Germany (2017)[∓]
- Doctoral New Investigator Award from the American Chemical Society Petroleum Research Fund (2015)
- Article invited for virtual issue in International Journal of Chemical Kinetics on Scientific Frontiers in Chemical Kinetics of Complex Systems (2015)
- Article selected for virtual issue in Journal of Physical Chemistry A on Developments in Theoretical Chemistry (September 2013)
- Director's Postdoctoral Fellowship at Argonne National Laboratory (2011 – 2013)[§]
- Feature Article in Combustion and Flame (2010)[†]
- Wallace Memorial Honorific Fellowship (2009 – 2010)
- Best Presentation Award in Combustion Science and Technology at the 2nd International Forum on Multidisciplinary Education & Research for Energy Science (2009)
- Princeton Energy and Climate Scholars Fellowship (2008 – 2010)
- Distinguished Paper Award in Detonations, Explosions and Supersonic Combustion at the 31st International Symposium on Combustion (August 2006)
- Three Thompson Reuters ESI Highly Cited Papers[⁑]

[⊥] Awarded by the main scientific organization for combustion science recognizing "up to two early career researchers who have demonstrated excellence in fundamental or applied combustion science and have achieved a significant advancement in their field within four to ten years of completing a doctoral degree"
[‡] Awarded by the main scientific organization for combustion science to researchers who "have published excellent research papers that have had a major impact on the field of combustion science"
[∓] One of four assistant professors selected as "future U.S. leaders in the field"
[§] Highly competitive award on the basis of the candidate's qualifications and an independent research proposal; eight are awarded across the laboratory each year
[†] One of four feature articles in that year
[⁑] In the top 1% of its academic field

UNIVERSITY SERVICE

Columbia University New York, NY

- Director of Graduate Studies, Department of Mechanical Engineering (Fall 2025 – present)
- Chair of M.S. Concentration in Energy Systems, Department of Mechanical Engineering (Fall 2023; Fall 2024 – present)
- Committee on Instruction, School of Engineering and Applied Science (Fall 2023)
- Department Chair Elections Committee, Department of Mechanical Engineering (Spring 2020, Spring 2021)
- Graduate Committee, Department of Mechanical Engineering (Fall 2014 – present)
- Seminar Coordinator, Department of Mechanical Engineering (Fall 2014 – Spring 2015; Fall 2020 – Spring 2023)
- Shared Research Computing Advisory Committee (SRCPAC) (Fall 2014 – present)

PROFESSIONAL SERVICE

Board Membership

- Secretary/Executive Board, United States Sections of the Combustion Institute (March 2025 – Present)
- Editorial Board, Combustion and Flame (January 2025 – Present)
- Hiroshi Tsuji Early Career Researcher Award Committee (October 2023 – Present)
- Board of Directors, United States Sections of the Combustion Institute (March 2023 – Present)
- Chair of Awards Committee, Eastern States Section of the Combustion Institute (March 2020 – Present)
- Executive Board, Eastern States Section of the Combustion Institute (March 2018 – Present)

- Advisory Board, Cantera: An Object-Oriented Software Toolkit for Chemical Kinetics, Thermodynamics, and Transport Processes (March 2019 – March 2024)

Program Committee Membership
- Colloquium Co-Chair, Gas-Phase Reaction Kinetics, 38th International Symposium on Combustion (2019-2020)

Journal Reviewing
- Progress in Energy and Combustion Science
- Proceedings of the Combustion Institute
- Combustion and Flame
- Combustion Science and Technology
- Combustion Theory and Modelling
- Energy and Fuels
- Fuel
- Journal of Engineering for Gas Turbines and Power
- Proceedings of the ASME Turbo Expo
- Journal of Propulsion and Power
- Chemical Engineering Journal
- International Journal of Chemical Kinetics
- International Journal of Quantum Chemistry
- Journal of Physical Chemistry A
- Journal of Physical Chemistry Letters
- JACS Au
- ACS Earth and Space Chemistry
- Journal of the American Chemical Society
- Nature Chemistry

Proposal and Grant Reviewing
- Air Force Office of Scientific Research, Molecular Dynamics and Theoretical Chemistry Program
- American Chemical Society, Doctoral New Investigator Program
- American Chemical Society, New Directions Program
- Department of Energy, Basic Energy Sciences, Gas Phase Chemical Physics Program
- Department of Energy, Basic Energy Sciences, Catalysis Science Program
- National Science Foundation, Combustion and Fire Systems Program
- National Science Foundation, Computational and Data-Enabled Science and Engineering Program
- Office of Naval Research, Multi-University Research Initiative

Conference/Workshop Organization
- Co-Organizer, Mini-Symposium on New Techniques in Computational Kinetics, 17th International Conference on Numerical Combustion, Aachen, Germany (May 2019)
- Co-Organizer and Discussion Lead, 2019 Combustion Early Career Investigator Workshop, Pasadena, California (Sponsored by NSF, March 2019)
- Co-Founder and Co-Organizer, Workshop on Building a Sustainable Combustion Research Community, College Park, Maryland (Sponsored by NSF, April 2017)

Invited Workshop Participation
- Participant/Scholarship Recipient, International Bunsen Discussion Meeting Chemistry and Diagnostics for Clean Combustion, Bielefeld, Germany (June 2017)
- Participant/Workshop Report Co-Author, Workshop on Data Science, Cincinnati, Ohio (Sponsored by NSF, May 2015)
- Participant/Action-Plan Report Co-Author, Combustion Cyberinfrastructure Action-Plan Workshop (Sponsored by NSF, December 2011)
- Participant/Scholarship Recipient, 2nd Princeton-China Forum on Energy, Environment and Economic Policy Research, Shanghai, China (November 2009)

Session Chairing
- 2024 Eastern States Section Meeting of the Combustion Institute, Athens, Georgia (March 2024)
- 39th International Symposium on Combustion, Vancouver, Canada (July 2022)

- 2022 Eastern States Section Meeting of the Combustion Institute, Orlando, Florida (March 2022)
- 12th U.S. National Combustion Meeting, College Station, Texas, California (virtual) (May 2021)
- 38th International Symposium on Combustion, Adelaide, Australia (virtual) (January 2021)
- 2020 Eastern States Section Meeting of the Combustion Institute, Columbia, South Carolina (March 2020)
- 39th DOE-BES Gas Phase Chemical Physics Research PI Meeting, Gaithersburg, Maryland (May 2019)
- 11th U.S. National Combustion Meeting, Pasadena, California (March 2019)
- 37th International Symposium on Combustion, Dublin, Ireland (July 2018)
- 2018 Eastern States Section Meeting of the Combustion Institute, State College, Pennsylvania (March 2018)
- 10th International Conference on Chemical Kinetics, Chicago, Illinois (May 2017)
- 10th U.S. National Combustion Meeting, College Park, Maryland (April 2017)
- 2016 Eastern States Section Meeting of the Combustion Institute, Princeton, New Jersey (March 2016)
- 9th U.S. National Combustion Meeting, Cincinnati, Ohio (May 2015)
- 49th AIAA Aerospace Sciences Meeting and Exhibit, Orlando, Florida (January 2011)
- 2nd International Forum on Multidisciplinary Education & Research for Energy Science, Okinawa, Japan (December 2009)

K-12 Outreach

- Student Advisor, Engineering the Next Generation Program, Columbia University (2024)
- Student Advisor, Engineering the Next Generation Program, Columbia University (2023)
- Student Advisor, Engineering the Next Generation Program, Columbia University (2022)
- Student Advisor, Engineering the Next Generation Program, Columbia University (2021)
- Lab Tour Host, Inside Engineering Program, Columbia University (2018)
- Lab Tour Host, Inside Engineering Program, Columbia University (2016)
- Judge, Mercer County Science and Engineering Fair (2008, 2009)

