

Damiano Baccarella

Assistant Professor

Department of Mechanical and Aerospace Engineering

Tickle College of Engineering - University of Tennessee, Knoxville

235 Dougherty Engineering Building, 1512 Middle Drive, Knoxville, TN, 37996

Phone: (865) 974-5590, Mobile: (574) 252-1161, Email: dbaccare@utk.edu

Research Interests

Hypersonic aerothermodynamics; gas-surface interaction; high-speed air-breathing propulsion; arc jet wind tunnels; radiative heat transfer; non-intrusive diagnostics.

Education

- 2018 **Ph.D. in Mechanical Engineering**, University of Illinois at Urbana Champaign
Dissertation: “Experimental study of flow choking and inlet unstart in an axisymmetric model scramjet”
Advisor: Prof. Tonghun Lee
- 2006 **M.S. in Aerospace Engineering**, University of Pisa, Italy
Dissertation: “Preliminary design of a pressure recovery system for a high-enthalpy hypersonic wind tunnel”
Advisor: Prof. Mariano Andrenucci

Academic Appointments

- 2025–Present Assistant Professor, Department of Mechanical and Aerospace Engineering, University of Tennessee, Knoxville
- 2019–2024 Assistant Professor, Department of Mechanical, Aerospace and Biomedical Engineering, University of Tennessee, Knoxville
- 2018–2019 Postdoctoral Researcher, Center for Exascale Simulation of Plasma-Coupled Combustion, University of Illinois at Urbana-Champaign

Research Output and Impact

- 23 peer-reviewed journal articles, 51 conference papers.
- 1540 citations, h-index 19 (Google Scholar)

Honors and Awards

- Young Investigator Program (YIP) Award, Air Force Office of Scientific Research, 2021
- Early Career Faculty (ECF) Award, National Aeronautics and Space Administration, 2025
- Associate Fellow, American Institute of Aeronautics and Astronautics, 2026
- SciTech Best Paper Award, AIAA Ground Testing Technical Committee, 2025
- SciTech Best Paper Award, AIAA High Speed Air-breathing Propulsion Committee, 2020
- MABE Louis and Ann Hoffman Endowed Excellence in Research Award, 2021

- MAE Momentum Award, 2026

Grants and Sponsored Research (\$5,540,056)

- **Single-PI**, “NASA ECF: Application of Resonance Enhanced Multi-Photon Ionization Diagnostics to the Characterization of Arcjet Flows,” National Aeronautics and Space Administration, **\$750,000**, 2026–2029.
- **Co-PI**, “Experimental and Numerical Investigation of an Ablating Surface with Initial Defects,” Army Research Office, \$600,000 (**\$156,893**), 2025–2028.
- **Single-PI**, “DURIP: In-situ Dynamic X-ray Visualization in Aerothermal Testing Facilities,” Army Research Office, **\$170,000**, 2026–2027.
- **Lead-PI**, “Novel Cooled IR Windows,” Lockheed Martin, \$150,000 (**\$83,622**), 2025–2027.
- **Single-PI**, “Ultra-High Temperature Infrared Coatings for Window Applications,” Lockheed Martin, **\$34,977**, 2025–2026.
- **Co-PI**, “Accelerated Material Development for High Mach Capabilities,” Air Force Research Laboratory, \$17.8M (**\$1,473,859**), 2024–2029.
- **Co-PI**, “Materials Maturation for High Mach Systems,” University of Dayton Research Institute, \$4M (**\$269,669**), 2022–2027.
- **Co-PI**, “Design of Resilient Hypersonic Vehicle Structures,” University of Dayton Research Institute, \$4.3M (**\$150,000**), 2021–2024.
- **Co-PI**, “Material Maturation for Hypersonics,” University of Dayton Research Institute, \$??? (**\$368,121**), 2021–2023.
- **Co-PI**, “Master Cooperative Agreement Unique Technology & Engineering for Novel (UTEN) Materials Research for Army Modernization,” Army Research Laboratory, \$11,258,146 (**\$747,000**), 2020–2026.
- **Lead-PI**, “Investigation of Thermochemical Nonequilibrium in an Arcjet Nozzle,” Air Force Office of Scientific Research, \$600,000 (**\$400,000**), 2025–2028.
- **Single-PI**, “DURIP: Update of the University of Tennessee Arcjet Tunnel to Continuous Operation,” Army Research Office, **\$570,000**, 2024–2026.
- **Single-PI**, “AFOSR YIP: Quantification and Mitigation of Thermochemical Non-equilibrium in High-enthalpy Hypersonic Wind Tunnels,” Air Force Office of Scientific Research, **\$449,537**, 2021–2025.

