

# Michael E. Mueller

Department of Mechanical and Aerospace Engineering  
Princeton University  
Engineering Quadrangle D332  
Princeton, NJ 08544

Phone: 609-258-5191

Fax: 609-258-6109

Email: muellerm@princeton.edu

URL: ctrfl.princeton.edu

LinkedIn: <https://www.linkedin.com/in/michael-e-mueller>

## EXPERIENCE

---

Princeton University, 2012 – Present

Department of Mechanical and Aerospace Engineering

Acting Chair, 2025 – Present

Donald R. Dixon '69 and Elizabeth W. Dixon Professor, 2025 – Present

Associate Chair, 2023 – 2025

Professor, 2022 – 2025

Director of Graduate Studies, 2020 – 2023

Associate Professor, 2018 – 2022

Assistant Professor, 2012 – 2018

Princeton Institute for Computational Science and Engineering

Interim Director, 2025 – Present

Director, Graduate Certificate in Computational Science and Engineering, 2019 – Present

Associated Faculty, 2014 – Present

Andlinger Center for Energy and the Environment

Associated Faculty, 2016 – Present

National Laboratory of the Rockies, 2020 – Present

Computational Science Center

Faculty Researcher, Scalable Algorithms, Modeling, and Simulation Group, 2020 – Present

Stanford University, 2012

Department of Mechanical Engineering

Postdoctoral Scholar, 2012

## EDUCATION

---

Stanford University

Degree: Ph.D., Mechanical Engineering

Dates: June 2009 – June 2012

Dissertation: Large Eddy Simulation of Soot Evolution in Turbulent Reacting Flows

Advisor: Heinz Pitsch

## Stanford University

Degree: M.S., Mechanical Engineering  
Dates: June 2007 – June 2009

## The University of Texas at Austin

Degree: B.S., Mechanical Engineering (Highest Honors)  
Dates: August 2003 – May 2007

**EDITORIAL ROLES**

---

## Proceedings of The Combustion Institute

Editor, 2025-Present  
Associate Editor, 2023-2024

## Combustion and Flame

Editorial Board, 2021-Present  
Guest Editor, Special Issue on Soot, 2021-2023

## Proceedings of the National Academy of Sciences

Nonmember Guest Editor, 2019

## Journal of Engineering for Gas Turbines and Power

Associate Editor, 2018-2024

**ADVISORY ROLES**

---

Senior Technical Advisor, SharonAI, 2024-Present

**EXTRAMURAL AWARDS**

---

Fellow, The Combustion Institute, 2026

Best Paper, High-Speed Air-Breathing Propulsion, American Institute of Aeronautics and Astronautics, 2023

Fellow, American Society of Mechanical Engineers, 2023

Hiroshi Tsuji Early Career Researcher Award, The Combustion Institute, 2022

Associate Fellow, American Institute of Aeronautics and Astronautics, 2022

Early Career Combustion Investigator Award, United States Sections of The Combustion Institute, 2021

Research Excellence Award, The Combustion Institute, 2020

Young Investigator Program (YIP) Award, Army Research Office, 2017

National Science Foundation Graduate Research Fellowship, 2008-2012

National Defense Science and Engineering Graduate Fellowship, 2008-2011

**INTRAMURAL AWARDS**

---

Engineering Council Excellence in Teaching Award, Spring 2026 (MAE/ENE 427)

SEAS Commendation List for Outstanding Teaching, Fall 2025 (MAE/CSE 557)

---

SEAS Distinguished Teacher Award, 2025  
SEAS Commendation List for Outstanding Teaching, Fall 2023 (MAE 535)  
SEAS Commendation List for Outstanding Teaching, Spring 2023 (MAE/ENE 427)  
SEAS Commendation List for Outstanding Teaching, Fall 2022 (MAE 557)  
SEAS Commendation List for Outstanding Teaching, Spring 2022 (MAE/ENE 427)  
SEAS Commendation List for Outstanding Teaching, Spring 2021 (MAE/ENE 427)  
SEAS Commendation List for Outstanding Teaching, Spring 2020 (MAE/ENE 427)  
SEAS Commendation List for Outstanding Teaching, Fall 2017 (MAE 557)  
SEAS Commendation List for Outstanding Teaching, Spring 2017 (MAE/ENE 427)  
SEAS Alfred Rheinsteine Faculty Award, 2016  
SEAS Commendation List for Outstanding Teaching, Spring 2016 (MAE/ENE 427)  
SEAS Commendation List for Outstanding Teaching, Spring 2015 (MAE/ENE 427)  
Graduate Mentoring Award, 2015  
SEAS Commendation List for Outstanding Teaching, Fall 2014 (MAE 539)  
SEAS Commendation List for Outstanding Teaching, Fall 2013 (MAE 509)

---

### PEER-REVIEWED PUBLICATIONS

---

1. Boerchers, J.B., Thompson, L.T., Yao, M.X., Mueller, M.E., A thermodynamically consistent manifold model for premixed deflagrations and detonations, *Combustion and Flame* (2026) in preparation
2. Fush, S.T., Bonilla, I.J., Schroeder, M.B., Yao, M.X., Mueller, M.E., Neural-ISAM: A hybrid in-situ machine learning approach for complex manifold-based combustion models in LES of turbulent reacting flows, *Combustion Theory and Modelling* (2026) in preparation
3. Williams, H.H., Deike, L., Mueller, M.E., Sea surface roughness dependence on ocean wave parameters through Large Eddy Simulation with local subfilter wave drag, *Boundary Layer Meteorology* (2026) in preparation
4. Williams, H.H., Mueller, M.E., Deike, L., Observations and empirical functions for the ocean surface wave spectrum, *Journal of Physical Oceanography* (2026) in preparation
5. Bonilla, I.J., Fush, S.T., Lacey, C.E., Mueller, M.E., Many-stream manifold modeling of pilot effects in turbulent nonpremixed combustion, *Combustion and Flame* (2026) in preparation
6. Surapaneni, A., Mira, D., Mueller, M.E., Two-dimensional manifold model applied to multi-regime combustion using In-Situ Adaptive Manifolds, *Flow, Turbulence and Combustion* (2026) submitted
7. Fush, S.T., Bonilla, I.J., Mueller, M.E., Error control of uncertainty-aware neural network-coupled binary trees for manifold-based combustion models, *Proceedings of the Combustion Institute* **42** (2026) submitted
8. Satterthwaite, P.A., Mueller, M.E., An inherently multi-phase manifold model for spherically symmetric droplet combustion, *Proceedings of the Combustion Institute* **42** (2026) submitted
9. Schroeder, M.B., Yao, M.X., Mueller, M.E., Mass-consistent manifold modeling for Large Eddy Simulation of turbulent sooting flames, *Proceedings of the Combustion Institute* **42** (2026) submitted

- 
10. Walker, M.D., VanderKam, K., Mueller, M.E., Manifold modeling of flame-flame interactions in turbulent premixed combustion, *Proceedings of the Combustion Institute* **42** (2026) submitted
  11. Walker, M.D., Rzepka, S.L., Law, C.K., Mueller, M.E., Propagation and corner dynamics of colliding and annihilating premixed flames, *Proceedings of the Combustion Institute* **42** (2026) submitted
  12. VanderKam, K., Mueller, M.E., The impact of intense turbulence on reaction zones of premixed combustion, *Combustion and Flame* (2025) submitted
  13. Lacey, C.E., Soriano, B.S., Rieth, M., Mueller, M.E., Chen, J.H., Data-based filtered dissipation rate modeling for multi-modal turbulent combustion: Evaluating a priori model generalizability, *Combustion Theory and Modelling* (2025) in press
  14. Duvvuri, P.P., Mueller, M.E., Jocher, A., Soot modeling with temperature and size-based collision efficiency for nucleation and condensation, *Applications in Energy and Combustion Science* **24** (2025) 100407
  15. Soriano, B.S., Saggese, C., Kim, K., Mueller, M.E., Chen, J.H., Analysis of soot formation from aviation fuels in laminar counterflow flames, *Proceedings of the Combustion Institute* **41** (2025) 105905
  16. Yao, M.X., Bonilla, I.J., Fush, S.T., Mueller, M.E., In-Situ Adaptive Manifolds for soot evolution in non-adiabatic turbulent reacting flows, *Proceedings of the Combustion Institute* **41** (2025) 105824
  17. Rzepka, S.L., VanderKam, K., Mueller, M.E., Tangential diffusion effects in thermodiffusively unstable ammonia/hydrogen/nitrogen-air laminar premixed flames, *Proceedings of the Combustion Institute* **41** (2025) 105804
  18. Maldonado Colmán, H., Mueller, M.E., Large Eddy Simulation of the evolution of the soot size distribution in turbulent nonpremixed bluff body flames, *Combustion and Flame* **279** (2025) 114282
  19. D'Alessio, G., Ozel, A., Sundaresan, S., Mueller, M.E., Data-driven modeling of added mass force in filtered two-fluid models for densely loaded gas-particle flows, *Physics of Fluids* **37** [Editor's Pick] (2025) 043348
  20. Maldonado Colmán, H., Mueller, M.E., Rush-to-equilibrium concept for minimizing reactive nitrogen emissions in ammonia combustion, *Combustion and Flame* **275** (2025) 114049
  21. Maldonado Colmán, H., Mueller, M.E., Large Eddy Simulation of the evolution of the soot size distribution in turbulent nonpremixed flames using the Bivariate Multi-Moment Sectional Method, *Combustion and Flame* **265** (2024) 113496
  22. Angelilli, L., Ciottoli, P.P., Hernández-Pérez, F.E., Valorani, M., Mueller, M.E., Im, H.G., A Lagrangian analysis of combustion regimes using multi-modal turbulent combustion model, *Flow, Turbulence and Combustion* **112** (2024) 811-829
  23. Owen, L., Ge, W., Rieth, M., Arienti, M., Esclapez, L., Soriano, B.S., Mueller, M.E., Day, M., Sankaran, R., Chen, J.H., PeleMP: The multiphysics solver for the combustion Pele adaptive mesh refinement code suite, *Journal of Fluids Engineering* **146** (2024) 041103
  24. Cisneros-Garibay, E., Mueller, M.E., Consistent coupling of manifold-based models and compressibility effects for supersonic turbulent combustion, *AIAA Journal* **62** (2024) 590-601

- 
25. Aiyer, A.K., Deike, L., Mueller, M.E., A dynamic wall modeling approach for Large Eddy Simulation of offshore wind farms in realistic oceanic conditions, *Journal of Renewable and Sustainable Energy* **16** [Featured Article] (2024) 013305
  26. Lacey, C.E., VanderKam, K., Sundaresan, S., Mueller, M.E., Data-based instantaneous conditional progress variable dissipation rate modeling for turbulent premixed combustion, *Combustion and Flame* **259** (2024) 113139
  27. Bertagni, M.B., Socolow, R.H., Martinez, J.M.P., Carter, E.A., Greig, C., Ju, Y., Lieuwen, T., Mueller, M.E., Sundaresan, S., Wang, R., Zondlo, M.Z., Porporato, A., Minimizing the impacts of the ammonia economy on the nitrogen cycle and climate, *Proceedings of the National Academy of Science* **120** (2023) e2311728120
  28. Lindstedt, R.P., Michelsen, H.A., Mueller, M.E., Special issue and perspective on the chemistry and physics of carbonaceous particle formation, *Combustion and Flame* [Special Issue] **258** (2023) 113042
  29. Maldonado Colmán, H., Attili, A., Mueller, M.E., Large Eddy Simulation of turbulent nonpremixed sooting flames: Presumed subfilter PDF model for finite-rate oxidation of soot, *Combustion and Flame* [Special Issue] **258** (2023) 112602
  30. D'Alessio, G., Sundaresan, S., Mueller, M.E., Automated and efficient local adaptive regression for Principal Component-based reduced-order modeling of turbulent reacting flows, *Proceedings of the Combustion Institute* **39** (2023) 5249-5258
  31. Duvvuri, P.P., Maldonado Colmán, H., Mueller, M.E., Relative influence of soot oxidation kinetics and subfilter soot-turbulence interactions on soot evolution in turbulent nonpremixed flames, *Proceedings of the Combustion Institute* **39** (2023) 959-967
  32. Maldonado Colmán, H., Duvvuri, P.P., Mueller, M.E., Large Eddy Simulation of soot evolution in turbulent nonpremixed bluff body flames, *Proceedings of the Combustion Institute* **39** (2023) 857-866
  33. Hassanaly, M., Perry, B.A., Mueller, M.E., Yellapantula, S., Uniform-in-phase-space data selection with iterative normalizing flows, *Data-Centric Engineering* **4** (2023) E11
  34. Lee, J., Mueller, M.E., Closure modeling for the conditional pressure gradient in turbulent combustion, *Combustion and Flame* **250** (2023) 112661
  35. Klemmer, K.S., Wu, W., Mueller, M.E., Turbulence model form errors in separated flows, *Physical Review Fluids* **8** (2023) 024606
  36. Aiyer, A., Deike, L., Mueller, M.E., A sea surface-based drag model for Large Eddy Simulation of wind-wave interaction, *Journal of the Atmospheric Sciences* **80** (2023) 49-62
  37. Taunay, P.-Y.C.R., Mueller, M.E., Quadrature-based moment methods for kinetic plasma simulations, *Journal of Computational Physics* **473** (2023) 111700
  38. Huo, Z., Cleary, M.J., Masri, A.R., Mueller, M.E., A coupled MMC-LES and sectional kinetic scheme for soot formation in a turbulent flame, *Combustion and Flame* **241** (2022) 112089

- 
39. Novoselov, A.G., Perry, B.A., Mueller, M.E., Two-dimensional manifold equations for multi-modal turbulent combustion: Nonpremixed combustion limit and scalar dissipation rates, *Combustion and Flame* **231** (2021) 111475
  40. Klemmer, K.S., Mueller, M.E., Implied models approach for turbulence model form physics-based uncertainty quantification, *Physical Review Fluids* **6** (2021) 044606
  41. MacArt, J.F., Mueller, M.E., Damköhler number scaling of active cascade effects in turbulent premixed combustion, *Physics of Fluids* [Special Issue] **33** (2021) 035103
  42. Lee, J., Mueller, M.E., Closure modeling for the conditional Reynolds stresses in turbulent premixed combustion, *Proceedings of the Combustion Institute* **38** (2021) 3031-3038
  43. Berger, L., Wick, A., Attili, A., Mueller, M.E., Pitsch, H., Modeling subfilter soot-turbulence interactions in Large Eddy Simulation: An a priori study, *Proceedings of the Combustion Institute* **38** (2021) 2783-2790
  44. Lacey, C.E., Novoselov, A.G., Mueller, M.E., In-Situ Adaptive Manifolds: Enabling computationally efficient simulations of complex turbulent reacting flows, *Proceedings of the Combustion Institute* **38** (2021) 2673-2680
  45. Novoselov, A.G., Lacey, C.E., Perry, B.A., Mueller, M.E., Large Eddy Simulation of a turbulent lifted flame using multi-modal manifold-based models: Feasibility and interpretability, *Proceedings of the Combustion Institute* **38** (2021) 2581-2588
  46. Klemmer, K.S., Mueller, M.E., Hierarchical model form uncertainty quantification for turbulent combustion modeling, *Combustion and Flame* **221** (2020) 288-295
  47. Yang, S., Lew, J.K., Mueller, M.E., Large Eddy Simulation of soot evolution in turbulent reacting flows: Strain-Sensitive Transport Approach for Polycyclic Aromatic Hydrocarbons, *Combustion and Flame* **220** (2020) 219-234
  48. Lee, J., MacArt, J.F., Mueller, M.E., Heat release effects on the Reynolds stress budgets in turbulent premixed jet flames at low and high Karlovitz numbers, *Combustion and Flame* **216** (2020) 1-8
  49. Mueller, M.E., Physically-derived reduced-order manifold-based modeling for multi-modal turbulent combustion, *Combustion and Flame* **214** (2020) 287-305
  50. Yang, S., Lew, J.K., Mueller, M.E., Large Eddy Simulation of soot evolution in turbulent reacting flows: Presumed subfilter PDF model for soot-turbulence-chemistry interactions, *Combustion and Flame* **209** (2019) 200-213
  51. Novoselov, A.G., Reuter, C.B., Yehia, O.R., Won, S.H., Fu, M.K., Kokmanian, K.A., Hultmark, M., Ju, Y., Mueller, M.E., Turbulent nonpremixed cool flames: Experimental measurements, Direct Numerical Simulation, and manifold-based combustion modeling, *Combustion and Flame* **209** (2019) 144-154
  52. Nunno, A.C., Grenga, T., Mueller, M.E., Comparative analysis of methods for heat losses in turbulent premixed flames using Physically-Derived Reduced-Order Manifolds, *Combustion Theory and Modelling* **23** (2019) 42-66