TEACHING AND MENTORING

Columbia University New York, NY

Teaching

- Fall 2025: MECH 4320: Intro to Combustion (Enrollment: 16)
- Spring 2025: MECE 3311: Heat Transfer (Enrollment: 84)
- Fall 2024: MECH 4320: Intro to Combustion (Enrollment: 14)
- Fall 2023: MECH 4320: Intro to Combustion (Enrollment: 13)
- Fall 2022: MECH 4320: Intro to Combustion (Enrollment: 26)
- Spring 2022: MECE 3311: Heat Transfer (Enrollment: 86)
- Fall 2021: MECH 4320: Intro to Combustion (Enrollment: 27)
- Spring 2021: MECE 3311: Heat Transfer (Enrollment: 61)
- Fall 2020: MECH 4320: Intro to Combustion (Enrollment: 14)
- Spring 2020: MECE 3311: Heat Transfer (Enrollment: 51)
- Spring 2020: MECE 4302: Advanced Thermodynamics (Enrollment: 19)
- Fall 2019: MECH 4320: Intro to Combustion (Enrollment: 10)
- Fall 2018: MECH 4320: Intro to Combustion (Enrollment: 7)
- Spring 2018: MECE 6320: Multiscale Phenomena in Gases (Enrollment: 5)
- Spring 2018: MECE 4302: Advanced Thermodynamics (Enrollment: 7)
- Fall 2017: MECH 4320: Intro to Combustion (Enrollment: 12)
- Spring 2016: MECE 4302: Advanced Thermodynamics (Enrollment: 19)
- Fall 2016: MECH 4320: Intro to Combustion (Enrollment: 12)
- Fall 2015: MECH 4320: Intro to Combustion (Enrollment: 12)
- Fall 2014: MECE 4320: Intro to Combustion (Enrollment: 15)

Postdoctoral fellow advising

- Qinghui Meng, Mechanical Engineering (December 2020 – December 2022)

Doctoral student advising (as a thesis sponsor)

- Ella Kane, Mechanical Engineering (September 2023 – present)
- Patrick Singal, Mechanical Engineering (September 2022 – present), 2024 Charles P. Fenimore Best Student Presentation Award from the Eastern States Section of the Combustion Institute

- Jonathan Pankauski, Mechanical Engineering (June 2022 – present)
- Joseph Lee, Mechanical Engineering (September 2020 – present)
- Mark Barbet, Mechanical Engineering (September 2016 – May 2023)
- Carly LaGrotta, Mechanical Engineering (January 2017 – February 2023)
- Rodger Cornell, Mechanical Engineering (September 2017 – June 2022), DoD SMART fellow
- Lei Lei, Mechanical Engineering (September 2017 – June 2021)

Masters student advising
- Benjamin Harari, Mechanical Engineering (January 2025 – present)
- Avery Rambur, Mechanical Engineering (September 2024 – May 2025), DoD SMART fellow
- Jonathan Tager, Mechanical Engineering (January 2023 – May 2024)
- Jesse Qing Ji, Mechanical Engineering (September 2023 – December 2023)
- Benjamin David Schutsky, Mechanical Engineering (January 2022 – May 2022)
- Jonah Schaechter-Santander, Mechanical Engineering (January 2022 – May 2022)
- Christopher Sabaitis, Mechanical Engineering (September 2021 – May 2022)
- Justin Gomes, Mechanical Engineering (December 2017 – May 2019)
- Ian Kowalok, Mechanical Engineering (May 2018 – August 2018)
- Lei Lei, Mechanical Engineering (January 2016 – May 2017)
- Robert Grado, Mechanical Engineering (January 2016 – May 2017)
- Juan Antonio Rehnfeldt, Mechanical Engineering (June 2016 – December 2016)
- Kevin McCullough, Mechanical Engineering (September 2015 – September 2016)
- Nicholas DeLuca, Mechanical Engineering (January 2015 – January 2016)
- Ruobing Song, Chemical Engineering (October 2014 – May 2016)

Undergraduate student advising
- William Andrew Sadler, Mechanical Engineering (September 2025 – present)
- Defne Ciliz, Mechanical Engineering (June 2025 – present)
- Cole Ames, Mechanical Engineering (January 2025 – May 2025)
- Avery Rambur, Mechanical Engineering (January 2024 – May 2024)
- Talha Ozemre, Mechanical Engineering (January 2022 – May 2022)
- Jonathan Pankauski, Chemical Engineering (January 2021 – May 2022)
- Daniel Lee, Computer Science (June 2019 – August 2019, June 2020 – August 2020)
- Garrison Grogan, Computer Science (May 2018 – August 2018)
- Laurel Quiñones, Mechanical Engineering (September 2017 – May 2018)
- Anthony Limani, Mechanical Engineering (June 2016 – May 2017)
- Zhaoxin (Josh) Hu, Mechanical Engineering (September 2015 – May 2016)
- David Littlejohn-Carrillo, Mechanical Engineering (January 2015 – May 2015)

Doctoral thesis committees (as a reader and/or chair)
- Hassan Alkhalifah, Mechanical Engineering (in progress)
- Yurui Chen, Mechanical Engineering (in progress)
- Benedikt Ursprung, Mechanical Engineering (April 2025)
- Xin Meng, Mechanical Engineering (May 2024)
- Rebecca Trojanowski, Earth & Environmental Engineering (July 2023)
- Ibrahim Ali Al Aali, Mechanical Engineering (September 2022)
- Terrence Conlon, Mechanical Engineering (June 2022)
- Changhwan Lee, Mechanical Engineering (January 2022)
- Jay Shim, Mechanical Engineering (April 2021, Chair)
- Arvind Srinivasan, Mechanical Engineering (September 2020)
- Richa Batra, Mechanical Engineering (June 2019)
- Siyuan Chen, Mechanical Engineering (June 2019, Chair)
- Braden Czapla, Mechanical Engineering (December 2018)
- Shengxi Yuan, Mechanical Engineering (December 2018)
- Yuan Jia, Mechanical Engineering (December 2017)
- Ryan Sweeney, Applied Physics and Applied Mathematics (October 2016)
- Adam Hurst, Mechanical Engineering (June 2015)

PEER-REVIEWED JOURNAL AND BOOK PUBLICATIONS

Underlines indicate Burke Group members, asterisks indicate corresponding author, and symbols indicate the following:

- ⊥ Article invited for a special issue on "Combustion in a Sustainable World: From Molecules to Processes"
- ┼ Article invited for a special issue on "Unimolecular Reactions"
- ♯ Article invited for a special issue on "Circular Fuels"
- ⁑ Article invited for a special issue on "Fundamentals of Biomass & Biofuel Combustion"
- ⊤ Article highlighted in "News and Views" for the issue
- ⊼ Article invited for virtual issue on "Scientific Frontiers in Chemical Kinetics for Complex Systems"
- § Article selected for virtual issue on "Developments in Theoretical Chemistry"
- † Feature Article
- ‡ Distinguished Paper Award in "Detonations, Explosions and Supersonic Combustion"
- ◊ Thompson Reuters ESI Highly Cited Paper