Student Supervision

Current Students:

- Ph.D.: Killian Samuels (2020–2026)
- Ph.D.: Mitchell Trotsky (2021–Present)
- Ph.D.: Christian Isaacs (2022–Present)

- Ph.D.: Noah Kefauver (2026–Present)
- M.S.: Tristan Hight (2023–Present)
- M.S.: Zac Colovos (2025–Present)
- M.S.: Matthew Stewart (2026–Present)

Former Students:

- M.S.: Mason Roddy (2025–2026) *The Boeing Company*
- M.S.: Tyler Thompson (2023–2025) *Lockheed Martin Corp.*

Refereed Journal Articles

1. Dove, D., Dixon, J., Trotsky, M., Isaacs, C., **Baccarella D.**, and Kihm, K. “Ratiometric Infrared Thermography for an Emissivity-Free Analysis in High Enthalpy Test Facilities,” *Journal of Thermophysics and Heat Transfer*, under review, 2026.
2. Isaacs C., Samuels K., **Baccarella D.**, “Freestream Flow Reconstruction from Heat Flux and Pressure Measurements in a Mach 6 Arcjet Tunnel,” *ASME. J. Fluids Eng.*, June 2026; 148(6): 061502.
3. Samuels K., **Baccarella, D.**, “Nonequilibrium Analysis of Emission Spectra in the Plenum Chamber of an Arcjet Wind Tunnel,” *Aerospace Science and Technology*, Volume 172, May 2026, pp. 111721.
4. Isaacs C., Trotsky M., Samuels K., Dove D., Kihm K., **Baccarella D.**, “Aerothermal Testing in a Pulsed Arcjet Tunnel with Laser Preheating,” *Journal of Thermophysics and Heat Transfer*, Published Online:13 Jan 2026.
5. Bryan A., Drewry S., Isaacs C., Trotsky M., Cladek B., Stewart N., Davis J., Young S., **Baccarella D.**, Page K., Penumadu D. “Multiscale structural evolution and permeability in a commercial carbon/carbon composite under arc-jet ablation,” *Carbon Trends*, Volume 22, January 2026, pp. 100604.
6. Samuels K., Isaacs C., **Baccarella D.**, “Emission Spectroscopy Through Converging–Diverging Nozzle of Hypersonic Arcjet Tunnel,” *AIAA Journal*, Vol. 64, No. 2, pp. 744–758, 2025.
7. Trotsky M., **Baccarella D.**, “Development and validation of an in-situ recession measurement technique for ablative materials,” *Journal of Physics D: Applied Physics*, 58 (32), pp. 325305.
8. **Baccarella D.**, Samuels K., “Characterization of University of Tennessee high-enthalpy tunnel with nitrogen flow,” *Journal of Thermophysics and Heat Transfer*, 39 (3), pp. 454-467.
9. Trotsky M., Isaacs C., Samuels K., **Baccarella D.**, “HyperMATE: A Novel Aerothermal Testing Facility at the University of Tennessee,” *Journal of Thermal Science and Engineering Applications*, Oct 2024, 16(10): 101010.
10. **Baccarella, D.**, Liu, Q., McGann, B., Lee, G. and Lee, T. “Isolator-combustor interactions in a circular model scramjet”, *Journal of Fluid Mechanics*, Vol. 917, A38, 2021.