- 
53. MacArt, J.F., Grenga, T., Mueller, M.E., Evolution of flame-conditioned velocity statistics in turbulent premixed jet flames at low and high Karlovitz numbers, *Proceedings of the Combustion Institute* **37** (2019) 2503-2510
  54. Perry, B.A., Mueller, M.E., Effect of multiscale subfilter PDF models in LES of turbulent flames with inhomogeneous inlets, *Proceedings of the Combustion Institute* **37** (2019) 2287-2295
  55. Nunno, A.C., Mueller, M.E., Manifold assumptions in modeling radiation heat losses in turbulent nonpremixed combustion, *Proceedings of the Combustion Institute* **37** (2019) 2223-2230
  56. Novoselov, A.G., Law, C.K., Mueller, M.E., Direct Numerical Simulation of turbulent nonpremixed "cool" flames: Applicability of flamelet models, *Proceedings of the Combustion Institute* **37** (2019) 2143-2150
  57. Chong, S.T., Raman, V., Mueller, M.E., Sivaraj, P., Im, H.G., Effect of quadrature approach and chemical kinetics on soot formation in a model aircraft combustor, *Proceedings of the Combustion Institute* **37** (2019) 1065-1074
  58. Yang, S., Mueller, M.E., A Multi-Moment Sectional Method (MMSM) for tracking the soot Number Density Function, *Proceedings of the Combustion Institute* **37** (2019) 1041-1048
  59. Han, W., Raman, V., Mueller, M.E., Chen, Z., Effects of combustion models on soot formation and evolution in turbulent nonpremixed flames, *Proceedings of the Combustion Institute* **37** (2019) 985-992
  60. Grenga, T., MacArt, J.F., Mueller, M.E., Dynamic Mode Decomposition of a Direct Numerical Simulation of a turbulent premixed planar jet flame: Convergence, amplitude, and residuals of the modes, *Combustion Theory and Modelling* **22** (2018) 795-811
  61. Berger, L., Kleinheinz, K., Attili, A., Bisetti, F., Pitsch, H., Mueller, M.E., Numerically accurate computational techniques for optimal estimator analyses of multi-parameter models, *Combustion Theory and Modelling* **22** (2018) 480-504
  62. Perry, B.A., Mueller, M.E., Joint Probability Density Function models for multiscale turbulent mixing, *Combustion and Flame* **193** (2018) 344-462
  63. Chong, S. T., Hassanaly, M., Koo, H., Mueller, M.E., Raman, V., Geigle, K.-P., Large Eddy Simulation of pressure and dilution jet effects on soot formation in a model aircraft swirl combustor, *Combustion and Flame* **192** (2018) 452-472
  64. MacArt, J.F., Grenga, T., Mueller, M.E., Effects of combustion heat release on velocity and scalar statistics in turbulent premixed jet flames at low and high Karlovitz number, *Combustion and Flame* **191** (2018) 468-485
  65. Mueller, M.E., Raman, V., Model form uncertainty quantification in turbulent combustion simulations: Peer models, *Combustion and Flame* **187** (2018) 137-146
  66. Perry, B.A., Mueller, M.E., Masri, A.R., A two mixture fraction flamelet model for Large Eddy Simulation of turbulent flames with inhomogeneous inlets, *Proceedings of the Combustion Institute* **36** (2017) 1767-1775

- 
67. Deng, S., Mueller, M.E., Chan, Q.N., Qamar, N.H., Dally, B.B., Alwahabi, Z.T., Nathan, G.J., Hydrodynamic and chemical effects of hydrogen addition on soot evolution in turbulent nonpremixed bluff body ethylene flames, *Proceedings of the Combustion Institute* **36** (2017) 807-814
  68. Koo, H., Hassanaly, M., Raman, V., Mueller, M.E., Geigle, K.P., Large Eddy Simulation of soot formation in a model gas turbine combustor, *Journal of Engineering for Gas Turbines and Power* **139** (2017) 031503
  69. MacArt, J.F., Mueller, M.E., Semi-implicit iterative methods for low Mach number turbulent reacting flows: Operator splitting versus approximate factorization, *Journal of Computational Physics* **326** (2016) 569-595
  70. Deng, S., Zhao, P., Mueller, M.E., Law, C.K., Flame dynamics in oscillating flows under autoignitive conditions, *Combustion and Flame* **168** (2016) 75-82
  71. Attili, A., Bisetti, F., Mueller, M.E., Pitsch, H., Effects of non-unity Lewis number of gas-phase species in turbulent nonpremixed sooting flames, *Combustion and Flame* **166** (2016) 192-202
  72. Davies, G., Hsieh, A.G., Hultmark, M., Mueller, M.E., Steingart, D.A., Utilization of hyper dendritic zinc during high rate discharge in alkaline electrolytes, *Journal of the Electrochemical Society* **163** (2016) A1340-A1347
  73. Deng, S., Zhao, P., Mueller, M.E., Law, C.K., Stabilization of laminar nonpremixed DME/air coflow flames at elevated temperatures and pressures, *Combustion and Flame* **162** (2015) 4471-4478
  74. Bahri, C., Arwatz, G., George, W.K., Mueller, M.E., Hultmark, M., Self-similarity of passive scalar flow in grid turbulence with a mean cross-stream gradient, *Journal of Fluids Mechanics* **780** (2015) 215-225
  75. Deng, S., Zhao, P., Mueller, M.E., Law, C.K., Autoignition-affected stabilization of laminar nonpremixed DME/air flames, *Combustion and Flame* **162** (2015) 3437-3445
  76. Attili, A., Bisetti, F., Mueller, M.E., Pitsch, H., Damköhler number effects on soot formation and growth in turbulent nonpremixed flames, *Proceedings of the Combustion Institute* **35** (2015) 1215-1223
  77. Deng, S., Koch, J.A., Mueller, M.E., Law, C.K., Sooting limits of nonpremixed n-heptane, n-butanol, and methyl butanoate flames: Experimental determination and mechanistic analysis, *Fuel* **136** (2014) 122-129
  78. Attili, A., Bisetti, F., Mueller, M.E., Pitsch, H., Formation, growth, and transport of soot in a three-dimensional turbulent non-premixed jet flame, *Combustion and Flame* **161** (2014) 1849—1865
  79. Mueller, M.E., Raman, V., Effects of turbulent combustion modeling errors on soot evolution in turbulent nonpremixed jet flames, *Combustion and Flame* **161** (2014) 1842—1848
  80. Xuan, Y., Blanquart, G., Mueller, M.E., Modeling curvature effects in diffusion flames using a laminar flamelet model, *Combustion and Flame* **161** (2014) 1294—1309
  81. Mueller, M.E., Pitsch, H., Large Eddy Simulation of soot evolution in an aircraft combustor, *Physics of Fluids* [Special Issue] **25** (2013) 110812

- 
82. Mueller, M.E., Chan, Q.N., Qamar, N.H., Dally, B.B., Pitsch, H., Alwahabi, Z.T., Nathan, G.J., Experimental and computational study of soot evolution in a turbulent nonpremixed bluff body ethylene flame, *Combustion and Flame* **160** (2013) 1298—1309
  83. Mueller, M.E., Iaccarino, G., Pitsch, H., Chemical kinetic uncertainty quantification for Large Eddy Simulation of turbulent nonpremixed combustion, *Proceedings of the Combustion Institute* **34** (2013) 1299—1306
  84. Donde, P., Raman, V., Mueller, M.E., Pitsch, H., LES/PDF based modeling of soot-turbulence interactions in turbulent flames, *Proceedings of the Combustion Institute* **34** (2013) 1183—1192
  85. Mueller, M.E., Pitsch, H., LES modeling of sooting turbulent nonpremixed flames, *Combustion and Flame* **159** (2012) 2166—2180
  86. Bisetti, F., Blanquart, G., Mueller, M.E., Pitsch, H., On the formation and early evolution of soot in turbulent nonpremixed flames, *Combustion and Flame* **159** (2012) 317-335
  87. Mueller, M.E., Pitsch, H., Large eddy simulation subfilter modeling of soot-turbulence interactions, *Physics of Fluids* **23** (2011) 115104
  88. Mueller, M.E., Blanquart, G., Pitsch, H., Modeling the oxidation-induced fragmentation of soot aggregates in laminar flames, *Proceedings of the Combustion Institute* **33** (2011) 667-674
  89. Mueller, M.E., Blanquart, G., Pitsch, H., Hybrid Method of Moments for modeling soot formation and growth, *Combustion and Flame* **156** (2009) 1143-1155
  90. Mueller, M.E., Blanquart, G., Pitsch, H., A joint Volume-Surface model of soot aggregation with the method of moments, *Proceedings of the Combustion Institute* **32** (2009) 785-792

#### **BOOK CHAPTERS**

---

1. Grenga, T., Mueller, M.E., Dynamic Mode Decomposition: A tool to extract structures hidden in massive datasets, in Pitsch, H., Attili, A. (eds.), *Data Analysis for Direct Numerical Simulations of Turbulent Combustion*, Springer, 2020, pp. 157-176
2. Attili, A., Bisetti, F., Mueller, M.E., Pitsch, H., Lagrangian analysis of mixing and soot transport in a turbulent jet flame, in Fröhlich, J., Kuerten, H., Geurts, B.J., Armenio, V. (eds.), *Direct and Large-Eddy Simulation IX*, Springer, 2015, pp. 503-509

#### **INVITED SEMINARS, LECTURES, PANELS, AND PRESENTATIONS**

---

1. Mueller, M.E., Leveraging Machine Learning for Simulations of Turbulent Multi-Physics Flows: Computational Acceleration, Physics Generalization, and Model Hybridization, Distinguished Seminar in Computational Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA, March 5, 2026

- 
2. Mueller, M.E., Generalized Manifold-Based Turbulent Combustion Modeling and Deployment for Zero-Carbon Combustion Concepts, GE Vernova, Virtual, January 13, 2026
  3. Mueller, M.E., Turbulent Combustion Modeling for Everything: A Union of Physical Theory, Computational Algorithms, and Machine Learning Acceleration, Mechanical Engineering Departmental Seminar, University of Minnesota, Minneapolis, MN, December 3, 2025
  4. Mueller, M.E., Multi-Scale Modeling for Turbulent Reacting Flows, Princeton University-Institute for Advanced Study Multi-Scale Modeling Initiative, Princeton, NJ, November 24, 2025
  5. Mueller, M.E., Burning Fast and Burning Green: Computational Modeling of Turbulent Combustion for Emerging Aerospace Propulsion Applications, AIAA Tennessee Section Monthly Seminar, Virtual, April 23, 2024
  6. Mueller, M.E., Environmental Impact and Climate-Smart Modeling [Panel], New Jersey Academic Alliance for Offshore Wind Energy Symposium, Piscataway, NJ, January 12, 2024
  7. Mueller, M.E., Generalized and Computationally Efficient Modeling of Turbulent Reacting Flows: A Union of Theory and Machine Learning, Colloquium in Computational Science, Department of Scientific Computing, Florida State University, November 8, 2023
  8. Mueller, M.E., Wind, Waves, and Wakes: Large Eddy Simulation of Full-Scale Offshore Wind Farms under Realistic Atmospheric and Oceanic Conditions, Penn Institute for Computational Science Colloquium, University of Pennsylvania, October 6, 2023
  9. Mueller, M.E., Wind, Waves, and Wakes: Large Eddy Simulation of Full-Scale Offshore Wind Farms under Realistic Atmospheric and Oceanic Conditions, National Wind Technology Center, National Renewable Energy Laboratory, July 20, 2023
  10. Mueller, M.E., Physics, Modeling, and Algorithms: Overview of Current Research at Princeton's Computational Turbulent Reacting Flow Laboratory, High Performance Algorithms and Complex Fluids Group, National Renewable Energy Laboratory, July 14, 2023
  11. Mueller, M.E., Sustainable Aviation Fuels: Challenges and Opportunities Predicting Behavior in Aircraft Engines [Panel], AIAA SciTech 2023, National Harbor, MD, January 23-27, 2023
  12. Mueller, M.E., Modeling Soot Evolution in Turbulent Reacting Flows: A Grand Challenge in Soot, Turbulence, and Chemistry Interactions, ANSYS Fluids Seminar Series, Virtual, May 31, 2022
  13. Mueller, M.E., Physics-Based Modeling in the Era of Big Data: Enhancing Physics-Based Models using Data-Based Approaches, KAUST Research Conference on Flow Simulation at the Exascale, King Abdullah University of Science and Technology, Thuwal, Saudi Arabia, March 29, 2022
  14. Mueller, M.E., Generalized Physics-Based Turbulent Combustion Models: Enhancement through Hybridization with Data-Based Modeling Approaches, AIAA SciTech 2022, San Diego, CA, January 3-7, 2022
  15. Mueller, M.E., Can Turbulent Combustion Models be Both Computationally Efficient and Generally Applicable?, Combustion Webinar, Virtual, October 30, 2021

- 
16. Mueller, M.E., You Can Have Your Cake and Eat It Too: Breaking the Fundamental Trade-Off between Cost and Generality in Turbulent Combustion Modeling, Early Career Investigator Plenary Lecture, 12<sup>th</sup> U.S. National Combustion Meeting, College Station, TX, May 24-26, 2021
  17. Mueller, M.E., Physics-Based Approaches to Model Form Uncertainty Quantification and Applications to Multi-Physics Turbulent Flows, Fluid Mechanics Seminar Series, Stanford University, Stanford, CA, October 20, 2020
  18. Mueller, M.E., A Computationally Efficient “Turnkey” Approach to Turbulent Combustion Modeling, Computational Science Center, National Renewable Energy Laboratory, Golden, CO, December 4, 2019
  19. Mueller, M.E., Computational Multi-Physics Modeling of Soot Evolution in Turbulent Reacting Flows, Energy Systems Division, Argonne National Laboratory, Lemont, IL, November 21, 2019
  20. Mueller, M.E., A Computationally Efficient “Turnkey” Approach to Turbulent Combustion Modeling, Center for Turbulent Research Tea Seminar, Stanford University, Stanford, CA, November 15, 2019
  21. Mueller, M.E., Overview of Soot Modeling: Statistics, Sources, and Turbulence, Combustion Research Facility, Sandia National Laboratories, Livermore, CA, November 13, 2019
  22. Mueller, M.E., Computational Multi-Physics Simulations for Turbulent Reacting Flows: Physics-Based Approaches for Prediction and Uncertainty Quantification, Computational Sciences and Engineering Division, Oak Ridge National Laboratory, Oak Ridge, TN, October 28, 2019
  23. Mueller, M.E., A Computationally Efficient Turnkey Approach to Turbulent Combustion Modeling: From Elusive Fantasy to Impending Reality, AIAA SciTech 2019, San Diego, CA, January 7-11, 2019
  24. Mueller, M.E., MacArt, J.F., Large Eddy Simulation Subfilter Modeling of Combustion-Affected Turbulence in Turbulent Premixed Combustion, 71<sup>st</sup> Annual Meeting of the APS Division of Fluid Dynamics, Atlanta, GA, November 18-20, 2018
  25. Mueller, M.E., Turbulent Combustion Modeling for Large Eddy Simulation: Finding Simplicity in Complexity, Department of Mechanical Engineering, University of Melbourne, Melbourne, Australia, August 16, 2018
  26. Mueller, M.E., Frontiers of Turbulent Combustion Modeling for Large Eddy Simulation: Multi-Modal Combustion and Soot Emissions, School of Aerospace, Mechanical and Mechatronic Engineering, University of Sydney, Sydney, Australia, August 10, 2018
  27. Mueller, M.E., Computational Modeling of Soot Emissions in Turbulent Combustion: A Truly Multi-Scale, Multi-Physics Challenge, Energy and Environment Seminar Series, Colorado State University, Fort Collins, CO, November 16, 2017
  28. Mueller, M.E., Turbulent Combustion Modeling: A Combustion Perspective and a Turbulence Perspective, Boulder Fluid and Thermal Sciences Seminar Series, University of Colorado, Boulder, CO, November 15, 2017