48. E.C. Kane, P.J. Singal, J. Lee, A.V. Copan, M.P. Burke*, "Current Gaps in Pressure-Dependent Chemistry Impact Engine-Relevant Ammonia Combustion Behavior," *Combustion and Flame* (2025) in press.
47. S.J. Klippenstein, R. Sivaramakrishnan*, D.H. Bross, M.P. Burke, S.N. Elliott, P. Glarborg, C.F. Goldsmith, N. Hansen, A.W. Jasper, N.J. Labbe, C.R. Mulvihill, B. Ruscic, Y. Tao, J. Zádor, J.A. Miller, "Theoretically Informed Kinetics (ThInK): Establishing a Modern C_0-C_3 Mechanism for Combustion Modeling," *Combustion and Flame* 282 (2025) 114501.
46. E.C. Kane, J. Lee, J.M. Pankauski, R.E. Cornell, M.P. Burke*, "Unraveling Discrepancies among Theoretical and Experimental Data for $NH_2 + CH_4 = NH_3 + CH_3$," *Proceedings of the Combustion Institute* 41 (2025) 105809.
45. M.K. Yoon, F.L. Dryer, M.P. Burke, S.H. Won*, "Kinetic Coupling Effects on the Extinction Characteristics of n-Heptane, iso-Octane, and Toluene Blending with Ammonia," *Proceedings of the Combustion Institute* 41 (2025) 105801.
44. P.J. Singal, J. Lee, L. Lei, R.L. Speth, M.P. Burke*, "Implementation of New Mixture Rules Has a Substantial Impact on Combustion Behavior of H_2 and NH_3," *Proceedings of the Combustion Institute* 40 (2024) 105779.
43. R.E. Cornell*, M.P. Burke, "The Discovery of Non-Equilibrium Kinetic Sequences Important to Ammonia/Co-Fuel and Propellant Flames," *Proceedings of the Combustion Institute* 40 (2024) 105265.
42. M.C. Barbet, J. Lee, C.E. LaGrotta, R.E. Cornell, M.P. Burke*, "An Experimental Platform for Semi-Autonomous Kinetic Model Refinement Combining Optimal Experimental Design, Computer-controlled Experiments, and Optimization Leads to New Understanding of $N_2O + O$," *Combustion and Flame* 267 (2024) 113562.
41. J. Lee, M.C. Barbet, C.E. LaGrotta, Q. Meng, L. Lei, F.M. Haas, M.P. Burke*, "A Consistent Explanation of Seemingly Inconsistent Experimental and Theoretical Data for $N_2O + O$ via MultiScale Informatics," *Combustion and Flame* 267 (2024) 113563.
40. R.E. Cornell*, M.P. Burke, "Low-Temperature Oxidation Pathways are Critical to Thermal Incineration of PFAS-Laden Materials," *Journal of Hazardous Materials Letters* 5 (2024) 100100.
39. J. Lee, M.C. Barbet, Q. Meng, R.E. Cornell, M.P. Burke*, "Experimental Support for a New NO_x Formation Route via an HNNO Intermediate," *Combustion and Flame* 257 (2023) 112632.
38. Q. Meng, L. Lei, J. Lee, M.P. Burke*, "On the Role of HNNO in NO_x Formation," *Proceedings of the Combustion Institute* 39 (2023) 551–560.
37. C.E. LaGrotta, Q. Meng, L. Lei, M.C. Barbet, Z. Hong, M.P. Burke*, "Resolving Discrepancies Between State-of-the-Art Theory and Experiment for $HO_2 + HO_2$ via Multiscale Informatics," *Journal of Physical Chemistry A* 127 (2023) 799–816.⊥
36. R.E. Cornell, M.C. Barbet, J. Lee, M.P. Burke*, "NH_3 Oxidation by NO_2 in a Jet-Stirred Reactor: The Effect of Significant Uncertainties in H_2NO Kinetics," *Applications in Energy and Combustion Science* 12 (2022) 100095.♯
35. M.P. Burke*, Q. Meng, C. Sabaitis, "Dissociation-Induced Depletion of High-Energy Reactant Molecules as a Mechanism for Pressure-Dependent Rate Constants for Bimolecular Reactions," *Faraday Discussions* 238 (2022) 355-379.†
34. R.E. Cornell, M.C. Barbet, M.P. Burke*, "Towards a More Comprehensive Understanding of the Kinetics of a Common Biomass-derived Impurity: NH_3 Oxidation by N_2O in a Jet-stirred Reactor," *Energy and Fuels* 35 (2021) 13338-13348.⁑
33. L. Lei, M.P. Burke*, "An Extended Methodology for Automated Calculations of Non-Boltzmann Kinetic Sequences: H + C_2H_2 + X and Combustion Impact," *Proceedings of the Combustion Institute* 38 (2021) 661-669.
32. L. Lei, M.P. Burke*, "Dynamically Evaluating Mixture Effects on Multi-Channel Reactions in Flames: A Case Study for the CH_3 + OH Reaction," *Proceedings of the Combustion Institute* 38 (2021) 433-440.
31. R.E. Cornell, M.C. Barbet, M.P. Burke*, "Automated Discovery of Influential Chemically Termolecular Reactions in Energetic Material Combustion: A Case Study for RDX," *Proceedings of the Combustion Institute* 38 (2021) 787-794.
30. C.E. LaGrotta, M.C. Barbet, L. Lei, M.P. Burke*, "Towards a High-Accuracy Kinetic Database Informed by Theoretical and Experimental Data: CH_3 + HO_2 as a Case Study," *Proceedings of the Combustion Institute* 38 (2021) 1043-1051.

29. M.C. Barbet, M.P. Burke*, "Impact of 'Missing' Third-Body Efficiencies on Kinetic Model Predictions of Combustion Properties," *Proceedings of the Combustion Institute* 38 (2021) 425-432.
28. J.A. Miller*, R. Sivaramakrishnan, C.F. Goldsmith, M.P. Burke, A.W. Jasper, J. Zádor, N. Hansen, N.J. Labbe, P. Glarborg, "Combustion Chemistry in the Twenty-First Century: Developing Theory-Informed Chemical Kinetics Models," *Progress in Energy and Combustion Science* 83 (2021) 100886.
27. L. Lei, M.P. Burke*, "Understanding and Representing the Distinct Kinetics Induced by Reactive Collisions of Rovibrationally Excited Ephemeral Complexes Across Reactive Collider Mole Fractions and Pressures," *Journal of Physical Chemistry A* 124 (2020) 10937–10953.
26. L. Lei, M.P. Burke*, "Mixture Rules and Falloff are Now Major Uncertainties in Experimentally Derived Rate Parameters for $H + O_2$ (+M) = HO_2 (+M)," *Combustion and Flame* 213 (2020) 467-474.
25. L. Lei, M.P. Burke*, "Bath Gas Mixture Effects on Multi-Channel Reactions: Insights and Representations for Systems beyond Single-Channel Reactions," *Journal of Physical Chemistry A* 123 (2019) 631-649.
24. L. Lei, M.P. Burke*, "Evaluating Mixture Rules and Combustion Implications for Multi-Component Pressure Dependence of Allyl + HO_2 Reactions," *Proceedings of the Combustion Institute* 37 (2019) 355-362.
23. M.C. Barbet, K. McCullough, M.P. Burke*, "A Framework for Automatic Discovery of Chemically Termolecular Reactions," *Proceedings of the Combustion Institute* 37 (2019) 347-354.
22. M.P. Burke*, S.J. Klippenstein, "Ephemeral Collision Complexes Mediate Chemically Termolecular Transformations that Affect System Chemistry," *Nature Chemistry* 9 (2017) 1078–1082.[⊤]
21. M.P. Burke*, R. Song, "Evaluating Mixture Rules for Multi-Component Pressure Dependence: $H + O_2$ (+M) = HO_2 (+M)," *Proceedings of the Combustion Institute* 36 (2017) 245–253.
20. J.A. Miller*, S.J. Klippenstein, S.H. Robertson, M.J. Pilling, R. Shannon, J. Zádor, A.W. Jasper, C.F. Goldsmith, M.P. Burke, "Comment on 'When Rate Constants Are Not Enough' by John R. Barker, Michael Frenklach, and David M. Golden," *Journal of Physical Chemistry A* 120 (2016) 306–312.
19. M.P. Burke*, "Harnessing the Combined Power of Theoretical and Experimental Data through Multi-Scale Informatics," *International Journal of Chemical Kinetics* 48 (2016) 212–235.[⊤]
18. S.S. Merchant, C.F. Goldsmith, A.G. Vandeputte, M.P. Burke, S.J. Klippenstein, W.H. Green*, "Understanding Low-Temperature First-Stage Ignition Delay: Propane," *Combustion and Flame* 162 (2015) 3658–3673.
17. M.P. Burke*, C.F. Goldsmith, S.J. Klippenstein, O. Welz, H. Huang, I.O. Antonov, J.D. Savee, D.L. Osborn, J. Zádor, C.A. Taatjes, L. Sheps, "Multi-Scale Informatics for Low-Temperature Propane Oxidation: Further Complexities in Studies of Complex Reactions," *Journal of Physical Chemistry A* 119 (2015) 7095–7115.
16. O. Welz*, M.P. Burke, I.O. Antonov, C.F. Goldsmith, J.D. Savee, D.L. Osborn, C.A. Taatjes, S.J. Klippenstein, L. Sheps*, "New Insights into Low-Temperature Oxidation of Propane from Synchrotron Photoionization Mass Spectrometry and Multi-Scale Informatics Modeling," *Journal of Physical Chemistry A* 119 (2015) 7116–7129.