11. Liu, Q., **Baccarella, D.** and Lee, T. “Review of combustion stabilization for hypersonic airbreathing propulsion”, *Progress in Aerospace Sciences*, Accepted for publication, 2020.
12. **Baccarella, D.**, Lee, G., Liu, Q., Elliott, G., Freund, J. and Lee, T. “Laser-Induced Plasma Ignition Experiments in a Direct-Connect Supersonic Combustor at Mach 3”, *Journal of Propulsion and Power*, Vol. 36, No. 5, pp. 732–743, 2020.
13. **Baccarella, D.**, Liu, Q., McGann, B., Lee, T. “Combustion Induced Choking and Unstart Initiation in a Circular Constant-Area Supersonic Flow”, *AIAA Journal*, Vol. 57, No. 12, pp. 5365–5376.
14. Liu, Q., **Baccarella, D.**, McGann, B., Lee, T. “Dual-Mode Operation and Transition in Axisymmetric Scramjets”, *AIAA Journal*, Vol. 57, No. 11, pp. 4764–4777, 2019.
15. Liu, Q., **Baccarella, D.**, McGann, B., Lee, T. “Cavity-Enhanced Combustion Stability in an Axisymmetric Scramjet Model”, *AIAA Journal*, Vol. 57, No. 9, pp. 3898–3909.
16. Liu, Q., **Baccarella, D.**, Landsberg, W., Veeraragavan A., and Lee, T. “Cavity flameholding in an optical axisymmetric scramjet in Mach 4.5 flows”, *Proceedings of the Combustion Institute*, Vol. 37, No. 3, pp. 3733–3740, 2018.
17. Liu, Q., **Baccarella, D.**, Hammack, S., Lee, T., Carter, C., D. and Do, H. “Influences of inlet geometry modification on scramjet flow and flame dynamics”, *Journal of Propulsion and Power*, Vol. 33, No. 5 (2017), pp. 1179–1186.
18. Liu, Q., **Baccarella, D.**, Hammack, S., Lee, T., Carter, C., D. and Do, H. “Influence of freestream turbulence on flame dynamics in a supersonic combustor”, *AIAA Journal*, Vol. 55, No. 3 (2017), pp. 913–918.
19. Im, S., **Baccarella, D.**, McGann, B., Liu, Q., Wermer, L. and Do, H. “Unstart phenomena induced by mass addition and heat release”, *Journal of Fluid Mechanics* Vol. 797, pp. 604–629, 2016.
20. **Baccarella, D.**, Liu, Q., Passaro, A., Lee, T. and Do, H. “Development and testing of the ACT-1 experimental facility for hypersonic combustion research”, *Measurement Science and Technology* Vol. 27, 2016.
21. Liu, Q., Passaro, A., **Baccarella, D.** and Do, H. “Ethylene flame dynamics and inlet unstart in a model scramjet”, *Journal of Propulsion and Power* Vol. 30, No. 6, 2014.
22. Paciorri, R., Sabetta F., Valenza, F., Fauci, R., Passaro, A. and **Baccarella, D.** “Base Pressure Experimental Investigation on a Space Launcher in Subsonic Regime”, *Journal of Spacecraft and Rockets* Vol. 50, No. 3, 2013.
23. Cristofolini, A., Borghi, C., A., Neretti, G., Schettino, A., Trifoni, E., Battista, F., Passaro, A. and **Baccarella, D.** “Experimental Investigations on the Magnetohydrodynamic Interaction Around a Blunt Body in a Hypersonic Unseeded Air Flow”, *Journal of Applied Physics* 112, 093304 (2012).