- 
29. Mueller, M.E., Turbulent Combustion Modeling: A Combustion Perspective and a Turbulence Perspective, Department of Mechanical Engineering Seminar Series, Stevens Institute of Technology, Hoboken, NJ, September 28, 2017
  30. Mueller, M.E., Turbulent Combustion Modeling for Large Eddy Simulation: Finding Simplicity in Complexity, School of Aerospace Engineering Seminar Series, Georgia Institute of Technology, Atlanta, GA, May 2, 2017
  31. Mueller, M.E., Physics-Based Approaches to Model Form Uncertainty Quantification for Large Eddy Simulation of Turbulent Combustion, Fluid Mechanics and Waves Seminar, New Jersey Institute of Technology, Newark, NJ, May 1, 2017
  32. Mueller, M.E., Physics-Based Approaches to Model Form Uncertainty Quantification for Large Eddy Simulation of Turbulent Combustion, Mechanical and Civil Engineering Seminar, California Institute of Technology, Pasadena, CA, April 20, 2017
  33. Mueller, M.E., Turbulent Combustion Modeling: The Combustion Perspective versus The Turbulence Perspective, Fluid Dynamics Reviews Seminar, University of Maryland, College Park, MD, March 16, 2017
  34. Mueller, M.E., Turbulent Combustion Modeling for Large Eddy Simulation: Beyond Premixed versus Nonpremixed Modes, Fluid Mechanics Seminar, University of Illinois at Urbana-Champaign, Urbana, IL, December 2, 2016
  35. Mueller, M.E., Turbulent Combustion Modeling for Large Eddy Simulation: Beyond Premixed versus Nonpremixed Modes, Thermal-Fluid Sciences Seminar Series, Department of Mechanical, Industrial, and Manufacturing Engineering, Oregon State University, Corvallis, OR, September 30, 2016
  36. Mueller, M.E., Towards Predictive Simulations of Soot Emissions in Practical Combustion Systems: Fuel Effects and Interactions with Turbulence, Division of Mechanical Engineering, Hanyang University, Seoul, South Korea, August 3, 2016
  37. Mueller, M.E., Predictive Computational Modeling of Turbulent Combustion: Inevitable Outcome or Practical Impossibility?, 2016 International Combustion Institute/NSERC CREATE Summer School, University of Toronto, Toronto, CA, June 1, 2016
  38. Mueller, M.E., Flamelet Approach for Turbulent Combustion: Has it Reached its Limit?, 12<sup>th</sup> International Conference on Energy for a Clean Environment, Lisbon, Portugal, July 5-9, 2015
  39. Mueller, M.E., Physics-Derived Uncertainty Quantification for Large Eddy Simulation of Turbulent Combustion, Department of Aerospace Engineering and Engineering Mechanics, The University of Texas at Austin, Austin, TX, May 4, 2015
  40. Mueller, M.E., Large Eddy Simulation of "Multi-Physics" Turbulent Nonpremixed Combustion, Clean Combustion Research Center, King Abdullah University of Science and Technology, Thuwal, Saudi Arabia, March 22, 2015
  41. Mueller, M.E., "All About Soot": UQ, 1+D Flamelets, and Fuel Effects, Institute for Combustion Technology, RWTH Aachen University, Aachen, Germany, June 13, 2014

42. Mueller, M.E., Large Eddy Simulation of Soot Evolution in Turbulent Reacting Flows, Sibley School of Mechanical and Aerospace Engineering, Cornell University, Ithaca, NY, September 3, 2013
43. Mueller, M.E., Large Eddy Simulation of Soot Evolution in Turbulent Reacting Flows, Department of Aerospace Engineering and Engineering Mechanics, The University of Texas at Austin, Austin, TX, November 1, 2012
44. Mueller, M.E., Large Eddy Simulation of Soot Evolution in a Pratt & Whitney Combustor, United Technologies Research Center, East Hartford, CT, October 5, 2012
45. Mueller, M.E., Soot Evolution in Turbulent Reacting Flows: A Multi-Fidelity Approach to a Multi-Scale, Multi-Physics Problem, Department of Mechanical Engineering, Stanford University, Stanford, CA, April 10, 2012
46. Mueller, M.E., Soot Evolution in Turbulent Reacting Flows: A Multi-Fidelity Approach to a Multi-Scale, Multi-Physics Problem, Department of Mechanical and Aerospace Engineering, Princeton University, Princeton, NJ, February 23, 2012

---

#### **PANEL SESSIONS AND MINI-SYMPOSIA ORGANIZED**

---

1. Mueller, M.E., Soot Modeling for Gas Turbine Engines: Recent Developments, Remaining Gaps, and Emerging Needs, ASME 2019 Turbo Expo, Phoenix, AZ, June 17-21, 2019
2. Raman, V., Mueller, M.E., Large Eddy Simulation: Challenges and Opportunities, 15<sup>th</sup> International Conference on Numerical Combustion, Avignon, France, April 19-22, 2015

---

#### **RESEARCH BRIEFS**

---

1. MacArt, J.F., Mueller, M.E., Scaling and modeling of heat release effects on subfilter turbulence in premixed combustion, Center for Turbulence Research Proceedings of the Summer Program, Stanford University, 2018
2. Attili, A., Bisetti, F., Mueller, M.E., DNS of soot formation and growth in turbulent non-premixed flames: Damköhler number effects and Lagrangian statistics of soot transport, Center for Turbulence Research Proceedings of the Summer Program, Stanford University, 2012
3. Bansal, G., Mueller, M.E., Pitsch, H., Direct numerical simulation of soot formation in jet engine combustors, Center for Turbulence Research Annual Research Briefs, Stanford University, 2009

---

#### **SOFTWARE**

---

1. PDRs: Physically-Derived Reduced-Order Manifolds, <http://ctrfl.princeton.edu/software>

---

**CONFERENCE PAPERS, PRESENTATIONS, AND POSTERS**

---

1. Bonilla, I.J., Fush, S.T., Lacey, C.E., Mueller, M.E., Many-stream manifold modeling of pilot effects in turbulent nonpremixed combustion, 41<sup>st</sup> International Symposium on Combustion, Kyoto, Japan, July 26-31, 2026
2. Fush, S.T., Bonilla, I.J., Mueller, M.E., Error control of uncertainty-aware neural network-coupled binary trees for manifold-based combustion models, 41<sup>st</sup> International Symposium on Combustion, Kyoto, Japan, July 26-31, 2026
3. Satterthwaite, P.A., Mueller, M.E., An inherently multi-phase manifold model for spherically symmetric droplet combustion, 41<sup>st</sup> International Symposium on Combustion, Kyoto, Japan, July 26-31, 2026
4. Schroeder, M.B., Yao, M.X., Mueller, M.E., Mass-consistent manifold modeling for Large Eddy Simulation of turbulent sooting flames, 41<sup>st</sup> International Symposium on Combustion, Kyoto, Japan, July 26-31, 2026
5. Walker, M.D., VanderKam, K., Mueller, M.E., Manifold modeling of flame-flame interactions in turbulent premixed combustion, 41<sup>st</sup> International Symposium on Combustion, Kyoto, Japan, July 26-31, 2026
6. Walker, M.D., Rzepka, S.L., Law, C.K., Mueller, M.E., Propagation and corner dynamics of colliding and annihilating premixed flames, 41<sup>st</sup> International Symposium on Combustion, Kyoto, Japan, July 26-31, 2026
7. Walker, M.D., Fush, S.T., Mueller, M.E., A physics-informed neural network for compressible Rayleigh-Taylor mixing, 19<sup>th</sup> International Workshop on the Physics of Compressible Turbulent Mixing, Ann Arbor, MI, July 18-24, 2026
8. Bonilla, I.J., Lacey, C.E., Mueller, M.E., Physics-based dimensionality reduction for data-based turbulent combustion modeling, Eastern States Section Combustion Institute Spring Meeting, Raleigh, NC, March 15-18, 2026
9. Fush, S.T., Bonilla, I.J., Mueller, M.E., Error control methods in neural networks for manifold-based combustion models, Eastern States Section Combustion Institute Spring Meeting, Raleigh, NC, March 15-18, 2026
10. Rzepka, S.L., Mueller, M.E., Flame dynamics and emissions in stratified ammonia/hydrogen/nitrogen-air flames, Eastern States Section Combustion Institute Spring Meeting, Raleigh, NC, March 15-18, 2026
11. Satterthwaite, P.A., Mueller, M.E., Preferential vaporization effects in manifold modeling of spherically symmetric multicomponent droplets, Eastern States Section Combustion Institute Spring Meeting, Raleigh, NC, March 15-18, 2026
12. Walker, M.D., Satterthwaite, P.A., Mueller, M.E., General transport equation for curvature in premixed reacting flows, Eastern States Section Combustion Institute Spring Meeting, Raleigh, NC, March 15-18, 2026
13. Boerchers, J.B., Thompson, L.T., Yao, M.X., Mueller, M.E., A thermodynamically consistent manifold-based combustion model for premixed detonations and deflagrations, 78<sup>th</sup> Annual Meeting of the American Physical Society Division of Fluid Dynamics, Houston, TX, November 23-25, 2025

- 
14. Bonilla, I.J., Lacey, C.E., Mueller, M.E., Physics-based dimensionality reduction for data-based models for turbulent premixed combustion, 78<sup>th</sup> Annual Meeting of the American Physical Society Division of Fluid Dynamics, Houston, TX, November 23-25, 2025
  15. Eroz, E., Mueller, M.E., Optimal model assumptions for manifold-based modeling of many-stream turbulent nonpremixed combustion, 78<sup>th</sup> Annual Meeting of the American Physical Society Division of Fluid Dynamics, Houston, TX, November 23-25, 2025
  16. Fush, S.T., Bonilla, I.J., Mueller, M.E., Error control in neural network-coupled binary trees for complex manifold-based combustion models, 78<sup>th</sup> Annual Meeting of the American Physical Society Division of Fluid Dynamics, Houston, TX, November 23-25, 2025
  17. Rzepka, S.L., Mueller, M.E., Flame dynamics and emissions in stratified ammonia/hydrogen/nitrogen-air flames, 78<sup>th</sup> Annual Meeting of the American Physical Society Division of Fluid Dynamics, Houston, TX, November 23-25, 2025
  18. Schroeder, M.B., Yao, M.X., Mueller, M.E., Mass-consistent manifold modeling of turbulent sooting flames and the influence of soot subfilter PDF model, 78<sup>th</sup> Annual Meeting of the American Physical Society Division of Fluid Dynamics, Houston, TX, November 23-25, 2025
  19. Williams, H.H., Aiyer, A.K., Deike, L., Mueller, M.E., Subfilter wave drag modeling for LES of offshore wind farms, 78<sup>th</sup> Annual Meeting of the American Physical Society Division of Fluid Dynamics, Houston, TX, November 23-25, 2025
  20. Boerchers, J.B., Thompson, L.T., Yao, M.X., Mueller, M.E., A thermodynamically consistent manifold model for premixed detonations and deflagrations, International Conference on Numerical Combustion, Rome, Italy, October 14-17, 2025
  21. Bonilla, I.J., Fush, S.T., Mueller, M.E., Evaluating pilot modeling assumptions using many-stream manifold-based combustion models, International Conference on Numerical Combustion, Rome, Italy, October 14-17, 2025
  22. Fush, S.T., Bonilla, I.J., Mueller, M.E., A posteriori analysis of In-Situ Adaptive neural network-coupled binary trees for manifold-based models in LES of turbulent flames, International Conference on Numerical Combustion, Rome, Italy, October 14-17, 2025
  23. Rzepka, S.L., Mueller, M.E., Manifold modeling of tangential diffusion effects in lean ammonia/hydrogen/nitrogen-air premixed flames, International Conference on Numerical Combustion, Rome, Italy, October 14-17, 2025
  24. Satterthwaite, P., Mueller, M.E., Manifold-based modeling of Sustainable Aviation Fuel combustion: An inherently multi-phase, multi-component model, International Conference on Numerical Combustion, Rome, Italy, October 14-17, 2025
  25. Schroeder, M.E., Yao, M.X., Mueller, M.E., Mass-consistent manifold modeling for Large Eddy Simulation of turbulent sooting flames, International Conference on Numerical Combustion, Rome, Italy, October 14-17, 2025

- 
26. Walker, M.D., VanderKam, K., Law, C.K., Mueller, M.E., Topologies of self-interaction in turbulent premixed flames and reduced-order manifold models, International Conference on Numerical Combustion, Rome, Italy, October 14-17, 2025
  27. Williams, H.H., Aiyer, A.K., Deike, L., Mueller, M.E., Assessing subfilter scale wave drag models for LES for offshore wind farms, Wind Energy Science Conference, Nantes, France, June 24-27, 2025
  28. Surapaneni, A., Mira, D., Mueller, M.E., Two-dimensional manifold model applied to multi-regime combustion using In-Situ Adaptive Manifolds, 13<sup>th</sup> Mediterranean Combustion Symposium, Corfu, Greece, June 1-5, 2025
  29. Maldonado Colmán, H., D'Alessio, G., Mueller, M.E., Data-driven model for reduced combustion chemistry via Bayesian Optimization, 12<sup>th</sup> European Combustion Meeting, Edinburgh, United Kingdom, April 7-10, 2025
  30. Boerchers, J.B., Mueller, M.E., Modeling enthalpy variations with mixture fraction in high-speed turbulent combustion, 14<sup>th</sup> U.S. National Combustion Meeting, Boston, MA, March 16-19, 2025
  31. Bonilla, I.J., Fush, S.T., Mueller, M.E., Computationally efficient simulation of many-stream turbulent combustion, 14<sup>th</sup> U.S. National Combustion Meeting, Boston, MA, March 16-19, 2025
  32. Eroç, E., Mueller, M.E., Optimal model assumptions in manifold-based modeling of three-stream turbulent nonpremixed combustion, 14<sup>th</sup> U.S. National Combustion Meeting, Boston, MA, March 16-19, 2025
  33. Fush, S.T., Bonilla, I.J., Mueller, M.E., Optimizing in-situ adaptive neural network-coupled binary trees for complex manifold-based turbulent combustion models, 14<sup>th</sup> U.S. National Combustion Meeting, Boston, MA, March 16-19, 2025
  34. Rzepka, S.L., VanderKam, K., Mueller, M.E., Quantifying and modeling tangential diffusion effects in manifold modeling for lean ammonia/hydrogen/nitrogen-air laminar premixed flames, 14<sup>th</sup> U.S. National Combustion Meeting, Boston, MA, March 16-19, 2025
  35. Satterthwaite, P., Mueller, M.E., Inherently multi-phase manifold-based combustion models of liquid fuel combustion, 14<sup>th</sup> U.S. National Combustion Meeting, Boston, MA, March 16-19, 2025
  36. Schroeder, M.B., Maldonado Colmán, H., Mueller, M.E., Sensitivity analysis for soot surface growth modeling in sooting premixed laminar flames, 14<sup>th</sup> U.S. National Combustion Meeting, Boston, MA, March 16-19, 2025
  37. VanderKam, K., Mueller, M.E., Effect of thermochemical composition on turbulent premixed combustion subject to rapid mixing rates, 14<sup>th</sup> U.S. National Combustion Meeting, Boston, MA, March 16-19, 2025
  38. Walker, M.D., VanderKam, K., Law, C.K., Mueller, M.E., Three-dimensional topology and manifold-based modeling of turbulent premixed flame annihilation, 14<sup>th</sup> U.S. National Combustion Meeting, Boston, MA, March 16-19, 2025
  39. Yao, M.X., Mueller, M.E., In-Situ Adaptive Manifolds for soot and emissions predictions in turbulent reacting flows, 14<sup>th</sup> U.S. National Combustion Meeting, Boston, MA, March 16-19, 2025