Prior to Columbia University

15. M.P. Burke*, C.F. Goldsmith, Y. Georgievskii, S.J. Klippenstein, "Towards a Quantitative Understanding of the Role of Non-Boltzmann Reactant Distributions in Low-Temperature Oxidation," *Proceedings of the Combustion Institute* 35 (2015) 205-213.
14. C.F. Goldsmith, M.P. Burke, Y. Georgievskii, S.J. Klippenstein*, "Effect of Non-Thermal Product Energy Distributions on Ketohydroperoxide Decomposition Kinetics," *Proceedings of the Combustion Institute* 35 (2015) 283-290.
13. Y. Georgievski*, J.A. Miller, M.P. Burke, S.J. Klippenstein, "Reformulation and Solution of the Master Equation for Multiple-Well Chemical Reactions," *Journal of Physical Chemistry A* 117 (2013) 12146-12154.[§]
12. M.P. Burke*, S.J. Klippenstein, L.B. Harding, "A Quantitative Explanation for the Apparent Anomalous Temperature Dependence of OH + HO_2 = H_2O + O_2 through Multi-Scale Modeling," *Proceedings of the Combustion Institute* 34 (2013) 547-555.
11. M.P. Burke, M. Chaos, Y. Ju, F.L. Dryer, S.J. Klippenstein, "Comprehensive H_2/O_2 Kinetic Model for High-Pressure Combustion," *International Journal of Chemical Kinetics* 44 (2012) 444-474.[◊]
10. M.P. Burke, F.L. Dryer, Y. Ju, "Assessment of Kinetic Modeling for Lean $H_2/CH_4/O_2$/Diluent Flames at High Pressures," *Proceedings of the Combustion Institute* 33 (2011) 905-912.
9. Z. Chen, M.P. Burke, Y. Ju, "On the Critical Flame Radius and Minimum Ignition Energy for Spherical Flame Initiation," *Proceedings of the Combustion Institute* 33 (2011) 1253-1260.
8. Y. Ju, W. Sun, M.P. Burke, X. Gou, Z. Chen, "Multi-timescale Modeling of Ignition and Flame Regimes of n-Heptane-Air Mixtures near Spark Assisted Homogeneous Charge Compression Ignition Conditions," *Proceedings of the Combustion Institute* 33 (2011) 1245-1251.
7. S. Dooley, M.P. Burke, M. Chaos, Y. Stein, F.L. Dryer, C.A. Daly, V.P. Zhukov, O. Finch, J.M. Simmie and H.J. Curran, "Methyl Formate Oxidation: Speciation Data, Laminar Burning Velocities, Ignition Delay Times and a Validated Chemical Kinetic Model," *International Journal of Chemical Kinetics* 42 (2010) 527-549.
6. M.P. Burke, M. Chaos, F.L. Dryer, Y. Ju, "Negative Pressure Dependence of Mass Burning Rates of $H_2/CO/O_2$/Diluent Flames at Low Flame Temperatures," *Combustion and Flame* 157 (2010) 618–631.[†]

5. M.P. Burke, Z. Chen, Y. Ju, F.L. Dryer, "Effect of Cylindrical Confinement on the Determination of Laminar Flame Speeds Using Outwardly Propagating Flames," *Combustion and Flame* 156 (2009) 771-779.◊
4. M. Chaos, M.P. Burke, Y. Ju, F.L. Dryer, "Syngas Chemical Kinetics and Reaction Mechanisms," Synthesis Gas Combustion: Fundamentals and Applications. Ed. T.C. Lieuwen, V. Yang, R.A. Yetter. Taylor & Francis (2009), p. 29-70.
3. Z. Chen, M.P. Burke, Y. Ju, "Effects of Compression and Stretch on the Determination of Laminar Flame Speed Using Propagating Spherical Flames," *Combustion Theory and Modelling* 13 (2009) 343-364.
2. Z. Chen, M.P. Burke, Y. Ju, "Effects of Lewis Number and Ignition Energy on the Determination of Laminar Flame Speed Using Propagating Spherical Flames," *Proceedings of the Combustion Institute* 32 (2009) 1461-1469.◊
1. M.-H. Wu, M.P. Burke, S.F. Son, R.A. Yetter, "Flame Acceleration and the Transition to Detonation of Stoichiometric Ethylene/Oxygen in Microscale Tubes," *Proceedings of the Combustion Institute* 31 (2007) 2429–2436.‡