Conference Papers

1. Colovos, Z. A., Samuels, K. E., Isaacs, C. T., Trotsky, M. A., **Baccarella, D.** “Upgrade of the University of Tennessee Arcjet Tunnel to Quasi-continuous Operation: Final Design.” to be presented at the 2026 AIAA Aviation Forum , 2026.
2. Samuels, K. E., **Baccarella, D.**, Banerjee, S., Jo, S. M. “N₂ and N₂⁺ Quantitative Emission Spectroscopy in the C–D Nozzle of an Arcjet Wind Tunnel” to be presented at the 2026 AIAA Aviation Forum , 2026.
3. Dove, D., Dixon, J., Trotsky, M., Isaacs, C., **Baccarella D.**, and Kihm, K. “Ratiometric Infrared Thermography for an Emissivity-Free Analysis in High Enthalpy Test Facilities,” AIAA 2026-1963, 2025.
4. Isaacs, C. T., Trotsky, M., Samuels, K. E., Thompson, T., Dove, D. K., Kihm, K., and **Baccarella, D.** “Aerothermal Testing in a Pulsed Arc-Jet Tunnel with Laser Pre-Heating.” AIAA 2025-0323, 2025.
5. Samuels, K. E., Isaacs, C. T. and **Baccarella, D.** “Emission Spectroscopy in the Converging-Diverging Nozzle of an Hypersonic Arcjet Tunnel.” AIAA 2025-2444, 2025.
6. Dove, D. K., Isaacs, C. T., Samuels, K. E., Dixon, J., **Baccarella, D.**, and Kihm, K. “High-Fidelity Temperature and Heat Flux Evaluation in a Mach 6 Arcjet Tunnel with Infrared Thermography.” AIAA 2025-0536, 2025.
7. **Baccarella, D.**, Samuels, K. E., Isaacs, C. T., and Trotsky, M. “Upgrade of the University of Tennessee Arcjet Tunnel to Quasi-Continuous Operation: Preliminary Design.” AIAA 2025-0326, 2025.
8. Feltis, S. E., Samuels, K. E., **Baccarella, D.**, Zhang, Z. “Mach 6.5 Arcjet Tunnel Characterization by Wavelength Modulated Spectroscopy.” AIAA 2025-2495, 2025.
9. Trotsky, M. and **Baccarella, D.** “In-Situ Recession Rate Measurement of Ablative Materials During Plasma-Torch Testing”, AIAA 2024-4020, 2024.
10. Isaacs, C., Samuels, K. and **Baccarella, D.** “Numerical Rebuilding of Heat Flux and Pressure Measurements in a Mach 6 Arcjet Tunnel”, AIAA 2024-3554, 2024.
11. Samuels, K. and **Baccarella, D.** “Emission Spectroscopy in the Plenum Region of an Arc-Heated Tunnel”, AIAA 2024-2829, 2024.
12. Isaacs, C., Trotsky, M., Samuels, K. and **Baccarella, D.** “Upgrading of the University of Tennessee Hypersonic Material Testing Facility (HyperMATE)”, AIAA 2024-2568, 2024.
13. Samuels, K. and **Baccarella, D.** “Nitric Oxide TDLAS in the Plenum Region of an Arc-Heated Tunnel”, AIAA 2024-2830, 2024.
14. **Baccarella, D.** and Samuels, K. “Intrusive Freestream Characterization in a Mach 6 Arcjet Tunnel”, AIAA 2023-3297, 2023.
15. **Baccarella, D.** and Samuels, K. “Testing and Characterization of the University of Tennessee High-Enthalpy Tunnel”, AIAA 2023-1456, 2023.