- 
40. Soriano, B.S., Saggese, C., Kim, K., Mueller, M.E., Chen, J.H., Analysis of soot production in laminar counterflow flames from sustainable aviation fuels, 14<sup>th</sup> U.S. National Combustion Meeting, Boston, MA, March 16-19, 2025
  41. Boerchers, J.B., Mueller, M.E., Inherently high-speed manifold-based modeling of supersonic turbulent combustion, 77<sup>th</sup> Annual Meeting of the American Physical Society Division of Fluid Dynamics, Salt Lake City, UT, November 24-26, 2024
  42. Bonilla, I.J., Lacey, C.E., Mueller, M.E., In-Situ Adaptive Manifolds beyond two-stream, uni-modal turbulent combustion, 77<sup>th</sup> Annual Meeting of the American Physical Society Division of Fluid Dynamics, Salt Lake City, UT, November 24-26, 2024
  43. Fush, S.T., Bonilla, I.J., Mueller, M.E., Complex manifold-based turbulent combustion models using in-situ adaptive neural network coupled binary trees, 77<sup>th</sup> Annual Meeting of the American Physical Society Division of Fluid Dynamics, Salt Lake City, UT, November 24-26, 2024
  44. Rzepka, S.L., VanderKam, K.E., Mueller, M.E., Directional considerations of diffusive fluxes in manifold modeling for lean ammonia/hydrogen/nitrogen-air laminar premixed flames, 77<sup>th</sup> Annual Meeting of the American Physical Society Division of Fluid Dynamics, Salt Lake City, UT, November 24-26, 2024
  45. Satterthwaite, P., Mueller, M.E., Inherently multi-phase manifold-based combustion models of liquid fuel combustion: Redefinition of mixture fraction and interfacial conditions, 77<sup>th</sup> Annual Meeting of the American Physical Society Division of Fluid Dynamics, Salt Lake City, UT, November 24-26, 2024
  46. VanderKam, K.E., Mueller, M.E., Influence of geometry on interactions between turbulence and premixed flames, 77<sup>th</sup> Annual Meeting of the American Physical Society Division of Fluid Dynamics, Salt Lake City, UT, November 24-26, 2024
  47. Walker, M.D., VanderKam, K.E., Mueller, M.E., Turbulent premixed flame annihilation and manifold-based models, 77<sup>th</sup> Annual Meeting of the American Physical Society Division of Fluid Dynamics, Salt Lake City, UT, November 24-26, 2024
  48. Williams, H.H., Aiyer, A.K., Deike, L., Mueller, M.E., Marine atmospheric boundary layer response to dynamic wave model in Large Eddy Simulation, 77<sup>th</sup> Annual Meeting of the American Physical Society Division of Fluid Dynamics, Salt Lake City, UT, November 24-26, 2024
  49. Yao, M.X., Mueller, M.E., In-Situ Adaptive Manifolds for soot and emissions predictions in turbulent reacting flows, 77<sup>th</sup> Annual Meeting of the American Physical Society Division of Fluid Dynamics, Salt Lake City, UT, November 24-26, 2024
  50. Williams, H.H., Aiyer, A., Deike, L., Mueller, M.E., Influence of ocean waves on the sensitivity of offshore wind farms to atmospheric conditions, NAWEA/WindTech 2024, New Brunswick, NJ, October 30-November 1, 2024
  51. Maldonado Colmán, H., Mueller, M.E., Large Eddy Simulation of the evolution of the soot size distribution in turbulent nonpremixed bluff body flames, 7<sup>th</sup> International Workshop on the Measurement and Computation of Reacting Flows with Carbon Nanoparticles, Milan, Italy, July 20-21, 2024

- 
52. Williams, H.H., Aiyer, A.K., Deike, L., Mueller, M.E., Examining relative impacts of atmospheric and oceanic factors on offshore wind farms, TORQUE 2024, Florence, Italy, May 29-31, 2024 [Williams, H.H., Aiyer, A.K., Deike, L., Mueller, M.E., Examining relative impacts of atmospheric and oceanic factors on offshore wind farms, *Journal of Physics: Conference Series* **2767** (2024) 062001]
  53. Boerchers, J., Sitaraman, H., Mueller, M.E., Manifold-based modeling of supersonic turbulent combustion: Direct inclusion of high-speed effects, 19<sup>th</sup> International Conference on Numerical Combustion, Kyoto, Japan, May 7-10, 2024
  54. Bonilla, I.J., Lacey, C.E., Mueller, M.E., Generalized progress variable and cross-dissipation rate in turbulent lifted flames using a multi-modal manifold-based combustion model, 19<sup>th</sup> International Conference on Numerical Combustion, Kyoto, Japan, May 7-10, 2024
  55. Fush, S.T., Bonilla, I.J., Mueller, M.E., Reducing memory requirements of In-Situ Adaptive Manifolds using neural network coupled binary trees, 19<sup>th</sup> International Conference on Numerical Combustion, Kyoto, Japan, May 7-10, 2024
  56. Rzepka, S.L., VanderKam, K., Maldonado Colmán, H., Mueller, M.E., Evaluation of a manifold model for lean ammonia/hydrogen/nitrogen-air laminar premixed flames, 19<sup>th</sup> International Conference on Numerical Combustion, Kyoto, Japan, May 7-10, 2024
  57. VanderKam, K., Rzepka, S., Mueller, M.E., Manifold-based modeling for differential diffusion in turbulent premixed lean hydrogen flames, 19<sup>th</sup> International Conference on Numerical Combustion, Kyoto, Japan, May 7-10, 2024
  58. Maldonado Colmán, H., Mueller, M.E., Manifold modeling for reactive nitrogen emissions in ammonia-hydrogen-nitrogen turbulent nonpremixed flames, 19<sup>th</sup> International Conference on Numerical Combustion, Kyoto, Japan, May 7-10, 2024
  59. Surapaneni, A., Mira, D., Mueller, M.E., Application of In-Situ Adaptive Manifolds (ISAM) for the study of highly stratified multi-regime flames, 19<sup>th</sup> International Conference on Numerical Combustion, Kyoto, Japan, May 7-10, 2024
  60. Mueller, M.E., Bonilla, I.J., Fush, S.T., Satterthwaite, P., Toward comprehensive manifold-based combustion modeling of multi-component Sustainable Aviation Fuels in turbulent reacting flows, 19<sup>th</sup> International Conference on Numerical Combustion, Kyoto, Japan, May 7-10, 2024
  61. Boerchers, J.B., Sitaraman, H., Mueller, M.E., Manifold-based modeling of supersonic turbulent combustion: Accounting for compressibility effects, Eastern States Section Combustion Institute Spring Meeting, Athens, GA, March 10-13, 2024
  62. Bonilla, I.J., Lacey, C.E., Mueller, M.E., Large Eddy Simulation of a turbulent lifted flame using a multi-modal manifold-based combustion model and nonlinear generalized progress variable, Eastern States Section Combustion Institute Spring Meeting, Athens, GA, March 10-13, 2024
  63. Fush, S.T., Bonilla, I.J., Mueller, M.E., Neural network coupling binary trees for reducing memory requirements of in-situ adaptive manifolds, Eastern States Section Combustion Institute Spring Meeting, Athens, GA, March 10-13, 2024

- 
64. Rzepka, S.L., Maldonado Colmán, H., Mueller, M.E., Effect of thermodiffusive instabilities on the formation of N<sub>2</sub>O and NO<sub>x</sub> in lean partially cracked NH<sub>3</sub>-air laminar premixed flames, Eastern States Section Combustion Institute Spring Meeting, Athens, GA, March 10-13, 2024
  65. VanderKam, K., Mueller, M.E., Large-scale turbulence effects on turbulent premixed planar flames, Eastern States Section Combustion Institute Spring Meeting, Athens, GA, March 10-13, 2024
  66. Maldonado Colmán, H., Mueller, M.E., Minimizing reactive nitrogen emissions in ammonia combustion: A novel rush-to-equilibrium concept, Eastern States Section Combustion Institute Spring Meeting, Athens, GA, March 10-13, 2024
  67. Quan Reyes, D.A., Roekaerts, D., Mueller, M.E., van Oijen, J., DNS and manifold-based modeling for argon power cycles, Eastern States Section Combustion Institute Spring Meeting, Athens, GA, March 10-13, 2024
  68. Mueller, M.E., Computational Fluid Dynamics modeling of full-scale offshore wind farms, Offshore Wind Technology Conference, Newark, NJ, December 6-7, 2023
  69. Aiyer, A., Deike, L., Mueller, M.E., Modeling the effects of swell and vertical wave motions in wall-modeled Large Eddy Simulation of offshore wind farms, 76<sup>th</sup> Annual Meeting of the American Physical Society Division of Fluid Dynamics, Washington, DC, November 19-21, 2023
  70. Boerchers, J.B., Mueller, M.E., Role of compressibility effects in manifold models for supersonic turbulent combustion, 76<sup>th</sup> Annual Meeting of the American Physical Society Division of Fluid Dynamics, Washington, DC, November 19-21, 2023
  71. Bonilla, I.J., Lacey, C.E., Mueller, M.E., In-Situ Adaptive Manifolds for modeling a turbulent piloted jet flame with inhomogeneous inlets, 76<sup>th</sup> Annual Meeting of the American Physical Society Division of Fluid Dynamics, Washington, DC, November 19-21, 2023
  72. Fush, S.T., Bonilla, I.J., Mueller, M.E., Hybrid parallelization of In-Situ Adaptive Manifolds for computationally efficient turbulent combustion simulations, 76<sup>th</sup> Annual Meeting of the American Physical Society Division of Fluid Dynamics, Washington, DC, November 19-21, 2023
  73. Maldonado Colmán, H., Mueller, M.E., Evolution of the soot particle size distribution in a turbulent nonpremixed bluff body flame, 76<sup>th</sup> Annual Meeting of the American Physical Society Division of Fluid Dynamics, Washington, DC, November 19-21, 2023
  74. Rzepka, S., Maldonado Colmán, H., Mueller, M.E., Thermodiffusive instabilities and nitrogen oxides in lean ammonia/hydrogen/nitrogen-air laminar premixed flames, 76<sup>th</sup> Annual Meeting of the American Physical Society Division of Fluid Dynamics, Washington, DC, November 19-21, 2023
  75. VanderKam, K., Mueller, M.E., Dynamics of differential diffusion effects in turbulent premixed hydrogen flames at varying Karlovitz number, 76<sup>th</sup> Annual Meeting of the American Physical Society Division of Fluid Dynamics, Washington, DC, November 19-21, 2023
  76. Lacey, C.E., Soriano, B.S., Rieth, M., Mueller, M.E., Chen, J.H., Evaluating generalizability of a deep learning model for the instantaneous conditional dissipation rate profiles in multi-modal turbulent combustion, 76<sup>th</sup> Annual Meeting of the American Physical Society Division of Fluid Dynamics, Washington, DC, November 19-21, 2023

- 
77. Williams, H.H., Aiyer, A., Deike, L., Mueller, M.E., Relative impacts of turbulence and waves on a finite offshore wind farm with atmospheric inflow and oceanic waves, NAWEA/WindTech 2023 Conference, Boulder, CO, October 30-November 1, 2023
  78. Mueller, M.E., Klemmer, K.S., Leveraging model assumptions for model-form uncertainty quantification, 17<sup>th</sup> U.S. National Congress on Computational Mechanics, Albuquerque, NM, July 23-27, 2023
  79. Aiyer, A., Deike, L., Mueller, M.E., Modeling the effect of a broadband wave spectrum including swell in a wall-modeled Large Eddy Simulation framework, 29<sup>th</sup> WISE Meeting, Princeton, NJ, May 7-10, 2023
  80. Williams, H.H., Aiyer, A., Deike, L., Mueller, M.E., Examining the impact and relative importance of waves in an offshore wind farm using a computationally efficient modeling framework, 29<sup>th</sup> WISE Meeting, Princeton, NJ, May 7-10, 2023
  81. Bonilla, I.J., Lacey, C.E., Mueller, M.E., Computational cost improvements for In-Situ Adaptive Manifolds for turbulent combustion modeling, 13<sup>th</sup> U.S. National Combustion Meeting, College Station, TX, March 19-22, 2023
  82. Lacey, C.E., Rieth, M., Chen, J.H., Mueller, M.E., Deep learning model for the instantaneous dissipation rate profiles in multi-modal turbulent combustion, 13<sup>th</sup> U.S. National Combustion Meeting, College Station, TX, March 19-22, 2023
  83. Maldonado Colmán, H., Mueller, M.E., Large Eddy Simulation of turbulent nonpremixed sooting flames: Evolution of the soot size distribution using the Bivariate Multi-Moment Sectional Method, 13<sup>th</sup> U.S. National Combustion Meeting, College Station, TX, March 19-22, 2023
  84. Maldonado Colmán, H., Armstrong, J., Mueller, M.E., Partially non-equilibrium manifolds for turbulent combustion modeling with arbitrary time scales, 13<sup>th</sup> U.S. National Combustion Meeting, College Station, TX, March 19-22, 2023
  85. Robang, A.S., Lacey, C.E., D'Alessio, G., Mueller, M.E., Deep learning modeling of the filtered generalized progress variable dissipation rate in turbulent premixed combustion, 13<sup>th</sup> U.S. National Combustion Meeting, College Station, TX, March 19-22, 2023
  86. VanderKam, K., Mueller, M.E., The influence of scalar dissipation rate fluctuations on turbulent premixed flames at varying Karlovitz number, 13<sup>th</sup> U.S. National Combustion Meeting, College Station, TX, March 19-22, 2023
  87. Perry, B.A., Eiden, K., Henry de Frahan, M.T., Yellapantula, S., Esclapez, L., Mueller, M.E., Day, M.S., Simulation of a jet flame with inhomogeneous inlets using tabulated and neural network manifold models, 13<sup>th</sup> U.S. National Combustion Meeting, College Station, TX, March 19-22, 2023
  88. Mueller, M.E., Klemmer, K.S., Leveraging model assumptions for model form uncertainty quantification, SIAM Conference on Computational Science and Engineering, Amsterdam, Netherlands, February 26-March 3, 2023
  89. Cisneros Garibay, E., Mueller, M.E., Manifold-based modeling for supersonic turbulent combustion, AIAA SciTech 2023, National Harbor, MD, January 23-27, 2023

Awarded: **Best Paper, High-Speed Air-Breathing Propulsion**

- 
90. Lacey, C.E., D'Alessio, G., Sundaresan, S., Mueller, M.E., Physics-based dimensionality reduction and deep learning modeling for multi-physics simulations, 2<sup>nd</sup> Energy & Informatics International Forum, Honolulu, HI, December 13-17, 2022
  91. Aiyer, A., Deike, L., Mueller, M.E., Wall-modeled Large Eddy Simulation of offshore wind turbine wake-wave spectrum interactions, 75<sup>th</sup> Annual Meeting of the APS Division of Fluid Dynamics, Indianapolis, IN, November 20-22, 2022
  92. Bonilla, I.J., Lacey, C.E., Mueller, M.E., Performance considerations for In-Situ Adaptive Manifolds for turbulent combustion modeling, 75<sup>th</sup> Annual Meeting of the APS Division of Fluid Dynamics, Indianapolis, IN, November 20-22, 2022
  93. Cisneros Garibay, E., Mueller, M.E., Manifold-based modeling for supersonic turbulent combustion, 75<sup>th</sup> Annual Meeting of the APS Division of Fluid Dynamics, Indianapolis, IN, November 20-22, 2022
  94. D'Alessio, G., Mueller, M.E., Sundaresan, S., Automated framework for data-based modeling of filtered drag for coarse-grained simulations of fluidized beds, 75<sup>th</sup> Annual Meeting of the APS Division of Fluid Dynamics, Indianapolis, IN, November 20-22, 2022
  95. Lacey, C.E., Rieth, M., Chen, J.H., Mueller, M.E., Data-based modeling of instantaneous dissipation rate profiles in multi-modal turbulent combustion, 75<sup>th</sup> Annual Meeting of the APS Division of Fluid Dynamics, Indianapolis, IN, November 20-22, 2022
  96. Maldonado Colmán, H., Mueller, M.E., Evolution of the soot particle size distribution in turbulent nonpremixed bluff body flames using the Bivariate Multi-Moment Sectional Method, 75<sup>th</sup> Annual Meeting of the APS Division of Fluid Dynamics, Indianapolis, IN, November 20-22, 2022
  97. VanderKam, K., Mueller, M.E., The influence of scalar dissipation rate fluctuations on turbulent premixed flames at varying Karlovitz number, 75<sup>th</sup> Annual Meeting of the APS Division of Fluid Dynamics, Indianapolis, IN, November 20-22, 2022
  98. Williams, H.H., Aiyer, A., Deike, L., Mueller, M.E., Computationally efficient wave-modeled Large Eddy Simulation of finite offshore wind farms, 75<sup>th</sup> Annual Meeting of the APS Division of Fluid Dynamics, Indianapolis, IN, November 20-22, 2022
  99. D'Alessio, G., Sundaresan, S., Mueller, M.E., Development of an automated framework for data-based modeling of filtered drag for coarse-grained simulations of fluidized beds based on Artificial Neural Networks and Bayesian optimization, International Conference on Numerical Methods in Multiphase Flows, Venice, Italy, September 28-30, 2022
  100. Williams, H.H., Aiyer, A., Deike, L., Mueller, M.E., Computationally efficient wave-modeled Large Eddy Simulations of finite offshore wind farms and their sensitivity to inflow conditions, NAWEA/WindTech 2022 Conference, Newark, DE, September 20-22, 2022
  101. Beckers, D., Henry de Frahan, M.T., Esclapez, L., Brazell, M., Perry, B.A., Mueller, M.E., Day, M.S., Discretization error analysis of convective schemes for Large Eddy Simulation with adaptive mesh refinement, Rocky Mountain Fluid Mechanics Research Symposium, Boulder, CO, August 9, 2022