INVITED LECTURES

34. M.P. Burke, "Multiscale Physics-Based, Data-Driven Studies of Combustion and Emissions of Hydrogen and Ammonia," 13th International Conference on Chemical Kinetics, Tahoe City, California, May 2025.
33. M.P. Burke, "Toward Predictive Kinetics for Carbon-Free Fuel Combustion and Emissions," Carbon-Free Fuel Combustion Workshop, Boston, Massachusetts, March 2025.
32. M.P. Burke, "Toward Predictive Kinetics for Ammonia Combustion and Emissions," National Energy Technology Laboratory (NETL) Ammonia Combustion Technology Group Meeting (https://netl.doe.gov/events/22ACT), January 2025 (virtual).
31. M.P. Burke, "Chemical Kinetic Data of Benchmark Accuracy through Multi-Scale Informatics Strategies," 2024 Gas Phase Chemical Physics PI Meeting, Gaithersburg, Maryland, October 2024.
30. M.P. Burke, "Toward Predictive Kinetics for Ammonia Combustion and Emissions," 2024 Multi-Agency Coordinating Committee for Combustion Research (MACCCR) Energy, Fuel and Combustion Research Review, Atlanta, Georgia, September 2024.
29. M.P. Burke, "Data Reporting Quality Matters: New Computational Tools to Reinterpret Massive Datasets," 5th International Rapid Compression Machine Workshop, Milan, Italy, July 2024.
28. M.P. Burke, "Multiscale Physics-Based, Data-Driven Studies of Nitrogen Kinetics," ONR/AFOSR/NSF Combustion Program Review, National Harbor, Maryland, February 2024.
27. M.P. Burke, "Combining Multiscale Physics and Data for Complex Reacting Systems in Energy and the Environment," Mechanical and Aerospace Engineering, Cornell University, September 2023.
26. M.P. Burke, "Combining Multiscale Physics and Data for Complex Reacting Systems in Energy and the Environment," Mechanical Engineering, University of Michigan, April 2023.
25. M.P. Burke, "Dissociation-Induced Depletion of High-Energy Reactant Molecules as a Mechanism for Pressure-Dependent Rate Constants for Bimolecular Reactions," Unimolecular Reactions Faraday Discussion, Oxford, United Kingdom, June 2022 (headline speaker, http://rsc.li/unimolecular-fd2022).
24. M.P. Burke, "Combining Multiscale Physics and Data to Enable Predictive Modeling of Complex Reacting Systems in Energy, Propulsion, and the Environment," Mechanical and Aerospace Engineering, Princeton University, March 2022.
23. M.P. Burke, "Non-Equilibrium Behavior in Combustion, Planetary Atmospheres, and Compressible Flows," Aerospace and Mechanical Engineering, University of Southern California, March 2022 (virtual).
22. M.P. Burke, "Chemical Kinetic Data of Benchmark Accuracy through Multi-Scale Informatics Strategies," 40th Annual Gas Phase Chemical Physics PI Meeting, May 2021 (virtual).
21. M.P. Burke, "Multiscale Data-Driven Modeling of Complex Reacting Systems in Combustion, Propulsion, and Emissions," Aerospace Engineering, Georgia Institute of Technology, March 2021 (virtual).
20. M.P. Burke, "Unraveling Complex Reacting Systems in Energy and the Environment via Multiscale Data-Driven Approaches," Mechanical and Aerospace Engineering, Princeton University, February 2021 (virtual).
19. M.P. Burke, "Creating Complex Reaction Models that can be Extrapolated with Quantified Uncertainties," Rising Star Lecture, Combustion Webinar Series (https://sun.ae.gatech.edu/combustion-webinar/), November 2020 (virtual). (Recording available: https://www.youtube.com/watch?v=AwOPvt09xY4)
18. M.P. Burke, "Pressure-Dependent Kinetics in Reactive Mixtures," 12th Review Meeting of the Multi-Agency Coordinating Committee for Combustion Research (MACCCR), Arlington, Virginia, September 2019.
17. M.P. Burke, "Chemical Kinetic Data of Benchmark Accuracy through Multi-Scale Informatics Strategies," 39th Annual Gas Phase Chemical Physics PI Meeting, Gaithersburg, Maryland, May 2019.
16. M.P. Burke, "Towards Autonomous Kinetic Model Development: Automated Data Selection, Generation, and Integration," 17th International Conference on Numerical Combustion, Aachen, Germany, May 2019 (invited for Mini-Symposium on "High Performance Computing, Towards High Throughput Kinetics and Combustion Model Development").

15. M.P. Burke, "Complex Reactions across Scales: Non-Equilibrium Kinetics in Mixtures and Uncertainty Quantification," International Workshop on Gas-Phase Kinetics in Interstellar, Atmospheric, and Combustion Chemistry, Hefei, China, March 2019.
14. M.P. Burke, "Multi-Component, Reactive Pressure-Dependent Chemistry," 11th Review Meeting of the Multi-Agency Coordinating Committee for Combustion Research (MACCCR), Livermore, California, April 2018.
13. M.P. Burke, "Use of Uncertainty Quantification in Tools for Autonomous Scientific Inquiry," 16th International Conference on Numerical Combustion, Orlando, Florida, April 2017 (invited for Mini-Symposium on Uncertainty Quantification in Computational Combustion).
12. M.P. Burke, "Science across Scales: Informatics Strategies and Non-Equilibrium Phenomena," Laboratoire Réactions et Génie des Procédés, Université de Lorraine, CNRS, ENSIC, Nancy, France, April 2015.
11. M.P. Burke, "Combining Theoretical and Experimental Data in Uncertainty Quantification across Multiple Scales," 15th International Conference on Numerical Combustion, Avignon, France, April 2015 (invited for Mini-Symposium on Uncertainty Quantification in Computational Combustion).
10. M.P. Burke, "Multi-Scale Informatics for Low-Temperature Oxidation," 2nd International Workshop on Flame Chemistry, San Francisco, California, July 2014.
9. M.P. Burke, "Multi-Scale Informatics: "Connecting the Dots" in Complex Reaction Modeling from Electrons to Energy Devices…and Back!" Mechanical Engineering Department Seminar, Columbia University, New York, New York, April 2013.
8. M.P. Burke, "Multi-Scale Informatics: "Connecting the Dots" in Complex Reaction Modeling from Electrons to Engines…and Back!" Institute for Systems Research Seminar, University of Maryland, College Park, Maryland, March 2013.
7. M.P. Burke, "Multi-Scale Informatics for High-Accuracy Modeling of Complex Reaction Systems: from Electrons to Energy Devices and Back," Mechanical Engineering Department Seminar, University of Illinois at Chicago, Chicago, Illinois, February 2013.
6. M.P. Burke, "Multi-Scale Informatics for High-Accuracy Modeling of Complex Reaction Systems," Mechanical Engineering Department Seminar, Temple University, Philadelphia, Pennsylvania, January 2013.
5. M.P. Burke, "Multi-Scale Informatics: High-Accuracy Modeling from Electrons to Engines," Aerospace Engineering Department Seminar, Georgia Institute of Technology, Atlanta, Georgia, October 2012.
4. M.P. Burke (with F.L. Dryer), "High Pressure Kinetic Mechanisms for Hydrogen and Hydrogen Syngas," 1st International Workshop on Flame Chemistry, Warsaw, Poland, July 2012.
3. M.P. Burke, "H_2/O_2 Mechanism in High-Pressure Flames and a Proposed Informatics Approach to Modeling," Chemical Sciences and Engineering Division, Argonne National Laboratory, Argonne, Illinois, September 2010.
2. M.P. Burke, "Developing Chemical Models for Synthetic Gas Combustion in Clean Coal Technologies," BP Clean Energy Research and Education Centre, Tsinghua University, Beijing, China, November 2009.
1. M.P. Burke, "Developing Chemical Models for Synthetic Gas Combustion in Clean Coal Technologies," The Center for Environmental Policy Research, Beijing Institute of Technology, Beijing, China, November 2009.

CONFERENCE PAPERS AND PRESENTATIONS

92. J. Lee, M.C. Barbet, M.P. Burke, "Considering Physical Model Structural Uncertainty in Optimal Experimental Design: Application to HNNO Reactions," 14th U.S. National Combustion Meeting, Boston, Massachusetts, March 2025.
91. A.F. Rambur, R.E. Cornell, M.P. Burke, "Chemical Kinetic Modeling of Ammonium Perchlorate Using Automatic Reaction Mechanism Generation," 14th U.S. National Combustion Meeting, Boston, Massachusetts, March 2025.
90. J.M. Pankauski, C.E. LaGrotta, J. Lee, R.E. Cornell, M.P. Burke, "Towards a High-Accuracy Kinetic Database Informed by Theoretical and Experimental Data: Anchoring a Core Reaction Set," 14th U.S. National Combustion Meeting, Boston, Massachusetts, March 2025.
89. P.J. Singal, M.P. Burke, "Systematic Consideration of Third-Body Efficiencies with New Mixture Rules in Combustion Modeling," 14th U.S. National Combustion Meeting, Boston, Massachusetts, March 2025.
88. E.C. Kane, J. Lee, J.M. Pankauski, R.E. Cornell, M.P. Burke, "Unraveling Discrepancies among Theoretical and Experimental Data for $NH_2 + CH_4 = NH_3 + CH_3$," 14th U.S. National Combustion Meeting, Boston, Massachusetts, March 2025.
87. R.E. Cornell, E.C. Kane, M.P. Burke, "Ab Initio-Based Master Equation Calculations of a Large Set of Non-Equilibrium Kinetic Sequences Involving H/N/O Species," 14th U.S. National Combustion Meeting, Boston, Massachusetts, March 2025.
86. M.K. Yoon, F.L. Dryer, M.P. Burke, S.H. Won, "Kinetic Coupling Effects on the Extinction Characteristics of n-Heptane, iso-Octane, and Toluene Blending with Ammonia," 14th U.S. National Combustion Meeting, Boston, Massachusetts, March 2025.
85. P. Signal, J. Lee, L. Lei, R.L. Speth, M.P. Burke, "Implementation of New Mixture Rules Has a Substantial Impact on Combustion Behavior of H_2 and NH_3," 40th International Symposium on Combustion, Milan, Italy, July 2024.