16. Samuels, K. and **Baccarella, D.** “Spectroscopic Characterization of a High-Enthalpy Plasma Arcjet Tunnel”, AIAA 2023-2517, 2023.
17. **Baccarella, D.** and Samuels, K. “Modeling of Arcjet Flows in High-Enthalpy Tunnels”, AIAA 2022-1601, 2022.
18. Samuels, K., Clark, A., McCord, W., Holladay, S., Zhang, Z. and **Baccarella, D.** “Characterization of a Plasma Jet Flow Using Emission Spectroscopy and Laser-Induced Breakdown Velocimetry”, AIAA 2022-1784, 2022.
19. Byrd, A. and **Baccarella, D.** “Design of the University of Tennessee High-Enthalpy Tunnel”, AIAA 2021-0382, 2021.
20. **Baccarella, D.**, Liu, Q., McGann, B. and Lee, T. “Isolator Shock Dynamics of Mass Injection-Induced Unstart in a Circular Model Scramjet”, AIAA 2020-2428, 2020.
21. **Baccarella, D.**, Lee, G., Liu, Q., and Lee, T. “Flow Choking Induced by Combustion and Mass Injection in a Circular Model Scramjet at Mach 4.5”, AIAA 2020-1611, 2020.
22. Lee, G., **Baccarella, D.**, Liu, Q., Elliott, G. and Lee, T. “Pseudoshock Dimensionality in Axisymmetric and Rectangular Scramjets”, AIAA 2020-1610, 2020.
23. **Baccarella, D.**, Lee, G., Liu, Q., Elliott, G., Freund, J. and Lee, T. “Laser-Induced Plasma Ignition Experiments in a Direct-Connect Supersonic Combustor at Mach 3”, AIAA 2019-3926, 2019.
24. Liu, Q., **Baccarella, D.**, and Lee, T. “Combustion stabilization in an axisymmetric scramjet in Mach 4.5 flows”, AIAA 2019-1681, 2019.
25. Lee, G., Liu, Q., **Baccarella, D.**, Elliott, G.S. and Lee, T. “A novel supersonic injection scheme for laser induced breakdown ignition”, AIAA 2018-4286, 2018.
26. Liu, Q., **Baccarella, D.**, McGann, B., Lee, T. and Do, H. “Experimental investigation of single jet and dual jet injection in a supersonic combustor”, AIAA 2018-1363, 2018.
27. **Baccarella, D.**, Liu, Q., McGann, B., Lee, T. and Do, H. “Experimental study of heat released induced choking in a supersonic circular combustor”, AIAA 2018-1139, 2018.
28. Liu, Q., **Baccarella, D.**, Lee, T., Hammack, S., Carter, C. and Do, H. “Investigation of Flow and Combustion Dynamics of an Ethylene Transverse Jet in a Model Scramjet”, AIAA 2017-0341, 2017.
29. **Baccarella, D.**, Liu, Q., Lee, T., Hammack, S. and Do, H. “The supersonic combustion facility ACT-2”, AIAA 2017-0103, 2017.
30. Im, S., Wermer, L., **Baccarella, D.**, Liu, Q., McGann, B. and Do, H. “Ramp separation response to laser-induced breakdown disturbed boundary layer at Mach 4.5”, AIAA 2016-0616, 2016.
31. Im, S., Wermer, L., **Baccarella, D.**, Liu, Q., McGann, B. and Do, H. “Comparison of unstart induced by mass addition and heat release”, AIAA 2016-1168, 2016.