- 
102. Pash, G., Hassanaly, M., Yellapantula, S., Mueller, M.E., Towards uncertainty propagation for data-driven turbulence closure models, Rocky Mountain Fluid Mechanics Research Symposium, Boulder, CO, August 9, 2022
  103. D'Alessio, G., Sundaresan, S., Mueller, M.E., Automated and efficient local adaptive regression for Principal Component-based reduced-order modeling of turbulent reacting flows, 39<sup>th</sup> International Symposium on Combustion, Vancouver, Canada, July 24-29, 2022
  104. Duvvuri, P.P, Maldonado Colmán, H., Mueller, M.E., Relative influence of soot oxidation kinetics and subfilter soot-turbulence interactions on soot evolution in turbulent nonpremixed flames, 39<sup>th</sup> International Symposium on Combustion, Vancouver, Canada, July 24-29, 2022
  105. Lacey, C.E., Sundaresan, S., Mueller, M.E., Data-based instantaneous conditional progress variable dissipation rate modeling for turbulent premixed combustion, 39<sup>th</sup> International Symposium on Combustion, Vancouver, Canada, July 24-29, 2022
  106. Maldonado Colmán, H., Duvvuri, P.P., Mueller, M.E., Large Eddy Simulation of soot evolution in turbulent nonpremixed bluff body flames, 39<sup>th</sup> International Symposium on Combustion, Vancouver, Canada, July 24-29, 2022
  107. VanderKam, K., Mueller, M.E., Distributed turbulent premixed combustion: Radical and reaction zone behaviors, 39<sup>th</sup> International Symposium on Combustion, Vancouver, Canada, July 24-29, 2022
  108. Maldonado Colmán, H., Mueller, M.E., Large Eddy Simulation of the evolution of the soot size distribution in turbulent reacting flows using the Bivariate Multi-Moment Sectional Method, 6<sup>th</sup> International Sooting Flame (ISF) Workshop, Vancouver, Canada, July 22-23, 2022
  109. Perry, B.A., Hassanaly, M., Wimer, N., Henry de Frahan, M.T., Mueller, M.E., Yellapantula, S., Machine learning techniques for manifold-based models, International Workshop on Measurement and Computation of Turbulent Flames/Premixed Turbulent Flames Workshop, Vancouver, Canada, July 22-23, 2022
  110. Taunay, P.-Y.C.R., Quadrature-based moment methods applied to ExB discharges, International Electric Propulsion Conference 2022, Boston, MA, June 19-23, 2022
  111. Aiyer, A., Deike, L., Mueller, M.E., A wall-modeled approach for wave stress in Large Eddy Simulation of offshore wind farms, TORQUE 2022, Delft, Netherlands, June 1-3, 2022 [Aiyer, A.K., Deike, L., Mueller, M.E., A wall-modeled approach for wave stress in Large Eddy Simulation of offshore wind farms, *Journal of Physics: Conference Series* **2265** (2022) 022013]
  112. Mueller, M.E., Fuel-sensitive computational modeling of emissions and turbulent combustion to enable sustainable aviation fuels, 18<sup>th</sup> International Conference on Numerical Combustion, San Diego, CA, May 8-11, 2022
  113. Cisneros Garibay, E., Mueller, M.E., Manifold-based modeling for nonpremixed supersonic turbulent combustion, 18<sup>th</sup> International Conference on Numerical Combustion, San Diego, CA, May 8-11, 2022

- 
114. D'Alessio, G., Sundaresan, S., Mueller, M.E., Automated and efficient local adaptive regression for principal component-based reduced-order modeling of turbulent reacting flows, 18<sup>th</sup> International Conference on Numerical Combustion, San Diego, CA, May 8-11, 2022
  115. Lacey, C.E., Sundaresan, S., Mueller, M.E., Physics-based dimensionality reduction and deep learning model for the progress variable dissipation rate in turbulent premixed combustion, 18<sup>th</sup> International Conference on Numerical Combustion, San Diego, CA, May 8-11, 2022
  116. Maldonado Colmán, H., Mueller, M.E., Large Eddy Simulation of the evolution of the soot size distribution in turbulent reacting flows using the Bivariate Multi-Moment Sectional Method (BMMSM), 18<sup>th</sup> International Conference on Numerical Combustion, San Diego, CA, May 8-11, 2022
  117. VanderKam, K., Mueller, M.E., The role of progress variable dissipation rate averaging in conditional statistics for turbulent premixed combustion, 18<sup>th</sup> International Conference on Numerical Combustion, San Diego, CA, May 8-11, 2022
  118. Klemmer, K., Wu, W., Mueller, M.E., Turbulence model form errors in complex flow configurations, SIAM Conference on Uncertainty Quantification, Atlanta, GA, April 12-15, 2022
  119. Cisneros Garibay, E., Mueller, M.E., Manifold-based modeling for supersonic turbulent nonpremixed combustion, Eastern States Section Combustion Institute Spring Meeting, Orlando FL, March 6-9, 2022
  120. D'Alessio, G., Sundaresan, S., Mueller, M.E., An automated framework for nonlinear regression in Principal Component-based model reduction for reacting flows, Eastern States Section Combustion Institute Spring Meeting, Orlando FL, March 6-9, 2022
  121. Duvvuri, P.P., Maldonado Colmán, H., Mueller, M.E., Role of soot oxidation kinetics and subfilter models on soot evolution in turbulent nonpremixed flames, Eastern States Section Combustion Institute Spring Meeting, Orlando FL, March 6-9, 2022
  122. Lacey, C.E., Sundaresan, S., Mueller, M.E., Deep learning model for the instantaneous conditional progress variable dissipation rate in turbulent premixed combustion, Eastern States Section Combustion Institute Spring Meeting, Orlando FL, March 6-9, 2022
  123. Lee, J., Mueller, M.E., Closure modeling for the conditional progress variable dissipation rate using the PDF transport equation and the influence of the conditional velocity model, Eastern States Section Combustion Institute Spring Meeting, Orlando FL, March 6-9, 2022
  124. Maldonado Colmán, H., Duvvuri, P.P., Mueller, M.E., Large Eddy Simulation of the mechanisms of soot evolution in a turbulent nonpremixed bluff body flame, Eastern States Section Combustion Institute Spring Meeting, Orlando FL, March 6-9, 2022
  125. VanderKam, K., Mueller, M.E., Distributed turbulent premixed combustion: Radical and reaction zone behaviors, Eastern States Section Combustion Institute Spring Meeting, Orlando FL, March 6-9, 2022
  126. Aiyer, A., Deike, L., Mueller, M.E., A sea surface-based drag model for wind-wave interaction in the marine atmospheric boundary layer, Ocean Sciences Meeting, Virtual, February 24-March 4, 2022

- 
127. Aiyer, A., Deike, L., Mueller, M.E., A sea surface-based drag model for Large Eddy Simulation of wind-wave interaction, AGU Fall Meeting, New Orleans, LA, December 13-17, 2021
  128. Aiyer, A., Deike, L., Mueller, M.E., Wall-modeled Large Eddy Simulation of wave effects in offshore wind farms, 74<sup>th</sup> Annual Meeting of the APS Division of Fluid Dynamics, Phoenix, AZ, November 21-23, 2021
  129. Klemmer, K.S., Wu, W., Mueller, M.E., Turbulence model form errors in a statistically stationary separation bubble, 74<sup>th</sup> Annual Meeting of the APS Division of Fluid Dynamics, Phoenix, AZ, November 21-23, 2021
  130. Lacey, C.E., Sundaresan, S., Mueller, M.E., Data-based progress variable dissipation rate modeling for turbulent premixed combustion, 74<sup>th</sup> Annual Meeting of the APS Division of Fluid Dynamics, Phoenix, AZ, November 21-23, 2021
  131. Lee, J., Mueller, M.E., Conditional momentum equation for modeling heat release effects on turbulence in turbulent premixed combustion, 74<sup>th</sup> Annual Meeting of the APS Division of Fluid Dynamics, Phoenix, AZ, November 21-23, 2021
  132. Maldonado Colman, H., Mueller, M.E., Presumed subfilter PDF model for finite-rate oxidation of soot in turbulent reacting flows, 74<sup>th</sup> Annual Meeting of the APS Division of Fluid Dynamics, Phoenix, AZ, November 21-23, 2021
  133. VanderKam, K., Mueller, M.E., The role of intense reactant-product mixing in distributed turbulent premixed combustion, 74<sup>th</sup> Annual Meeting of the APS Division of Fluid Dynamics, Phoenix, AZ, November 21-23, 2021
  134. Taunay, P.-Y.C.R., Mueller, M.E., Quadrature-based moment methods for kinetic plasma simulations, 63<sup>rd</sup> Annual Meeting of the APS Division of Plasma Physics, Pittsburgh, PA, November 8-12, 2021
  135. Lacey, C.E., Mueller, M.E., Large Eddy Simulations of turbulent flames with multiple and/or inhomogeneous inlets using In-Situ Adaptive Manifolds, 12<sup>th</sup> U.S. National Combustion Meeting, College Station, TX, May 24-26, 2021
  136. Lee, J., Mueller, M.E., Closure modeling for the conditional momentum equation in turbulent premixed jet flames at low and high Karlovitz numbers, 12<sup>th</sup> U.S. National Combustion Meeting, College Station, TX, May 24-26, 2021
  137. Novoselov, A.G., Perry, B.A., Mueller, M.E., Two-dimensional manifold equations for multi-modal turbulent combustion: Defining the generalized progress variable and modeling the scalar dissipation rates, 12<sup>th</sup> U.S. National Combustion Meeting, College Station, TX, May 24-26, 2021
  138. VanderKam, K., Mueller, M.E., Distributed turbulent premixed combustion: Qualitative differences in radical species behavior, 12<sup>th</sup> U.S. National Combustion Meeting, College Station, TX, May 24-26, 2021
  139. Novoselov, A.G., Lacey, C.E., Perry, B.A., Mueller, M.E., Large Eddy Simulation of a turbulent lifted flame using multi-modal manifold-based models: Feasibility and interpretability, 38<sup>th</sup> International Symposium on Combustion, Adelaide, Australia, January 24-29, 2021

- 
140. Lacey, C.E., Novoselov, A.G. Mueller, M.E., In-Situ Adaptive Manifolds: Enabling computationally efficient simulations of complex turbulent reacting flows, 38<sup>th</sup> International Symposium on Combustion, Adelaide, Australia, July 24-29, 2021
  141. Lee, J., Mueller, M.E., Closure modeling for the conditional Reynolds stresses in turbulent premixed combustion, 38<sup>th</sup> International Symposium on Combustion, Adelaide, Australia, January 24-29, 2021
  142. Berger, L., Wick, A., Attili, A., Mueller, M.E., Pitsch, H., Modeling subfilter soot-turbulence interactions in Large Eddy Simulation: An a priori study, 38<sup>th</sup> International Symposium on Combustion, Adelaide, Australia, January 24-29, 2021
  143. Klemmer, K.S., Mueller, M.E., Influence of Reynolds number and flow configuration on turbulence model form errors, 73<sup>rd</sup> Annual Meeting of the APS Division of Fluid Dynamics, Chicago, IL, November 22-24, 2020
  144. Lacey, C.E., Mueller, M.E., Leveraging In-Situ Adaptive manifolds for computationally efficient simulations of turbulent combustion with multiple and/or inhomogeneous inlets, 73<sup>rd</sup> Annual Meeting of the APS Division of Fluid Dynamics, Chicago, IL, November 22-24, 2020
  145. Lee, J., Mueller, M.E., Closure modeling for the conditional momentum equation in turbulent premixed combustion, 73<sup>rd</sup> Annual Meeting of the APS Division of Fluid Dynamics, Chicago, IL, November 22-24, 2020
  146. Klemmer, K.S., Mueller, M.E., Implied models approach for turbulent model form physics-based uncertainty quantification, SIAM Conference on Uncertainty Quantification, Munich, Germany, March 24-27, 2020 [cancelled]
  147. Novoselov, A.G., Lacey, C.E., Mueller, M.E., Multi-modal manifold-based modeling of turbulent lifted flames, Eastern States Section Combustion Institute Spring Meeting, Columbia, SC, March 8-11, 2020
  148. Lacey, C.E., Novoselov, A.G., Mueller, M.E., In-Situ Adaptive Manifolds: Enabling simulations of complex turbulent reacting flows, Eastern States Section Combustion Institute Spring Meeting, Columbia, SC, March 8-11, 2020
  149. Lee, J., Mueller, M.E., Closure modeling for the conditional momentum equation in low Karlovitz number turbulent premixed flames, Eastern States Section Combustion Institute Spring Meeting, Columbia, SC, March 8-11, 2020
  150. Lacey, C.E., Novoselov, A.G., Mueller, M.E., In-Situ Adaptive Manifolds: Enabling simulations of complex turbulent reacting flows, 72<sup>nd</sup> Annual Meeting of the APS Division of Fluid Dynamics, Seattle, WA, November 23-26, 2019
  151. Novoselov, A.G., Lacey, C.E., Mueller, M.E., Large Eddy Simulation of turbulent flames using two-dimensional reduced-order manifold modes, 72<sup>nd</sup> Annual Meeting of the APS Division of Fluid Dynamics, Seattle, WA, November 23-26, 2019
  152. Lee, J., Mueller, M.E., Conditional Reynolds stress modeling in turbulent premixed flames, 72<sup>nd</sup> Annual Meeting of the APS Division of Fluid Dynamics, Seattle, WA, November 23-26, 2019

- 
153. Klemmer, K.S., Mueller, M.E., Implied models approach for turbulence model form physics-based uncertainty quantification, 72<sup>nd</sup> Annual Meeting of the APS Division of Fluid Dynamics, Seattle, WA, November 23-26, 2019
  154. Byers, C.P., MacArt, J.F., Mueller, M.E., Hultmark, M., Triple-correlations in decaying isotropic turbulence, 72<sup>nd</sup> Annual Meeting of the APS Division of Fluid Dynamics, Seattle, WA, November 23-26, 2019
  155. Byers, C.P., MacArt, J.F., Mueller, M.E., Hultmark, M., Similarity constraints in decaying isotropic turbulence, 11<sup>th</sup> International Symposium on Turbulence and Shear Flow Phenomena, Southampton, United Kingdom, July 30-August 2, 2019
  156. Mueller, M.E., Perry, B.A., Nunno, A.C., MacArt, J.F., Berger, L., Integrating data-based tools into physics-based model development for turbulent combustion, 17<sup>th</sup> International Conference on Numerical Combustion, Aachen, Germany, May 6-8, 2019
  157. Perry, B.A., Novoselov, A.G., Mueller, M.E., Defining a generalized progress variable in the physically-derived reduced-order manifolds modeling formulation, 17<sup>th</sup> International Conference on Numerical Combustion, Aachen, Germany, May 6-8, 2019
  158. Novoselov, A.G., Whitmore, M.P., Grenga, T., Perry, B.A., Mueller, M.E., The influence of alignment of mixture fraction and generalized progress variable gradients on multi-modal flame structure, 17<sup>th</sup> International Conference on Numerical Combustion, Aachen, Germany, May 6-8, 2019
  159. Nunno, A.C., Mueller, M.E., A comprehensive reduced-order manifold for non-adiabatic multi-modal turbulent combustion, 17<sup>th</sup> International Conference on Numerical Combustion, Aachen, Germany, May 6-8, 2019
  160. Yellapantula, S., Henry de Frahan, M.T., King, R., Grout, R., Perry, B.A., Mueller, M.E., A priori and a posteriori analysis of data driven closure models trained from DNS, 17<sup>th</sup> International Conference on Numerical Combustion, Aachen, Germany, May 6-8, 2019
  161. Lee, J., Mueller, M.E., Heat release effects on the Reynolds stress budgets in turbulent premixed flames, 11<sup>th</sup> U.S. National Combustion Meeting, Pasadena, CA, March 24-27, 2019
  162. Perry, B.A., Mueller, M.E., An overview of multi-physics modeling considerations for turbulent jet flames with inhomogeneous inlets, 11<sup>th</sup> U.S. National Combustion Meeting, Pasadena, CA, March 24-27, 2019
  163. Nunno, A.C., Mueller, M.E., A comprehensive reduced-order manifold for non-adiabatic multi-modal turbulent combustion, 11<sup>th</sup> U.S. National Combustion Meeting, Pasadena, CA, March 24-27, 2019
  164. Novoselov, A.G., Reuter, C.B., Yehia, O.R., Ju, Y., Mueller, M.E., Do turbulent nonpremixed cool flames require special treatment?, 11<sup>th</sup> U.S. National Combustion Meeting, Pasadena, CA, March 24-27, 2019
  165. Yellapantula, S., Perry, B.A., Frahan, M.H.T., Mueller, M.E., Grout, R., Machine learning based joint PDF shapes for multi-scalar mixing in turbulent flows, 11<sup>th</sup> U.S. National Combustion Meeting, Pasadena, CA, March 24-27, 2019
  166. Nunno, A.C., Perry, B.A., MacArt, J.F., Mueller, M.E., Data-driven dimension reduction in turbulent combustion: Utility and limitations, AIAA SciTech 2019, San Diego, CA, January 7-11, 2019