84. R.E. Cornell, M.P. Burke, "The Discovery of Non-Equilibrium Kinetic Sequences Important to Ammonia/Co-Fuel and Propellant Flames," 40th International Symposium on Combustion, Milan, Italy, July 2024.
83. P. Signal, J. Lee, L. Lei, R.L. Speth, M.P. Burke, "Implementation of New Mixture Rules in Cantera and Implications for H_2 and NH_3 Combustion Simulations," 2024 Spring Technical Meeting of the Eastern States Section of the Combustion Institute, Athens, Georgia, March 2024.
82. J. Lee, M.C. Barbet, M.P. Burke, "Targeting the HNNO pathway to NO_x formation with Jet-Stirred Reactor Experiments Selected by Optimal Experimental Design," 2024 Spring Technical Meeting of the Eastern States Section of the Combustion Institute, Athens, Georgia, March 2024.
81. J.M. Pankauski, C.E. LaGrotta, J. Lee, M.P. Burke, "Resolving Discrepancies among Experimental and Theoretical Data for the CH_3 + OH Reaction using MultiScale Informatics," 2024 Spring Technical Meeting of the Eastern States Section of the Combustion Institute, Athens, Georgia, March 2024.
80. 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. "Theory Informed Kinetics (ThInK 1.0) Model for Core Combustion Species," 2024 Spring Technical Meeting of the Eastern States Section of the Combustion Institute, Athens, Georgia, March 2024.
79. R.E. Cornell, C.-C. Chen, M.J. McQuaid, C.P. Stone, M.P. Burke, "The Discovery and Initial Evaluation of Chemically Termolecular Reactions Important to Solid Propellant Combustion Modeling," JANNAF 52nd Combustion Meeting, Solid Propellant Modeling and Simulation, Salt Lake City, Utah, December 2023.
78. J. Lee, M.C. Barbet, Q. Meng, R.E. Cornell, M.P. Burke, "Jet-Stirred Reactor Experiments as Corroboration for the HNNO Pathway to NO_x Formation," 13th U.S. National Combustion Meeting, College Station, Texas, March 2023.
77. R.E. Cornell, M.C. Barbet, M.P. Burke, "Addressing Key Rate Constant Uncertainties in NH_3 Kinetics Models Using MultiScale Informatics," 13th U.S. National Combustion Meeting, College Station, Texas, March 2023.
76. Q. Meng, L. Lei, J. Lee, M.P. Burke, "On the Role of HNNO in NO_x Formation," 39th International Symposium on Combustion, Vancouver, Canada, July 2022.
75. M.C. Barbet, R.E. Cornell, M.P. Burke, "Coupling High Throughput Jet-Stirred Reactor Experiments to Experimental Design Algorithms: A Step Towards Autonomous Model Development," 2022 Spring Technical Meeting of the Eastern States Section of the Combustion Institute, Orlando, Florida, March 2022.
74. Q. Meng, L. Lei, J. Lee, M.P. Burke, "Towards Understanding the Fate of HNNO in Flames," 2022 Spring Technical Meeting of the Eastern States Section of the Combustion Institute, Orlando, Florida, March 2022.
73. J. Lee, C.E. LaGrotta, M.C. Barbet, M.P. Burke, "Evaluating Rate Constants for N_2O + O Using Uncertainty Quantification Constrained by Previous Data," 2022 Spring Technical Meeting of the Eastern States Section of the Combustion Institute, Orlando, Florida, March 2022.
72. R.E. Cornell, M.C. Barbet, M.P. Burke, "An Experimental and Kinetic Modeling Study of NH_3 Oxidation by NO_2 in a Jet-Stirred Reactor," 2022 Spring Technical Meeting of the Eastern States Section of the Combustion Institute, Orlando, Florida, March 2022.
71. M.P. Burke, "Master Equation Calculations to Assess the Role of Non-Thermal Bimolecular Reactions in Formaldehyde Photochemistry," American Geophysical Union 2021 Fall Meeting, New Orleans, Louisiana, December 2021 (hybrid).
70. R.E. Cornell, M.C. Barbet, M.P. Burke, "An Experimental Investigation of NH_3 Oxidation by N_2O in a Jet-Stirred Reactor," 12th U.S. National Combustion Meeting, College Station, Texas, May 2021 (virtual).
69. L. Lei, M.P. Burke, "Evaluating the Performance of Bath Gas Mixture Rules for General Implementation in Chemically Reacting Flow Codes: Tests for Multi-Well, Multi-Channel Reactions," 12th U.S. National Combustion Meeting, College Station, Texas, May 2021 (virtual).
68. C.E. LaGrotta, L. Lei, M.C. Barbet, Z. Hong, D.F. Davidson, R.K. Hanson, M.P. Burke, "Towards Resolution of Lingering Discrepancies in the H_2O_2 Decomposition System: HO_2 + HO_2," 12th U.S. National Combustion Meeting, College Station, Texas, May 2021 (virtual).
67. L. Lei, M.P. Burke, "An Extended Methodology for Automated Calculations of Non-Boltzmann Kinetic Sequences: H + C_2H_2 + X and Combustion Impact," 38th International Symposium on Combustion, Adelaide, Australia, January 2021 (virtual).
66. L. Lei, M.P. Burke, "Dynamically Evaluating Mixture Effects on Multi-Channel Reactions in Flames: A Case Study for the CH_3 + OH Reaction," 38th International Symposium on Combustion, Adelaide, Australia, January 2021 (virtual).
65. R.E. Cornell, M.C. Barbet, M.P. Burke, "Automated Discovery of Influential Chemically Termolecular Reactions in Energetic Material Combustion: A Case Study for RDX," 38th International Symposium on Combustion, Adelaide, Australia, January 2021 (virtual).
64. C.E. LaGrotta, M.C. Barbet, L. Lei, M.P. Burke, "Towards a High-Accuracy Kinetic Database Informed by Theoretical and Experimental Data: CH_3 + HO_2 as a Case Study," 38th International Symposium on Combustion, Adelaide, Australia, January 2021 (virtual).
63. M.C. Barbet, M.P. Burke, "Impact of 'Missing' Third-Body Efficiencies on Kinetic Model Predictions of Combustion Properties," 38th International Symposium on Combustion, Adelaide, Australia, January 2021 (virtual).