32. Im, S., **Baccarella, D.**, McGann, B., Liu, Q., Wermer, L. and Do, H. “Model Scramjet Inlet Unstart Induced by Mass Addition and Heat Release”, in *Proceedings of APS Division of Fluid Dynamics (Fall)* 2015.
33. Do, H., Passaro, A., Liu, Q., Lee, T. and **Baccarella, D.** “Ethylene Flame Dynamics in an Arc-Heated Hypersonic Wind Tunnel”, AIAA 2013-0700, 2013.
34. Cristofolini, A., Borghi, C., A., Neretti, Battista, F., Schettino, A., Trifoni, E., De Filippis, F., Passaro, A. and **Baccarella, D.** “MHD interaction around a blunt body in a hypersonic unseeded air flow: experimental results and numerical rebuilding”, AIAA 2012-5804, 2012.
35. Do, H., Passaro, A. and **Baccarella, D.** “Inlet Unstart of an Ethylene-Fueled Model Scramjet with a Mach 4.5 Freestream Flow”, AIAA 2012-5929, 2012.
36. Cristofolini, A., Borghi, C., A., Neretti, G., Schettino, A., Trifoni, E., Battista, F., G., Passaro, A. and **Baccarella, D.** “Experimental investigations on the MHD interaction around a blunt body in a hypersonic unseeded air flow”, AIAA 2012-2730, 2012.
37. Trifoni, E., Purpura C., Martucci, A., Graps, E., Schettino, A., Battista, F., Passaro, A., **Baccarella, D.**, Cristofolini, A. and Neretti, G. “MHD Experiment at CIRA Ghibli Plasma Wind Tunnel”, ESA SP-692, 2011.
38. Passaro, A. and **Baccarella, D.** “Roughness Induced Transition in Hypersonic Regime Over a Flat Plate”, AIAA-2011-2375, 2011.
39. **Baccarella, D.**, Passaro, A., Cristofolini, A., Neretti, G. and Trifoni, E. “MHD Flow Control Experiment in Air: Test Article Design”, AIAA 2011-2355, 2011.
40. Cristofolini, A., Borghi, C., A., Neretti, G., Passaro, A., **Baccarella, D.**, Schettino, A. and Battista, F. “Experimental Activities on the MHD Interaction in a Hypersonic Air Flow Around a Blunt Body”, AIAA 2010-4490, 2010.
41. Cristofolini, A., Borghi, C., A., Neretti, G., Granciu, V., M., Passaro, A., **Baccarella, D.** and Caredda P. “Experimental investigation on the MHD interaction in a hypersonic flow around a blunt body”, AIAA 2009-3727, 2009.
42. Cristofolini, A., Borghi, C., A., Neretti, G., Granciu, V., M., Passaro, A., **Baccarella, D.** and Caredda P. “MHD Interaction in a Weakly Ionized Argon Flow at Different Mach Numbers”, AIAA 2009-7368, 2009.
43. Bouchez, M., Dufor E., Benezech, L., Cheuret, F., Steelant, J., Grenard, P., Redford, J., A., Sandham, N., D., Roberts, G., T., Passaro, A., **Baccarella, D.**, Dalenbring, M., Cavagna, L. “Multi-level coupled simulations of cooled structures in the ATLLAS European programme”, AIAA 2009-7355, 2009.
44. Schettino, A., Battista, F., Passaro, A., **Baccarella, D.**, Cristofolini, A. and Borghi, C., A. “MHD blunt body test design in high enthalpy plasma air flow”, AIAA 2009-7319, 2009.
45. **Baccarella, D.** and Passaro, A. “EXPERT Payload 12: Base Flow”, AIAA 2009-7443, 2009.

46. Bouchez, M., Dufor E., Cheuret, F., Steelant, J., Grenard, P., Redford, J., A., Sandham, N., D., Passaro, A., **Baccarella, D.**, Dalenbring, M., Smith, J. “Material-aero-thermal interaction computations in the ATLLAS European programme”, ESA SP-659, 2008.
47. d’Agostino, L., Torre, L., Pasini, A., **Baccarella, D.**, Cervone, A. and Milani, A. “A reduced order model for preliminary design and performance prediction of tapered inducers: comparison with numerical simulations”, AIAA 2008-5119, 2008.
48. Passaro, A., **Baccarella, D.**, Caredda, P., Cristofolini, A., Neretti, G. and Granciu, V., M. “MHD Interaction in a Weakly Ionized Mach 15 Argon Flow”, ESA SP-659, 2008.
49. Caredda, P., Passaro, A., **Baccarella, D.**, Cardone, G. and Dello Ioio G. “Experimental Results on a Sharp Double Cone in a Mach 9 Non-Equilibrium Flow”, ESA SP-659, 2008.
50. Passaro, A., **Baccarella, D.**, Caredda, P., Redford, J., A. and Sandham, N., D. “Experimental Characterization of Turbulence Spots on a Flat Plate at Mach 6”, ESA SP-659, 2008.
51. **Baccarella, D.**, Passaro, A., Caredda, P., Cristofolini, A., Neretti, G., Granciu V., M., Schettino, A., Battista, F. and d’Ambrosio, D. “Characterization of a new Mach 9 nozzle for the HEAT hypersonic wind tunnel”, ESA SP-659, 2008.