- 
167. Yang, S., Mueller, M.E., Evaluation of a conditional presumed subfilter PDF model in LES of turbulent nonpremixed sooting flames, 71<sup>st</sup> Annual Meeting of the APS Division of Fluid Dynamics, Atlanta, GA, November 18-20, 2018
  168. Perry, B.A., Chen, R., Mueller, M.E., Comparison of reduced-order manifold approaches for simulating a turbulent lifted jet flame, 71<sup>st</sup> Annual Meeting of the APS Division of Fluid Dynamics, Atlanta, GA, November 18-20, 2018
  169. Nunno, A.C., Perry, B.A., MacArt, J.F., Mueller, M.E., A comparison of physics-based and data-based methods of dimension reduction in turbulent combustion, 71<sup>st</sup> Annual Meeting of the APS Division of Fluid Dynamics, Atlanta, GA, November 18-20, 2018
  170. Novoselov, A.G., Reuter, C.B., Yehia, O.R., Ju, Y., Mueller, M.E., Computational and experimental investigation of turbulent nonpremixed cool flames, 71<sup>st</sup> Annual Meeting of the APS Division of Fluid Dynamics, Atlanta, GA, November 18-20, 2018
  171. Byers, C.P., MacArt, J.F., Mueller, M.E., Hultmark, M., Similarity in decaying isotropic turbulence: Functional forms, constraints in single- and two-time evolution, and DNS results, 71<sup>st</sup> Annual Meeting of the APS Division of Fluid Dynamics, Atlanta, GA, November 18-20, 2018
  172. Yang, S., Mueller, M.E., A Multi-Moment Sectional Method (MMSM) for tracking the soot Number Density Function, 37<sup>th</sup> International Symposium on Combustion, Dublin, Ireland, July 29-August 3, 2018
  173. MacArt, J.F., Grenga, T., Mueller, M.E., Evolution of flame-conditioned velocity statistics in turbulent premixed jet flames at varying Karlovitz number, 37<sup>th</sup> International Symposium on Combustion, Dublin, Ireland, July 29-August 3, 2018
  174. Perry, B.A., Mueller, M.E., Effect of multiscale subfilter PDF models in LES of turbulent flames with inhomogeneous inlets, 37<sup>th</sup> International Symposium on Combustion, Dublin, Ireland, July 29-August 3, 2018
  175. Nunno, A.C., Mueller, M.E., Manifold assumptions in modeling radiation heat losses in turbulent nonpremixed combustion, 37<sup>th</sup> International Symposium on Combustion, Dublin, Ireland, July 29-August 3, 2018
  176. Novoselov, A.G., Law, C.K., Mueller, M.E., Direct Numerical Simulation of turbulent nonpremixed "cool" flames: Applicability of flamelet models, 37<sup>th</sup> International Symposium on Combustion, Dublin, Ireland, July 29-August 3, 2018
  177. Chong, S.T., Raman, V., Mueller, M.E., Selvaraj, P., Im, H.G., Effect of quadrature approach and chemical kinetics on soot formation in a model aircraft combustor, 37<sup>th</sup> International Symposium on Combustion, Dublin, Ireland, July 29-August 3, 2018
  178. Han, W., Raman, V., Mueller, M.E., Chen, Z., Effects of combustion models on soot formation and evolution in turbulent nonpremixed flames, 37<sup>th</sup> International Symposium on Combustion, Dublin, Ireland, July 29-August 3, 2018

- 
179. Perry, B.A., Mueller, M.E., Challenges for Large Eddy Simulation of partially premixed turbulent combustion using reduced-order manifold flame structure models, 14<sup>th</sup> International Workshop on Measurement and Computation of Turbulent Flames, Dublin, Ireland, July 27-28, 2018
  180. Yang, S., Lew, J.K., Mueller, M.E., Large Eddy Simulation of turbulent nonpremixed sooting flames: Subfilter and transport modeling, 4<sup>th</sup> International Sooting Flame Workshop, Dublin, Ireland, July 27-28, 2018
  181. Chong, S.T., Mueller, M.E., Im, H.G., Raman, V., The role of recirculation zones in soot formation in aircraft combustors, ASME 2018 Turbo Expo, Oslo, Norway, June 11-15, 2018
  182. Yang, S., Lew, J.K., Mueller, M.E., Subfilter and transport modeling for Large Eddy Simulation of turbulent nonpremixed sooting flames, Central States Section Combustion Institute Spring Meeting, Minneapolis, MN, May 20-22, 2018
  183. Mueller, M.E., Physics-derived approaches to multi-physics model form uncertainty quantification: Application to turbulent combustion modeling, SIAM Conference on Uncertainty Quantification, Garden Grove, CA, April 16-19, 2018
  184. Perry, B.A., Mueller, M.E., Challenges for Large Eddy Simulation of partially premixed turbulent combustion using Reduced-Order Manifold flame structure models, Eastern States Section Combustion Institute Spring Meeting, State College, PA, March 4-7, 2018
  185. Nunno, A.C., Mueller, M.E., A comprehensive model for non-adiabatic multi-modal combustion using Physically-Derived Reduced-Order Manifolds, Eastern States Section Combustion Institute Spring Meeting, State College, PA, March 4-7, 2018
  186. MacArt, J.F., Grenga, T., Mueller, M.E., Budgets of flame-conditioned second-order turbulence statistics in low and high Karlovitz number turbulent premixed jet flames, Eastern States Section Combustion Institute Spring Meeting, State College, PA, March 4-7, 2018
  187. Yang, S., Mueller, M.E., A Multi-Moment Sectional Method to predict the soot size distribution, Eastern States Section Combustion Institute Spring Meeting, State College, PA, March 4-7, 2018
  188. Yang, S., Lew, J.K., Mueller, M.E., Subfilter transport modeling for Large Eddy Simulation of turbulent nonpremixed sooting flames, Eastern States Section Combustion Institute Spring Meeting, State College, PA, March 4-7, 2018
  189. Grenga, T., MacArt, J.F., Mueller, M.E., Multi-modal counterflow flames under autoignitive conditions, Eastern States Section Combustion Institute Spring Meeting, State College, PA, March 4-7, 2018
  190. Grenga, T., MacArt, J.F., Mueller, M.E., Dynamic Mode Decomposition of turbulent planar reacting and nonreacting jets, Eastern States Section Combustion Institute Spring Meeting, State College, PA, March 4-7, 2018
  191. Nunno, A.C., Mueller, M.E., Effects of heat loss thermochemistry models in reduced-order manifolds on NO<sub>x</sub> pollutant formation, Sixth International Education Forum on Environment and Energy Science, Tenerife, Spain, December 15-19, 2017

- 
192. Perry, B.A., Mueller, M.E., Multiscalar subfilter PDF modeling for Large Eddy Simulation of turbulent piloted flames with inhomogeneous inlets, 70<sup>th</sup> Annual Meeting of the APS Division of Fluid Dynamics, Denver, CO, November 19-21, 2017
  193. MacArt, J.F., Mueller, M.E., Flame-conditional turbulence modeling for reacting flows, 70<sup>th</sup> Annual Meeting of the APS Division of Fluid Dynamics, Denver, CO, November 19-21, 2017
  194. Novoselov, A.G., Mueller, M.E., Ignition and extinction dynamics in turbulent nonpremixed "cool" flames, 70<sup>th</sup> Annual Meeting of the APS Division of Fluid Dynamics, Denver, CO, November 19-21, 2017
  195. Lew, J.K., Yang, S., Mueller, M.E., Evaluation of a strain-sensitive transport model in LES of turbulent nonpremixed sooting flames, 70<sup>th</sup> Annual Meeting of the APS Division of Fluid Dynamics, Denver, CO, November 19-21, 2017
  196. Nunno, A.C., Lew, J.K., Mueller, M.E., Role of unsteady effects in radiation heat losses in turbulent nonpremixed flames, 70<sup>th</sup> Annual Meeting of the APS Division of Fluid Dynamics, Denver, CO, November 19-21, 2017
  197. Griffin, K., Mueller, M.E., Evaluation of model constant sensitivities for subfilter mixture fraction variance using adjoint and sensitivity derivative approaches, 70<sup>th</sup> Annual Meeting of the APS Division of Fluid Dynamics, Denver, CO, November 19-21, 2017
  198. Grenga, T., Mueller, M.E., Effects of scalar alignment on flame structure in multi-modal combustion, 70<sup>th</sup> Annual Meeting of the APS Division of Fluid Dynamics, Denver, CO, November 19-21, 2017
  199. Chong, S.T., Raman, V., Han, W., Mueller, M.E., Selvaraj, P., Im, H.G., Method of moments comparison for soot population balance modeling in turbulent combustion, 70<sup>th</sup> Annual Meeting of the APS Division of Fluid Dynamics, Denver, CO, November 19-21, 2017
  200. Grenga, T., MacArt, J. F., Mueller, M.E., Dynamic Mode Decomposition of a turbulent premixed planar jet flame, 10<sup>th</sup> Mediterranean Combustion Symposium, Naples, Italy, September 17-21, 2017
  201. Mueller, M.E., Physically-derived reduced-order manifolds for multi-modal turbulent combustion, 6<sup>th</sup> International Workshop on Model Reduction in Reacting Flow, Princeton, NJ, July 11-14, 2017
  202. Mueller, M.E., Physically-derived reduced-order manifolds for multi-modal turbulent combustion, 10<sup>th</sup> U.S. National Combustion Meeting, College Park, MD, April 23-26, 2017
  203. Mueller, M.E., Hierarchical model form uncertainty quantification for turbulent combustion modeling, 10<sup>th</sup> U.S. National Combustion Meeting, College Park, MD, April 23-26, 2017
  204. Lew, J.K., Mueller, M.E., Modeling differential diffusion of strain-sensitive gas-phase species in turbulent nonpremixed sooting flows, 10<sup>th</sup> U.S. National Combustion Meeting, College Park, MD, April 23-26, 2017
  205. Grenga, T., Mueller, M.E., Multi-modal counterflow flame structure under autoignitive conditions, 10<sup>th</sup> U.S. National Combustion Meeting, College Park, MD, April 23-26, 2017
  206. Perry, B.A., Mueller, M.E., Joint scalar probability density function modeling for multiscalar turbulent mixing, 10<sup>th</sup> U.S. National Combustion Meeting, College Park, MD, April 23-26, 2017

- 
207. MacArt, J.F., Grenga, T., Mueller, M.E., Karlovitz number effects on velocity and scalar statistics in turbulent premixed combustion, 10<sup>th</sup> U.S. National Combustion Meeting, College Park, MD, April 23-26, 2017
  208. Nunno, A.C., Grenga, T., Mueller, M.E., Comparative analysis of methods for heat losses in physically-derived reduced-order manifolds, 10<sup>th</sup> U.S. National Combustion Meeting, College Park, MD, April 23-26, 2017
  209. Novoselov, A.G., Mueller, M.E., Direct Numerical Simulation of a turbulent nonpremixed “cool” flame, 10<sup>th</sup> U.S. National Combustion Meeting, College Park, MD, April 23-26, 2017
  210. Berger, L., Wick, A., Attili, A., Mueller, M.E., Pitsch, H., Analysis of soot-turbulence interactions for sub-filter modeling in LES, 8<sup>th</sup> European Combustion Meeting, Dubrovnik, Croatia, April 18-21, 2017
  211. Mueller, M.E., Generalized turbulent combustion model for multi-modal combustion, 16<sup>th</sup> International Conference on Numerical Combustion, Orlando, FL, April 3-5, 2017
  212. Mueller, M.E., Raman, V., Physics-derived model form uncertainty quantification for turbulent combustion, 16<sup>th</sup> International Conference on Numerical Combustion, Orlando, FL, April 3-5, 2017
  213. MacArt, J.F., Grenga, T., Mueller, M.E., Heat release effects on turbulence statistics in premixed and nonpremixed flames, 16<sup>th</sup> International Conference on Numerical Combustion, Orlando, FL, April 3-5, 2017
  214. Grenga, T., MacArt, J.F., Mueller, M.E., Dynamic Mode Decomposition of turbulent non-reacting and reacting nonpremixed jets, 16<sup>th</sup> International Conference on Numerical Combustion, Orlando, FL, April 3-5, 2017
  215. Perry, B.A., Mueller, M.E., Mode determination for combustion modeling in partially premixed turbulent flames, 16<sup>th</sup> International Conference on Numerical Combustion, Orlando, FL, April 3-5, 2017
  216. Berger, L., Pitsch, H., Mueller, M.E., Adequate techniques for the practical computation of optimal estimators, 16<sup>th</sup> International Conference on Numerical Combustion, Orlando, FL, April 3-5, 2017
  217. Chong, S.T., Raman, V., Mueller, M.E., Im, H., Comparison of moments-based approaches for modeling soot population in turbulent flows, 16<sup>th</sup> International Conference on Numerical Combustion, Orlando, FL, April 3-5, 2017
  218. MacArt, J.F., Grenga, T., Mueller, M.E., Conditional budgets of second-order statistics in nonpremixed and premixed turbulent combustion, 69<sup>th</sup> Annual Meeting of the APS Division of Fluid Dynamics, Portland, OR, November 20-22, 2016
  219. Lew, J.K., Mueller, M.E., A priori analysis of a LES subfilter model for soot-turbulence-chemistry interactions, 69<sup>th</sup> Annual Meeting of the APS Division of Fluid Dynamics, Portland, OR, November 20-22, 2016
  220. Nunno, A.C., Grenga, T., Mueller, M.E., Effects of Flamelet Generated Manifolds on turbulent flame structure and pollutant emissions, 69<sup>th</sup> Annual Meeting of the APS Division of Fluid Dynamics, Portland, OR, November 20-22, 2016

- 
221. Perry, B.A., Mueller, M.E., A flamelet modeling approach for multi-modal combustion with inhomogeneous inlets, 69<sup>th</sup> Annual Meeting of the APS Division of Fluid Dynamics, Portland, OR, November 20-22, 2016
  222. Grenga, T., Mueller, M.E., Three-dimensional dynamic mode decomposition of premixed turbulent jet flames, 69<sup>th</sup> Annual Meeting of the APS Division of Fluid Dynamics, Portland, OR, November 20-22, 2016
  223. Deng, S., Zhao, P., Mueller, M.E., Law, C.K., Dynamics of autoignitive DME/air coflow flames in oscillating flows, 69<sup>th</sup> Annual Meeting of the APS Division of Fluid Dynamics, Portland, OR, November 20-22, 2016
  224. Langer, R.T., Wick, A., Mueller, M.E., Pitsch, H., Multivariate modeling of soot particles with the Hybrid Method of Moments, European Aerosol Conference 2016, Tours, France, September 5-10, 2016
  225. Perry, B.A., Mueller, M.E., Masri, A.R., A two mixture fraction flamelet model for Large Eddy Simulation of turbulent flames with inhomogeneous inlets, 36<sup>th</sup> International Symposium on Combustion, Seoul, South Korea, July 31-August 5, 2016
  226. Deng, S., Mueller, M.E., Chan, Q.N., Qamar, N.H., Dally, B.B., Alwahabi, Z.T., Nathan, G.J., Hydrodynamic and chemical effects of hydrogen addition on soot evolution in turbulent nonpremixed bluff body ethylene flames, 36<sup>th</sup> International Symposium on Combustion, Seoul, South Korea, July 31-August 5, 2016
  227. Deng, S., Zhao, P., Mueller, M.E., Law, C.K., Flame dynamics in oscillating flows under autoignitive conditions, 36<sup>th</sup> International Symposium on Combustion, Seoul, South Korea, July 31-August 5, 2016
  228. Nunno, A.C., Grenga, T., Mueller, M.E., Effects of flamelet manifold generation on flame structure and pollutants in diluted turbulent premixed flames, 36<sup>th</sup> International Symposium on Combustion, Seoul, South Korea, July 31-August 5, 2016
  229. Lalit, H., Mueller, M.E., Gore, J.P., Quantitative imaging of mid-infrared radiation of turbulent sooting flames: A tool for LES model validation, 36<sup>th</sup> International Symposium on Combustion, Seoul, South Korea, July 31-August 5, 2016
  230. Mueller, M.E., Raman, V., Comparisons of uncertainties from turbulence and chemical kinetics models in turbulent combustion simulations, 2016 International Workshop on Measurement and Computation of Turbulent Flames, Seoul, South Korea, July 28-30, 2016
  231. Perry, B.A., Mueller, M.E., Masri, A.R., A new mode-switching approach for modeling turbulent flames with inhomogeneous partially premixed inlets, 2016 International Workshop on Measurement and Computation of Turbulent Flames, Seoul, South Korea, July 28-30, 2016
  232. Koo, H., Hassanaly, M., Raman, V., Mueller, M.E., Geigle, K.-P., Large Eddy Simulation of soot formation in a model gas turbine combustor, ASME 2016 Turbo Expo, Seoul, South Korea, June 13-17, 2016
  233. Mueller, M.E., Raman, V., Physics-derived model form uncertainty in turbulent combustion, SIAM Conference on Uncertainty Quantification, Lausanne, Switzerland, April 5-8, 2016
  234. Mueller, M.E., Raman, V., Model form uncertainty in turbulent combustion simulations, Eastern States Section Combustion Institute Spring Meeting, Princeton, NJ, March 13-16, 2016