62. R.E. Cornell, M.C. Barbet, M.P. Burke, "Experimentally Testing the Performance of Small Molecule Chemistry Relevant to Energetic Materials," 2020 Spring Technical Meeting of the Eastern States Section of the Combustion Institute, Columbia, South Carolina, March 2020.
61. M.C. Barbet, R.E. Cornell, F.M. Haas, M.P. Burke, "Experimental Determination of Rate Constants for the N_2O + O Reaction at Intermediate Temperatures," 2020 Spring Technical Meeting of the Eastern States Section of the Combustion Institute, Columbia, South Carolina, March 2020.
60. C.E. LaGrotta, L. Lei, M.C. Barbet, Z. Hong, D.F. Davidson, R.K. Hanson, M.P. Burke, "Towards Resolution of Lingering Discrepancies in the H_2O_2 Decomposition System: HO_2 + HO_2," 2020 Spring Technical Meeting of the Eastern States Section of the Combustion Institute, Columbia, South Carolina, March 2020.
59. L. Lei, M.P. Burke, "Understanding the Distinct Kinetics of Chemically Termolecular Reactions Across Various Pressures," 2020 Spring Technical Meeting of the Eastern States Section of the Combustion Institute, Columbia, South Carolina, March 2020.
58. Y. Tao, S.J. Klippenstein, Y. Georgievskii, J.A. Miller, L. Lei, M.P. Burke, A.W. Jasper, R. Sivaramakrishnan, "Nonthermal Reactions: The Final Frontier in Understanding the Kinetics of Hydrogen Oxidation," 2020 Spring Technical Meeting of the Eastern States Section of the Combustion Institute, Columbia, South Carolina, March 2020.
57. L. Lei, M.P. Burke, "New Mixture Rules for Pressure-Dependent Reactions for Implementation in Combustion Codes," 17th International Conference on Numerical Combustion, Aachen, Germany, May 2019.
56. M.P. Burke, L. Lei, "The Role of Mixture Rules in Experimental Interpretations of Third-Body Efficiencies," 11th U.S. National Combustion Meeting, Pasadena, California, March 2019.
55. C.E. LaGrotta, M.C. Barbet, L. Lei, M.P. Burke, "Towards a High-Accuracy Kinetic Database Informed by Theoretical and Experimental Data," 11th U.S. National Combustion Meeting, Pasadena, California, March 2019.
54. L. Lei, M.P. Burke, "Reaction Kinetics of Chemically Termolecular Reactions: Pressure Dependence," 11th U.S. National Combustion Meeting, Pasadena, California, March 2019.
53. L. Lei, M.P. Burke, "Dynamic Evaluation of Multi-Component Pressure Dependence in Multi-Channel Reactions: CH_3 + OH as a Case Study," 11th U.S. National Combustion Meeting, Pasadena, California, March 2019.
52. M.C. Barbet, M.P. Burke, "Screening for Structural Uncertainties from Third-Body Collision Efficiencies," 11th U.S. National Combustion Meeting, Pasadena, California, March 2019.
51. R.E. Cornell, C.E. LaGrotta, M.C. Barbet, M.P. Burke, "Influence of Chemically Termolecular Reactions on Species Concentrations during RDX Combustion," 11th U.S. National Combustion Meeting, Pasadena, California, March 2019.
50. M.C. Barbet, K. McCullough, M.P. Burke, "A Framework for Automatic Discovery of Chemically Termolecular Reactions," 37th International Symposium on Combustion, Dublin, Ireland, July 2018.
49. L. Lei, M.P. Burke, "Evaluating Mixture Rules and Combustion Implications for Multi-Component Pressure Dependence of Allyl + HO_2 Reactions," 37th International Symposium on Combustion, Dublin, Ireland, July 2018.
48. M.P. Burke, "Pressure Dependence of Chemically Termolecular Reactions," 25th International Symposium on Gas Kinetics, Lille, France, July 2018.
47. M.P. Burke, "Multi-Component Reactive Pressure Dependence," 4th International Workshop on Flame Chemistry, Dublin, Ireland, July 2018.
46. C.E. LaGrotta, M.C. Barbet, L. Lei, M.P. Burke, "Multiscale Informatics of Reactions Involved in H_2O_2 Decomposition in the Presence of Dopants," 2018 Spring Technical Meeting of the Eastern States Section of the Combustion Institute, State College, Pennsylvania, March 2018.
45. R.E. Cornell, C.E. LaGrotta, M.C. Barbet, M.P. Burke, "Impact of Chemically Termolecular Reactions on the Kinetics of Energetic Materials," 2018 Spring Technical Meeting of the Eastern States Section of the Combustion Institute, State College, Pennsylvania, March 2018.
44. L. Lei, M.P. Burke, "Dynamic Evaluation of Multi-Component Pressure Dependence in Multi-Channel Reactions: A Case Study of CH_3 + OH System," 2018 Spring Technical Meeting of the Eastern States Section of the Combustion Institute, State College, Pennsylvania, March 2018.
43. M.C. Barbet, K. McCullough, M.P. Burke, "High-Throughput Screening for Reactive and Energy-Transferring Collider Effects in Complex-Forming Reactions," 2018 Spring Technical Meeting of the Eastern States Section of the Combustion Institute, State College, Pennsylvania, March 2018.
42. F.M. Haas, C.F. Goldsmith, M.P. Burke, B.W. Weber, K.E. Niemeyer, "ChemKED for Profile-Resolved Data: A Discussion of Some Salient Data Standard Features," 2018 Spring Technical Meeting of the Eastern States Section of the Combustion Institute, State College, Pennsylvania, March 2018.
41. L. Lei, M.P. Burke, "Exploring Representations of Multi-Component Pressure Dependence of Complex-Forming Reactions in Mixtures," 10th International Conference on Chemical Kinetics, Chicago, Illinois, May 2017.
40. M. Barbet, K. McCullough, M.P. Burke, "Automated Discovery of Non-Boltzmann Bimolecular Pathways in NO_x Formation," 10th U.S. National Combustion Meeting, College Park, Maryland, April 2017.
39. L. Lei, M.P. Burke, "Evaluating Multi-Component Pressure Dependence of Mixture Rules for Multi-Well Multi-Channel Reacting Systems," 10th U.S. National Combustion Meeting, College Park, Maryland, April 2017.
38. L. Lei, M.P. Burke, "Evaluating Multi-Component Pressure Dependence of Mixture Rules for Multi-Channel Complex Reactions," 35th Kinetics and Dynamics Meeting, Newark, New Jersey, January 2017.