Invited Seminars and Workshops

- “Aerothermal Testing Capabilities at the University of Tennessee” at the Missouri University of Science & Technology, 2024.
- “Aerothermal Testing Capabilities at the University of Tennessee” at the University of Illinois at Urbana-Champaign, 2024.
- “Aerothermal Testing Capabilities Development at the University of Tennessee” at the University of Tennessee Space Institute, 2023.
- “A Dive into Hypersonics” seminar at the Bredesen Center of the University of Tennessee, December 1, 2022.

Teaching Activities

Undergraduate Courses:

- *ME475 Thermal Engineering*, University of Tennessee, Fall 2021–2025; Spring 2025–2026; Summer 2022–2025 (11 offerings)
- *ME331 Thermodynamics*, University of Tennessee, Spring 2020–2022 (3 offerings)

Graduate Courses:

- *ME 521 Thermodynamics I*, University of Tennessee, Spring 2023
- *ME 522 Thermodynamics II*, University of Tennessee, Spring 2024
- *ME 512 Convection Heat Transfer*, University of Tennessee, Spring 2025
- *ME 599 Hypersonic Air-breathing Propulsion*, University of Tennessee, Spring 2022, 2024, 2026 (3 offerings)

Meetings & Conferences Attended

- *2026 AIAA SciTech Forum*, 12–16 January 2026, Orlando, FL.
- *2025 AIAA SciTech Forum*, 6–10 January 2025, Orlando, FL.
- *2024 AIAA Aviation Forum*, 29 July–2 August 2024, Las Vegas, NV.
- *2024 AIAA SciTech Forum*, 8–12 January 2024, Orlando, FL.
- *2023 AIAA Aviation Forum*, 12–16 June 2023, San Diego, CA.
- *2023 AIAA SciTech Forum*, 23–27 January 2023, National Harbor, MD.
- *2022 AIAA Aviation Forum*, 27 June–1 July 2022, Chicago, IL.
- *2022 AIAA Science and Technology Forum and Exposition*, 3–7 January 2022, San Diego, CA.
- *2021 AIAA Science and Technology Forum and Exposition*, 11–15 January 2021, Virtual Event.
- *2020 AIAA Science and Technology Forum and Exposition*, 6–10 January 2020, Orlando, FL.
- *2019 AIAA Propulsion and Energy Forum*, 19–22 August 2019, Indianapolis, IN.
- *2017 AIAA Science and Technology Forum and Exposition*, 9–13 January 2017, Grapevine, TX.
- *7th European Symposium on Aerothermodynamics for Space Vehicles*, 9–12 May 2011, Brugge, Belgium.
- *17th AIAA International Space Planes and Hypersonic Systems and Technologies Conference*, 11–14 April 2011, San Francisco, CA.
- *16th AIAA/DLR/DGLR International Space Planes and Hypersonic Systems and Technologies Conference*, 19–22 October 2009, Bremen, Germany.
- *6th European Symposium on Aerothermodynamics for Space Vehicles*, 3–6 November 2008, Versailles, France.

Professional Service

- Member of the American Institute of Aeronautics and Astronautics (AIAA) since 2019.
- Member of the American Society of Mechanical Engineers (ASME) since 2024.
- Member of the AIAA Ground Testing Technical Committee (GTTC) since 2022.
- Chair of the GTTC Awards Subcommittee since 2025.
- Academic advisor for the AIAA student chapter at UTK since 2022.
- Ground testing technical discipline chair at the 2025 AIAA SciTech Forum.
- Reviewer for *AIAA Journal*, *Journal of Propulsion and Power*, *Journal of Spacecraft and Rockets*, *International Journal of Hydrogen Energy*, *Combustion and Flame*.
- Technical Session Chair, AIAA SciTech Forum, 2023, 2024, 2025.
- Technical Session Chair, AIAA Aviation Forum, 2023, 2024, 2026.