- 
235. Deng, S., Zhao, P., Mueller, M.E., Law, C.K., Autoignited DME/air coflow flames in oscillating flows, Eastern States Section Combustion Institute Spring Meeting, Princeton, NJ, March 13-16, 2016
  236. Deng, S., Mueller, M.E., Chan, Q.N., Qamar, N.H., Dally, B.B., Alwahabi, Z.T., Nathan, G.J., Soot evolution in turbulent nonpremixed ethylene/hydrogen bluff body flames, Eastern States Section Combustion Institute Spring Meeting, Princeton, NJ, March 13-16, 2016
  237. MacArt, J.F., Grenga, T., Mueller, M.E., Effects of small-scale heat release on turbulence scaling in premixed and nonpremixed flames, Eastern States Section Combustion Institute Spring Meeting, Princeton, NJ, March 13-16, 2016
  238. Nunno, A.C., Grenga, T., Mueller, M.E., Large Eddy Simulation of radiation effects in CO<sub>2</sub> and H<sub>2</sub>O diluted turbulent premixed flames, Eastern States Section Combustion Institute Spring Meeting, Princeton, NJ, March 13-16, 2016
  239. Perry, B.A., Mueller, M.E., Masri, A.R., Large Eddy Simulation of a turbulent jet flame with inhomogeneous inlets using a two mixture fraction flamelet modeling approach, Eastern States Section Combustion Institute Spring Meeting, Princeton, NJ, March 13-16, 2016
  240. Lew, J.K., Mueller, M.E., Mahmoud, S., Alwahabi, Z.T., Dally, B.B., Nathan, G.J., Modeling subfilter soot-turbulence interactions in nonpremixed jet flames, Eastern States Section Combustion Institute Spring Meeting, Princeton, NJ, March 13-16, 2016
  241. Koo, H., Raman, V., Mueller, M.E., Geigle, K.-P., LES of a sooting flame in a pressurized swirl combustor, AIAA SciTech 2016, San Diego, CA, January 4-8, 2016
  242. Lalit, H., Kapaku, R., Rankin, B.A., Mueller, M.E., Gore, J.P., Experimental and computational imaging of mid-infrared radiation from a turbulent ethylene flame, AIAA SciTech 2016, San Diego, CA, January 4-8, 2016
  243. Deng, S., Zhao, P., Mueller, M.E., Law, C.K., Laminar nonpremixed coflow flame stabilization under autoignitive conditions, Fourth International Education Forum on Environment and Energy Science, Maui, HI, December 6-10, 2015
  244. Mueller, M.E., Perry, B.A., Masri, A.R., Computational study of the effect of compositionally inhomogeneous fuel streams on turbulent jet flames, 68<sup>th</sup> Annual Meeting of the APS Division of Fluid Dynamics, Boston, MA, November 22-24, 2015
  245. Bahri, C., Arwatz, G., Hultmark, M., Mueller, M.E., Scaling of co-spectra in grid turbulence with a mean cross-stream temperature gradient, 68<sup>th</sup> Annual Meeting of the APS Division of Fluid Dynamics, Boston, MA, November 22-24, 2015
  246. Deng, S., Mueller, M.E., Chan, Q.N., Qamar, N.H., Dally, B.B., Alwahabi, Z.T., Nathan, G.J., Hydrodynamic and chemical effects of hydrogen dilution on soot evolution in turbulent nonpremixed bluff body ethylene flames, 68<sup>th</sup> Annual Meeting of the APS Division of Fluid Dynamics, Boston, MA, November 22-24, 2015
  247. Lew, J.K., Mueller, M.E., Mahmoud, S., Alwahabi, Z.T., Dally, B.B., Nathan, G.J., Strain rate effects on soot evolution in turbulent nonpremixed flames, 68<sup>th</sup> Annual Meeting of the APS Division of Fluid Dynamics, Boston, MA, November 22-24, 2015

- 
248. MacArt, J.F., Mueller, M.E., Semi-implicit iterative methods for low Mach number turbulent reacting flows, 68<sup>th</sup> Annual Meeting of the APS Division of Fluid Dynamics, Boston, MA, November 22-24, 2015
  249. Nunno, A.C., Mueller, M.E., Large Eddy Simulation of radiation effects on pollutant emissions in diluted turbulent premixed flames, 68<sup>th</sup> Annual Meeting of the APS Division of Fluid Dynamics, Boston, MA, November 22-24, 2015
  250. Perry, B.A., Mueller, M.E., Masri, A.R., A two mixture fraction flamelet model for Large Eddy Simulation of turbulent jet flames with inhomogeneous inlets, 68<sup>th</sup> Annual Meeting of the APS Division of Fluid Dynamics, Boston, MA, November 22-24, 2015
  251. Sowah, S.S., Mueller, M.E., Stone, H.A., Numerical simulations of curvature effects in laminar channel flows, 68<sup>th</sup> Annual Meeting of the APS Division of Fluid Dynamics, Boston, MA, November 22-24, 2015
  252. Koo, H., Raman, V., Mueller, M.E., Geigle, K.-P., LES study of intermittency in soot formation in a model aircraft combustor, 68<sup>th</sup> Annual Meeting of the APS Division of Fluid Dynamics, Boston, MA, November 22-24, 2015
  253. Perry, B.A., Mueller, M.E., Masri, A.R., Barlow, R.S., Large Eddy Simulation of turbulent partially premixed jet flames with inhomogeneous boundary conditions, 9<sup>th</sup> U.S. National Combustion Meeting, Cincinnati, OH, May 17-20, 2015
  254. Nunno, A.C., Mueller, M.E., Large Eddy Simulation of the effects of radiation on turbulent premixed flame structure, 9<sup>th</sup> U.S. National Combustion Meeting, Cincinnati, OH, May 17-20, 2015
  255. Deng, S., Peng, Z., Mueller, M.E., Law, C.K., Stabilization of laminar nonpremixed DME/air coflow flames at elevated temperature and pressure, 9<sup>th</sup> U.S. National Combustion Meeting, Cincinnati, OH, May 17-20, 2015
  256. Mueller, M.E., Validation of multi-physics LES against sparse data, 15<sup>th</sup> International Conference on Numerical Combustion, Avignon, France, April 19-22, 2015
  257. Koo, H., Mueller, M.E., Raman, V., Dally, B.B., RANS-based modeling and uncertainty quantification of soot formation in flames, 15<sup>th</sup> International Conference on Numerical Combustion, Avignon, France, April 19-22, 2015
  258. Attili, A., Bisetti, F., Mueller, M.E., Pitsch, H., Lewis number effects in turbulent nonpremixed sooting flames, 15<sup>th</sup> International Conference on Numerical Combustion, Avignon, France, April 19-22, 2015
  259. Deng, S., Zhao, P., Mueller, M.E., Law, C.K., Detailed numerical simulations of the autoignition-affected stabilization of laminar nonpremixed DME/air coflow flames at elevated pressure, High Pressure & High Reynolds Number Combustion Workshop, King Abdullah University of Science and Technology, Saudi Arabia, March 24-26, 2015
  260. Kapaku, R.K., Rankin, B.A., Mueller, M.E., Lalit, H.U., Gore, J.P., Quantitative experimental and model-based imaging of mid-infrared radiation from a turbulent luminous flame, AIAA SciTech 2015, Kissimmee, FL, January 5-9, 2015

- 
261. Koo, H., Raman, V., Mueller, M.E., Geigle, K.P., Large-eddy simulation of a turbulent sooting flame in a swirling combustor, AIAA SciTech 2015, Kissimmee, FL, January 5-9, 2015
  262. MacArt, J., Mueller, M.E., Analysis of operator splitting errors for DNS of low Mach number turbulent reacting flows, 67<sup>th</sup> Annual Meeting of the American Physical Society Division of Fluid Dynamics, San Francisco, CA, November 23-25, 2014
  263. Bahri, C., Arwatz, G., Mueller, M.E., George, W.K., Hultmark, M., Scaling of spectra in grid turbulence with a mean cross-stream temperature gradient, 67<sup>th</sup> Annual Meeting of the American Physical Society Division of Fluid Dynamics, San Francisco, CA, November 23-25, 2014
  264. Attili, A., Bisetti, F., Mueller, M.E., Pitsch, H., On the effects of gas-phase species Lewis number in turbulent nonpremixed sooting flames, 67<sup>th</sup> Annual Meeting of the American Physical Society Division of Fluid Dynamics, San Francisco, CA, November 23-25, 2014
  265. Bahri, C., Arwatz, G., George, W.K., Mueller, M.E., Hultmark, M., Scaling of spectra in grid turbulence with mean cross-stream temperature gradient, 10<sup>th</sup> European Fluid Mechanics Conference, Copenhagen, Denmark, September 14-18, 2014
  266. Deng, S., Koch, J.A., Mueller, M.E., Law, C.K., Sooting limits of nonpremixed n-heptane, n-butanol, and methyl butanoate flames: Experimental determination and mechanistic analysis, 35<sup>th</sup> International Symposium on Combustion, San Francisco, CA, August 3-8, 2014
  267. Attili, A., Bisetti, F., Mueller, M.E., Pitsch, H., Damköhler number effects on soot formation and growth in turbulent nonpremixed flames, 35<sup>th</sup> International Symposium on Combustion, San Francisco, CA, August 3-8, 2014
  268. Baldwin, R.L., Mueller, M.E., Chan, Q.N., Qamar, N.H., Dally, B.B., Pitsch, H., Alwahabi, Z.T., Nathan, G.J., Experimental and computational study of soot evolution in turbulent nonpremixed bluff body flames: Fuel effects, 2<sup>nd</sup> International Sooting Flames Workshop, Pleasanton, CA, August 2-3, 2014
  269. Kapaku, R.K., Rankin, B.A., Mueller, M.E., Gore, J.P., Quantitative experimental and model-based imaging of mid-infrared radiation from a turbulent sooting flame, 2<sup>nd</sup> International Sooting Flames Workshop, Pleasanton, CA, August 2-3, 2014
  270. Mueller, M.E., Uncertainty quantification in LES: Chemical kinetics, 12<sup>th</sup> International Workshop on Measurement and Computation of Turbulent Flames, Pleasanton, CA, July 31-August 2, 2014
  271. Bahri, C., Mueller, M.E., Hultmark, M., Temperature fluctuations in fully-developed turbulent channel flow with heated upper wall, 66<sup>th</sup> Annual Meeting of the American Physical Society Division of Fluid Dynamics, Pittsburgh, PA, November 24-26, 2013
  272. Attili, A., Bisetti, F., Mueller, M.E., Pitsch, H., Damköhler number effects on soot formation and growth in turbulent nonpremixed flames, 66<sup>th</sup> Annual Meeting of the American Physical Society Division of Fluid Dynamics, Pittsburgh, PA, November 24-26, 2013
  273. Attili, A., Bisetti, F., Mueller, M.E., Pitsch, H., Damköhler number effects in turbulent nonpremixed sooting flames, 8<sup>th</sup> Mediterranean Combustion Symposium, Çeşme, Turkey, September 8-13, 2013

- 
274. Attili, A., Bisetti, F., Mueller, M.E., Pitsch, H., Effects of turbulent mixing on soot formation and growth in nonpremixed jet flames, 6<sup>th</sup> European Combustion Meeting, Lund, Sweden, June 25-28, 2013
  275. Mueller, M.E., Pitsch, H., Large Eddy Simulation of soot evolution in an aircraft combustor, 8<sup>th</sup> U.S. National Combustion Meeting, Park City, UT, May 19-22, 2013
  276. Xuan, Y., Blanquart, G., Mueller, M.E., Impact of mixture fraction field curvature on chemical species transport in diffusion flames, 8<sup>th</sup> U.S. National Combustion Meeting, Park City, UT, May 19-22, 2013
  277. Mueller, M.E., Raman, V., Effects of turbulent combustion modeling errors on soot evolution in turbulent nonpremixed jet flames, SIAM International Conference on Numerical Combustion, San Antonio, TX, April 8-10, 2013
  278. Attili, A., Bisetti, F., Mueller, M.E., Pitsch, H., DNS of soot formation in three-dimensional turbulent non-premixed jet flames, SIAM International Conference on Numerical Combustion, San Antonio, TX, April 8-10, 2013
  279. Attili, A., Bisetti, F., Mueller, M.E., Pitsch, H., Lagrangian analysis of mixing and soot transport in a turbulent jet flame, Direct and Large-Eddy Simulation 9, Dresden, Germany, April 2-5, 2013
  280. Mueller, M.E., Validation of an LES model for soot evolution against DNS data in turbulent jet flames, 65<sup>th</sup> Annual Meeting of the American Physical Society Division of Fluid Dynamics, San Diego, CA, November 18-20, 2012
  281. Attili, A., Bisetti, B., Mueller, M.E., Pitsch, H., DNS of soot formation in three-dimensional turbulent non-premixed jet flames, 65<sup>th</sup> Annual Meeting of the American Physical Society Division of Fluid Dynamics, San Diego, CA, November 18-20, 2012
  282. Mueller, M.E., Pitsch, H., Black magic: Predicting soot in aircraft engines, Directions in Computational Flow Physics, San Diego, CA, October 14, 2012
  283. Mueller, M.E., Iaccarino, G., Pitsch, H., Chemical kinetic uncertainty quantification for Large Eddy Simulation of turbulent nonpremixed combustion, 34<sup>th</sup> International Symposium on Combustion, Warsaw, Poland, July 29-August 3, 2012
  284. Donde, P., Raman, V., Mueller, M.E., Pitsch, H., LES/PDF based modeling of soot-turbulence interactions in turbulent flames, 34<sup>th</sup> International Symposium on Combustion, Warsaw, Poland, July 29-August 3, 2012
  285. Sharma, A., Mueller, M.E., Pitsch, H., Sensitivity of soot volume fraction predictions to inception species in a range of hydrocarbon flames, 34<sup>th</sup> International Symposium on Combustion, Warsaw, Poland, July 29-August 3, 2012
  286. Mueller, M.E., Pitsch, H., Large Eddy Simulation of soot evolution in an aircraft combustor, 1<sup>st</sup> International Sooting Flames Workshop, Warsaw, Poland, July 28-29, 2012
  287. Mueller, M.E., Iaccarino, G., Pitsch, H., Chemical kinetic uncertainty quantification for high-fidelity turbulent combustion simulations, SIAM Conference on Uncertainty Quantification, Raleigh, NC, April 2-5, 2012