37. M.P. Burke, R. Song, "Evaluating Mixture Rules for Multi-Component Pressure Dependence: H + O_2 (+M) = HO_2 (+M)," 36th International Symposium on Combustion, Seoul, Korea, August 2016.
36. M.P. Burke, "Surprising Energy Transfer Effects in Multi-Channel Complex Reactions in Multi-Component Baths," 24th International Symposium on Gas Kinetics and Related Phenomena, York, United Kingdom, July 2016.
35. R. Song, N.D. DeLuca, M.P. Burke, "Towards Autonomous Kinetic Model Improvement through Automated Experiments and Computations," 2016 Spring Technical Meeting of the Eastern States Section of the Combustion Institute, Princeton, New Jersey, March 2016.
34. K. McCullough, M.P. Burke, "Automated Discovery of Non-Boltzmann Bimolecular Reaction Pathways," 2016 Spring Technical Meeting of the Eastern States Section of the Combustion Institute, Princeton, New Jersey, March 2016.
33. M. Verdicchio, A.W. Jasper, K.M. Pelzer, Y. Georgievskii, M.P. Burke, J.A. Miller, S.J. Klippenstein. "Predicting the Pressure-Dependent Kinetics of Radical-Radical Reactions: A Priori Solution of the Two-Dimensional Master Equation," 33rd International Symposium on Free Radicals, Olympic Valley, California, August 2015.
32. M.P. Burke, "Collisional Energy Transfer During Complex Reactions in Multi-Component Mixtures," 9th International Conference on Chemical Kinetics, Ghent, Belgium, July 2015.
31. M.P. Burke, "The Role of Model Structural Uncertainties in Uncertainty Quantification and Experimental Design," 9th U.S. National Combustion Meeting, Cincinnati, Ohio, May 2015.
30. M.P. Burke, C.F. Goldsmith, Y. Georgievskii, S.J. Klippenstein, "Towards a Quantitative Understanding of the Role of Non-Boltzmann Reactant Distributions in Low-Temperature Oxidation," 35th International Symposium on Combustion, San Francisco, California, August 2014.
29. C.F. Goldsmith, M.P. Burke, Y. Georgievskii, S.J. Klippenstein, "Effect of Non-Thermal Product Energy Distributions on Ketohydroperoxide Decomposition Kinetics," 35th International Symposium on Combustion, San Francisco, California, August 2014.
28. M.P. Burke, C.F. Goldsmith, Y. Georgievskii, S.J. Klippenstein, "Non-Boltzmann Effects in Low-Temperature Fuel Oxidation," 2013 Spring Technical Meeting of the Eastern States Section of the Combustion Institute, Clemson, South Carolina, October 2013.
27. M.P. Burke, C.F. Goldsmith, S.J. Klippenstein, L. Sheps, O. Welz, J. Zádor, H. Huang, C.A. Taatjes, "Multi-Scale Informatics for Low-Temperature Propane Oxidation," 8th U.S. National Combustion Meeting, Park City, Utah May 2013.
26. M.P. Burke, S.J. Klippenstein, L.B. Harding, "A Quantitative Explanation for the Apparent Anomalous Temperature Dependence of OH + HO_2 = H_2O + O_2 Through Multi-Scale Modeling," 34th International Symposium on Combustion, Warsaw, Poland, August 2012.
25. M.P. Burke, S.J. Klippenstein, L.B. Harding, "Multi-Scale Modeling: Full Consistency from Quantum Chemistry to Combustion," 2011 ANL Postdoctoral Research Symposium, Argonne National Laboratory, Argonne, Illinois, October 2011.
24. M.P. Burke, S.J. Klippenstein, L.B. Harding, "A Multi-Scale Approach to Model Development: Unraveling the H_2O_2 Decomposition System," 2011 Spring Technical Meeting of the Eastern States Section of the Combustion Institute, Storrs, Connecticut, October 2011.
23. F.M. Haas, T. Farouk, M. Chaos, M.P. Burke, F.L. Dryer, "Rate Coefficients for H + O_2 + CO_2 = HO_2 + CO_2 Determined in a New High-Pressure Laminar Flow Reactor," 2011 Spring Technical Meeting of the Eastern States Section of the Combustion Institute, Storrs, Connecticut, October 2011.
22. M.P. Burke, M. Chaos, Y. Ju, F.L. Dryer, S.J. Klippenstein, "Comprehensive H_2/O_2 Kinetic Model with Assessment of Commonly Neglected Processes," 7th U.S. National Combustion Meeting, Atlanta, Georgia, March 2011.
21. J. Santner, M.P. Burke, Y. Ju, F.L. Dryer, "High Pressure Burning Rates and Kinetic Assessment of Mechanisms Using High Hydrogen Content CO, CH_4, C_2H_4, and C_2H_6 Flames," 7th U.S. National Combustion Meeting, Atlanta, Georgia, March 2011.
20. M.P. Burke, M. Chaos, Y. Ju, F.L. Dryer, S.J. Klippenstein, "Kinetic Modeling of the H_2/O_2 Reaction in High-Pressure Flames," 49th AIAA Aerospace Sciences Meeting and Exhibit, Orlando, Florida, January 2011.
19. J. Santner, M.P. Burke, Y. Ju, F.L. Dryer, "Effect of Fuel Addition of CO, CH_4, C_2H_4, and C_2H_6 to H_2/O_2 on Flame Burning Rates at High Pressures," 49th AIAA Aerospace Sciences Meeting and Exhibit, Orlando, Florida, January 2011.
18. M.P. Burke, F.L. Dryer, Y. Ju, "Assessment of Kinetic Modeling for Lean $H_2/CH_4/O_2$/Diluent Flames at High Pressures," 33rd International Symposium on Combustion, Beijing, China, August 2010.
17. Z. Chen, M.P. Burke, Y. Ju, "On the Critical Flame Radius and Minimum Ignition Energy for Spherical Flame Initiation," 33rd International Symposium on Combustion, Beijing, China, August 2010.
16. Y. Ju, W. Sun, M.P. Burke, X. Gou, Z. Chen, "Multi-Timescale Modeling of Ignition and Flame Regimes of n-Heptane-Air Mixtures near Spark Assisted Homogeneous Charge Compression Ignition Conditions," 33rd International Symposium on Combustion, Beijing, China, August 2010.
15. M.P. Burke, M. Chaos, Y. Ju, F.L. Dryer, "An Updated model and Discussion of Modeling Challenges in High-Pressure H_2/O_2 Flames," 2010 Spring Technical Meeting of the Western States Section of the Combustion Institute, Boulder, Colorado, March 2010.

14. M.P. Burke, F.L. Dryer, Y. Ju, "Negative Pressure Dependence of High-Pressure Burning Fates of H_2/O_2 Flames at Lean Conditions," 48th AIAA Aerospace Sciences Meeting and Exhibit, Orlando, Florida, January 2010.
13. M.P. Burke, M. Chaos, F.L. Dryer, Y. Ju, "Development and Validation of Chemical Kinetic Mechanisms for Synthetic Gas Combustion in Gas Turbines," 2nd International Forum on Multidisciplinary Education & Research for Energy Science, Okinawa, Japan, December 2009.
12. S.H. Won, M.P. Burke, Y. Ju, "The Challenges and Advances of Combustion Research for Renewable Transportation Fuels," 2nd International Forum on Multidisciplinary Education & Research for Energy Science, Okinawa, Japan, December 2009.
11. M.P. Burke, M. Chaos, F.L. Dryer, Y. Ju, "The Dependence of Mass Burning Rates of $H_2/CO/CO_2$ Flames on Pressure and Flame Temperature," 6th U.S. National Combustion Meeting, Ann Arbor, Michigan, May 2009.
10. S. Dooley, M. Chaos, M.P. Burke, Y. Stein, F.L. Dryer, C.A. Daly, V.P. Zhukov, O. Finch, J.M. Simmie, H.J. Curran, "An Experimental and Kinetic Modeling Study of Methyl Formate Oxidation," 4th European Combustion Meeting, Vienna, Austria, April 2009.
9. M.P. Burke, M. Chaos, F.L. Dryer, Y. Ju, "Non-Monotonic Pressure Dependence in Laminar Mass Burning Rates for Hydrogen Flames," 47th AIAA Aerospace Sciences Meeting and Exhibit, Orlando, Florida, January 2009.
8. Z. Chen, M.P. Burke, Y. Ju, "Studies on the Critical Flame Radius and Minimum Ignition Energy for Spherical H_2/O_2/He/Ar Flames," 47th AIAA Aerospace Sciences Meeting and Exhibit, Orlando, Florida, January 2009.
7. Z. Chen, M.P. Burke, Y. Ju, "Effects of Lewis Number and Ignition Energy on the Determination of Laminar Flame Speed Using Propagating Spherical Flames," 32nd International Symposium on Combustion, Montreal, Canada, August 2008.
6. Z. Chen, M.P. Burke, Y. Ju, "Effects of Radiation on the Determination of Laminar Flame Speed Using Propagating Spherical Flames," 12th International Conference on Numerical Combustion, Monterey, California, March 2008.
5. M.P. Burke, Y. Ju, F.L. Dryer, "Effect of Flow Field Perturbations on Laminar Flame Speed Determination Using Spherical Flames," 46th AIAA Aerospace Sciences Meeting and Exhibit, Reno, Nevada, January 2008.
4. Z. Chen, M.P. Burke, Y. Ju, "Effects of Lewis Number on Spherical Flame Transition," 46th AIAA Aerospace Sciences Meeting and Exhibit, Reno, Nevada, January 2008.
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