- 
288. Mueller, M.E., Pitsch, H., Large Eddy Simulation of soot evolution in an aircraft combustor, Western States Section Combustion Institute Spring Meeting, Tempe, AZ, March 19-20, 2012
  289. Mueller, M.E., Pitsch, H., Large Eddy Simulation model for soot evolution in turbulent nonpremixed combustion, Partners in Environmental Technology Symposium and Workshop, Washington, D.C., November 29-December 1, 2011
  290. Mueller, M.E., Pitsch, H., Role of large scale mixing in soot evolution in turbulent nonpremixed combustion, 64<sup>th</sup> Annual Meeting of the American Physical Society Division of Fluid Dynamics, Baltimore, MD, November 20-22, 2011
  291. Donde, P., Raman, V., Mueller, M.E., Pitsch, H., LES/PDF approach for modeling soot formation in turbulent flames, 64<sup>th</sup> Annual Meeting of the American Physical Society Division of Fluid Dynamics, Baltimore, MD, November 20-22, 2011
  292. Mueller, M.E., Iaccarino, G., Pitsch, H., Chemical kinetic uncertainty quantification for Large Eddy Simulation of turbulent nonpremixed combustion, Western States Section Combustion Institute Fall Meeting, Riverside, CA, October 16-18, 2011
  293. Mueller, M.E., Pitsch, H., LES Model for Sooting Turbulent Nonpremixed Flames, 7<sup>th</sup> U.S. National Combustion Meeting, Atlanta, GA, March 20-23, 2011
  294. Bansal, G., Mueller, M.E., Pitsch, H., Three-Dimensional Direct Numerical Simulation of Soot Formation using Principal Component Analysis, Partners in Environmental Technology Technical Symposium and Workshop, Washington, D.C., November 30-December 2, 2010
  295. Mueller, M.E., Pitsch, H., LES Subfilter Modeling of Soot-Turbulence Interactions, 63<sup>rd</sup> Annual Meeting of the American Physical Society Division of Fluid Dynamics, Long Beach, CA, November 21-23, 2010
  296. Bisetti, F., Blanquart, G., Mueller, M.E., Pitsch, H., On the formation and early evolution of soot in turbulent nonpremixed flames, 63<sup>rd</sup> Annual Meeting of the American Physical Society Division of Fluid Dynamics, Long Beach, CA, November 21-23, 2010
  297. Mueller, M.E., Blanquart, G., Pitsch, H., Modeling oxidation-induced fragmentation of soot aggregates in laminar flames, 33<sup>rd</sup> International Symposium on Combustion, Beijing, China, August 1-6, 2010
  298. Bansal, G., Mueller, M.E., Pitsch, H., Direct numerical simulation of soot formation in model gas-turbine combustors, 33<sup>rd</sup> International Symposium on Combustion, Beijing, China, August 1-6, 2010
  299. Mueller, M.E., Pitsch, H., Large Eddy Simulation modeling for sooting turbulent flames, Western States Section Combustion Institute Spring Meeting, Boulder, CO, March 22-23, 2010
  300. Raman, V., Mueller, M.E., Blanquart, G., Pitsch, H., Transported PDF modeling of soot-turbulence interactions, Partners in Environmental Technology Technical Symposium and Workshop, Washington, D.C., December 1-3, 2009
  301. Bisetti, F., Blanquart, G., Mueller, M.E., Pitsch, H., Pepiot-Desjardins, P., Direct Numerical Simulation of soot formation in turbulent nonpremixed flames with finite rate chemistry and detailed soot dynamics,

- 
- Partners in Environmental Technology Technical Symposium and Workshop, Washington, D.C., December 1-3, 2009
302. Raman, V., Mueller, M.E., Blanquart, G., Pitsch, H., LES/PDF modeling of soot evolution in turbulent flames, 62<sup>nd</sup> Annual Meeting of the American Physical Society Division of Fluid Dynamics, Minneapolis, MN, November 22-24, 2009
303. Mueller, M.E., Blanquart, G., Pitsch, H., Modeling soot oxidation and fragmentation in laminar premixed flames, Western States Section Combustion Institute Fall Meeting, Irvine, CA, October 26-27, 2009
304. Mueller, M.E., Blanquart, G., Pitsch, H., Large Eddy Simulation of a sooting jet diffusion flame, 6<sup>th</sup> U.S. National Combustion Meeting, Ann Arbor, MI, May 17-20, 2009
305. Bisetti, F., Blanquart, G., Mueller, M.E., Pepiot-Desjardins, P., Pitsch, H., Direct Numerical Simulation of soot formation in turbulent nonpremixed flames, 6<sup>th</sup> U.S. National Combustion Meeting, Ann Arbor, MI, May 17-20, 2009
306. Bisetti, F., Blanquart, G., Mueller, M.E., Pitsch, H., Towards a Direct Numerical Simulation of soot formation in turbulent non-premixed flames, Partners in Environmental Technology Technical Symposium and Workshop, Washington, D.C., December 2-4, 2008
307. Mueller, M.E., Blanquart, G., Pitsch, H., Large Eddy Simulation of a sooting jet diffusion flame, 61<sup>st</sup> Annual Meeting of the American Physical Society Division of Fluid Dynamics, San Antonio, TX, November 23-25, 2008
308. Mueller, M.E., Blanquart, G., Pitsch, H., A joint Volume-Surface model of soot aggregation with the method of moments, 32<sup>nd</sup> International Symposium on Combustion, Montreal, Canada, August 3-8, 2008
309. Blanquart, G., Mueller, M.E., Pitsch, H., Modeling temperature effects on soot formation, 32<sup>nd</sup> International Symposium on Combustion, Montreal, Canada, August 3-8, 2008
310. Bisetti, F., Mueller, M.E., Blanquart, G., Pitsch, H., Analysis of aggregates' statistics from a Monte Carlo simulation of soot formation in laminar flames, 32<sup>nd</sup> International Symposium on Combustion, Montreal, Canada, August 3-8, 2008
311. Mueller, M.E., Blanquart, G., Pitsch, H., Extending the method of moments for bimodal soot particle size distributions, Western States Section Combustion Institute Spring Meeting, Los Angeles, CA, March 17-18, 2008
312. Blanquart, G., Pitsch, H., Mueller, M.E., A joint Volume-Surface-Hydrogen multi-variate model for soot formation, Partners in Environmental Technology Technical Symposium and Workshop, Washington, D.C., December 4-6, 2007

---

**PRINCETON UNIVERSITY SERVICE**

---

## University-Wide

Computing for Research Steering Committee, 2026-Present

Co-Chair, Computing for Research Education and Engagement Advisory Committee, 2026-Present

Computing for Research Planning Group, 2024-2025  
Lab/Campus Collaborative Research Task Force, 2023-2024  
Committee on the Graduate School, 2020-2023  
    Policy Subcommittee, 2021-2023  
    Fellowships Subcommittee, 2020-2021  
Committee on Examination and Standing, 2020-2024  
Task Force on Graduate Student Mentoring, 2019-2020  
Priorities Committee, 2018-2022

School of Engineering and Applied Science

SEAS Anti-Racism Committee, 2020-2021  
ES/SEAS Project Classroom Programming Committee, 2018-2019  
SEAS Committee on Graduate Programs and Postdoctoral Experiences, 2014-2015  
Tau Beta Pi Faculty Advisor, 2013-Present  
BSE First-Year Advisor, 2012-2019

Department of Mechanical and Aerospace Engineering

Acting Chair, 2025-Present  
Associate Chair, 2023-2025  
Strategic Planning Committee, 2022-2023  
Director of Graduate Studies, 2020-2023  
Search Officer, 2018-2023  
Bridge Program Coordinator, 2018-2020  
Climate & Inclusion Committee (co-Chair), 2018-2023  
AIAA Student Chapter Faculty Advisor, 2015-Present  
Graduate Committee, 2012-2023  
Seminar Committee, 2012-2016

Princeton Institute for Computational Science and Engineering

Interim Director, 2025-Present  
Director, Graduate Certificate in Computational Science and Engineering, 2019-Present  
High-Performance Computing Research Center (HPCRC) Steering Committee, 2014-2025

Andlinger Center for Energy and the Environment

Advisory Committee, Princeton E-affiliates, 2019-Present  
Program in Sustainable Energy Executive Committee Member, 2013-Present

Other Units

Strategic Vision Committee, Statistics and Data Science, AI Lab, 2025  
Executive Committee, Center for Digital Humanities, 2024-Present  
Academic-Athletic Fellow, Men's Volleyball, 2016-Present  
Princeton Energy & Climate Scholars (PECS) Faculty Board, 2014-Present

---

**PROFESSIONAL COMMUNITY SERVICE**

The Combustion Institute

Board of Directors Nominating Committee, 2026  
Publication Committee, 2024-Present

Board of Directors, 2024-Present  
Co-Organizer, Princeton-Combustion Institute Summer School on Combustion, 2019-Present  
Early Career Advisory Committee, 2017-2019

United States Sections of The Combustion Institute  
Co-Chair, Publication Committee, 2024-2025  
Treasurer, 2024-Present  
Executive Board Member, 2023-Present  
Early Career and Diversity Development Committee, 2017-2019  
Outreach Committee, 2017-2019

Eastern States Section of The Combustion Institute  
Past Chair, 2026-Present  
Chair, 2024-2026  
Vice Chair/Chair Elect, 2022-2024  
Program Chair, 2020-2022  
Treasurer, 2016-2020  
Executive Board Member, 2013-Present

International Symposium on Combustion  
Silver Medal Committee, 40<sup>th</sup> ISOC, 2025-Present  
Program Advisory Committee, 41<sup>st</sup> ISOC, 2025-Present  
Colloquium Coordinator (Numerical Combustion), 40<sup>th</sup> ISOC, 2023-2024  
Colloquium Co-Chair (Soot, Nanomaterials, and Large Molecules), 39<sup>th</sup> ISOC, 2021-2022  
Colloquium Co-Chair (Soot, Nanomaterials, and Large Molecules), 38<sup>th</sup> ISOC, 2019-2020  
Program Advisory Committee, 38<sup>th</sup> ISOC, 2019-2020  
Colloquium Co-Chair (Soot, Nanomaterials, and Large Molecules), 37<sup>th</sup> ISOC, 2017-2018

ISF Workshop for the Measurement and Computation of Reacting Flows with Carbon Nanoparticles  
Organizing Committee, 2022-Present  
Program Leader (Turbulent Flames), 2015-2022

American Institute for Aeronautics and Astronautics  
Secretary/Treasurer, Propellants and Combustion Technical Committee, 2020-Present  
Member, AIAA Propellants and Combustion Technical Committee, 2019-Present

North American Wind Energy Academy  
Track Lead, 2024 NAWEA/WindTech, 2024

Conference Organizer:  
Local Organizing Committee, 2024 NAWA/WindTech, New Brunswick, NJ  
Site, Facility, and Transportation Committee Chair, 2020 International Symposium on Combustion, New York Bid  
Local Arrangements Co-Chair, 2016 Spring Technical Meeting of the Eastern States Section of the Combustion Institute, Princeton University

Journal Reviewer:  
*Combustion and Flame; Proceedings of the Combustion Institute; Progress in Energy and Combustion Science; Applications in Energy and Combustion Science; Journal of Fluid Mechanics; Physical Review*

*Fluids; Physical Review E; Combustion Theory and Modelling; Journal of Computational Physics; Proceedings of the Royal Society A; Journal of Engineering for Gas Turbines and Power; AIAA Journal; Journal of Propulsion and Power; Computational Science & Discovery; Journal of Open Source Software; Fuel; Applied Energy; Energy & Fuels; Combustion Science and Technology; Flow, Turbulence and Combustion; Wind Energy Science; Physics of Fluids; Fluids; Journal of Combustion; International Journal of Engine Research; International Journal of Hydrogen Energy; Journal of Aerosol Science; International Journal of Multiphase Flows; International Journal for Numerical Methods in Fluids; Computer Physics Communications; Chemical Engineering and Processing; Nanoscale and Microscale Thermophysical Engineering; Shock Waves*

Conference Reviewer:

*International Symposium on Combustion, ASME Turbo Expo, AIAA SciTech, NAWEA/WindTech*

---

### **PRINCETON UNDERGRADUATE TEACHING**

---

MAE/ENE 427, Energy Conversion and the Environment: Transportation Applications  
Semesters: Springs 2013-2023, 2025

---

### **PRINCETON GRADUATE TEACHING**

---

MAE 557, Simulation and Modeling of Fluid Flows  
Semesters: Fall 2015, Fall 2017, Fall 2018, Fall 2022, Fall 2025  
MAE 507 (APC 523), Numerical Algorithms for Scientific Computing  
Semesters: Spring 2015 (w/ J.M. Stone), Spring 2018  
MAE 535, Turbulent Reacting Flows (Formerly: MAE 539, Turbulent Combustion)  
Semesters: Fall 2014, Fall 2016, Fall 2020, Fall 2023  
MAE 509, Numerical Methods for Engineering  
Semesters: Fall 2013

---

### **POSTDOCTORAL ADVISEES**

---

Meet Patel, 2025-Present  
Matthew X. Yao, 2024-2025  
Esteban Cisneros Garibay, 2021-2022  
Giuseppe D'Alessio (co-supervised with S. Sundaresan), 2021-2023  
Hernando Maldonado Colman, 2021-2024  
Pavan Prakash Duvvuri, 2021-2022  
Aditya K. Aiyer (co-supervised with L. Deike), 2020-2023  
Pierre-Yves Taunay, 2020-2022  
Suo Yang, 2017-2018  
Temistocle Grenga, 2015-2018

---

### **PRINCETON GRADUATE ADVISEES**

---

Reyna Ayala (co-advised with L. Deike), Ph.D., 2026-Present

Elisa Ponte (co-advised with L. Deike), Ph.D., 2026-Present  
Philip A. Satterthwaite, Ph.D., 2024-Present  
Michael B. Schroeder, Ph.D., 2024-Present  
Michael D. Walker, Ph.D., 2024-Present  
John Boerchers, Ph.D., 2023-Present  
S. Trevor Fush, Ph.D., 2023-Present  
Sydney Rzepka, Ph.D., 2023-Present  
Israel J. Bonilla, Ph.D., 2022-2026  
Hannah H. Williams (co-advised with L. Deike), Ph.D., 2022-Present  
Kathleen VanderKam, Ph.D., 2021-2025  
Cristian E. Lacey, Ph.D., 2019-2023  
Kerry S. Klemmer, Ph.D., 2018-2022  
Jinyoung Lee, Ph.D., 2018-2022  
Alex G. Novoselov, Ph.D., 2016-2020  
Jeffry K. Lew, M.S.E., 2015-2018  
Bruce A. Perry, Ph.D., 2015-2019  
Sandra S. Sowah (co-advised with H.A. Stone), M.S.E., 2015-2019  
Jonathan F. MacArt, Ph.D., 2014-2018  
A. Cody Nunno, Ph.D., 2014-2019  
Sili Deng (co-advised with C.K. Law), Ph.D., 2013-2016  
Carla Bahri (co-advised with M. Hultmark), Ph.D., 2012-2016

---

**PRINCETON UNDERGRADUATE ADVISEES**

---

Theodore Bell, 2025-2026  
Ian Maciver, 2025-2026  
Owen Rulyak, 2025-2026  
Connor Brown, 2025  
Cam Farid, 2025  
Emma Smithwick, 2025-2026  
Iris Ushizima Sabino, 2024-2025  
Laura Thompson, 2024-2025  
Maia Abiani, 2024-2026  
Efe Ero, 2023-2026  
Parker O'Neal, 2023-2024  
Delia Batdorff, 2022-2023  
Kathryn-Alexa Kennedy, 2022-2023  
Vassiliki Mancoridis, 2022-2023  
Agnes Robang, 2021-2023  
Kenalpha Kipyegon, 2021  
Nancy Diallo (co-advised with M. Hultmark), 2021  
James Armstrong, 2020-2021  
Daniel Chao, 2018-2019  
Michael Whitmore, 2018-2019  
Shuyu Ding (exchange with Tsinghua University), 2018-2019  
La Lee Lo, 2017-2018  
Omkar Shende, 2017-2018  
Dominic Saunders, 2017

Kevin Griffin, 2016-2017  
Kevin Huang, 2016-2017  
Agastya Parikh (co-advised with M. Hultmark), 2016-2017  
Silken Jones (co-advised with C.W. Rowley), 2014-2015  
Po Moon, 2014-2015  
Jimin Hong, 2014-2015  
R. Leland Baldwin, 2013-2014

---

**NON-PRINCETON UNDERGRADUATE ADVISEES**

---

Kai Lok Leung, Hong Kong University of Science and Technology, 2019  
Ruihong Chen, Hong Kong University of Science and Technology, 2018  
Zhenyang Dong, Hong Kong University of Science and Technology, 2017  
Chenxi Feng, Hong Kong University of Science and Technology, 2016

---

**VISITING STUDENT RESEARCH COLLABORATORS (VSRC) ADVISEES**

---

Diego Quan Reyes, TU Eindhoven, 2024  
Anurag Surapaneni, Barcelona Supercomputing Center, 2022-2023  
Lukas Berger, RWTH Aachen University, 2015  
Raymond Langer, RWTH Aachen University, 2014-2015

---

**PROFESSIONAL MEMBERSHIPS**

---

American Physical Society, Divisions of Fluid Dynamics and Plasma Physics  
American Institute of Aeronautics and Astronautics (Associate Fellow)  
American Society of Mechanical Engineers (Fellow)  
Society for Industrial and Applied Mathematics  
The Combustion Institute

---

**HONOR SOCIETY MEMBERSHIPS**

---

Pi Tau Sigma  
Tau Beta Pi (Texas Alpha President Emeritus)