

Michael Wayne Renfro

Professor and Chair of the Department of Mechanical Engineering
University of Kentucky
151 Ralph G. Anderson Building
506 Administration Drive
Lexington, KY 40506-0503

phone: (859) 218-0643, fax: (859) 257-3304, e-mail: michael.renfro@uky.edu

Summary

Dr. Michael Renfro is a Professor and Chair of the Department of Mechanical Engineering at the University of Kentucky. Prior to joining Kentucky in 2015, he was on the faculty at the University of Connecticut where he also served as Associate Department Head from 2009-2014 and as the Director of Graduate Studies from 2006-2009. He received his Ph.D. from Purdue University in 2000. Dr. Renfro's research is in the area of optical diagnostics applied to power production technology, particularly combustion, gas turbine and fuel cell systems. Current research focuses on the development and use of laser-based measurement tools to study flame stability and propagation; ignition and extinction; turbulent flame dynamics; sensor development for high temperature fluid systems; and non-destructive optical evaluation of high-temperature coatings. He has advised 8 doctoral and 11 master's theses students, and has supervised over 30 undergraduate research projects. Dr. Renfro's research has been supported by NSF, AFOSR, ARO, DOE, and industry with total funding over \$5M as PI or co-PI. He received an NSF CAREER award in 2002. Dr. Renfro has published over 55 journal and 95 conference papers. Professor Renfro teaches undergraduate and graduate courses in thermodynamics and fluid mechanics and has received multiple department and university awards for teaching.

Experience

University of Kentucky, Lexington, KY

Chair of the Department of Mechanical Engineering, 2015-Present
Professor of Mechanical Engineering, 2015-Present

University of Connecticut, Storrs, CT

Professor of Mechanical Engineering, 2014-2015
Associate Department Head, 2009-2014
United Technologies Corporation Associate Professor of Engineering Innovation, 2012-2014
Associate Professor of Mechanical Engineering, 2008-2012
Director of Graduate Studies, 2006-2009
Assistant Professor of Mechanical Engineering, 2002-2008

Purdue University, West Lafayette, IN

Visiting Assistant Professor of Mechanical Engineering, 2000-2002
Research Assistant, 1995-2000
Teaching Assistant, 1995-1996, 2000

Maremont Corporation, Loudon, TN

Mechanical Engineer, 1992-1993

Education

Ph.D., Purdue University, West Lafayette, IN, 2000

M.S. Mechanical Engineering, Purdue University, West Lafayette, IN, 1997

B.S. Mechanical Engineering, University of Tennessee, Knoxville, TN, 1995

Honors and Awards

- AAUP Teaching Excellence Career Award, University of Connecticut, 2014
- George H. Markstein Best Paper Award, Eastern States Section, The Combustion Institute, 2013
- Teaching Excellence Award, Mechanical Engineering Department, University of Connecticut, September 2013
- United Technologies Corporation Professorship in Engineering Innovation, University of Connecticut, 2012-14
- Teaching Excellence Award, Mechanical Engineering Department, University of Connecticut, September 2007
- Outstanding Junior Faculty Award, School of Engineering, University of Connecticut, October 2004
- CAREER Award, National Science Foundation, January 2003
- Link Foundation Energy Fellowship, June 1999
- Department of Defense - National Defense Science and Engineering Graduate Fellowship, April 1996
- National Science Foundation Fellowship (declined in favor of DoD Fellowship), April 1996
- Joel F. Bailey Award for Outstanding Scholastic Achievement, May 1995
- Chancellor's Citation for Academic Excellence, May 1995
- WATtec Past Chairman's Scholarship, February 1994
- John W. and Clara L. Hobby Scholarship, August 1993
- Outstanding Sophomore Engineering Student, Phi Kappa Phi Honor Society, May 1993
- Finner Family Memorial Scholarship, January 1993
- Tennessee Student of Distinction Scholarship, August 1991

Patents

2. "Technique for removing a contaminant layer from a thermal barrier coating and estimating remaining life of the coating," with W. Hassan, E. H. Jordan and W. J. Brindley, Patent number 9,116,126, issued 8/25/15.
1. "Fiber optics based in-situ diagnostics for PEM fuel cells," with B. M. Cetegen and S. Basu, Patent number 8,268,493, issued 9/18/12.

Sponsored Research

Externally Funded Projects, Total = \$5,124,683

39. "Paint application atomization and droplet transport for rotary bell applicators," Ford Motor Company, 12/1/15-4/30/16, with A. Salaimh and N. Akafuah, \$70,000. Co-PI.
38. "Experimental studies of reacting jets in vitiated crossflow," Pratt & Whitney, 1/1/15-12/31/15, with B. M. Cetegen, \$67,999. Co-PI.
37. "Laser-based coating removal," Rolls-Royce, 5/23/14-12/31/14, with E. H. Jordan, \$90,000. PI.
36. "Remaining life estimation for contaminated thermal barrier coatings," Rolls-Royce, 3/1/14-12/31/14, with E. H. Jordan, \$60,000. PI.
35. "Flame stabilization for reacting jets in crossflow," Pratt & Whitney, 1/1/14-12/31/14, with B. M. Cetegen, \$53,000. Co-PI.
34. "Experimental study of unit combustor concepts," Pratt & Whitney, 1/1/14-12/31/14, with B. M. Cetegen, \$56,999. Co-PI.
33. "Experimental study of local extinction in laminar and turbulent flames," National Science Foundation, 9/1/13-8/31/16, \$240,000. PI.
32. "Coating removal using laser-induced breakdown spectroscopy," Rolls-Royce, 5/15/13-12/31/13, with E. H. Jordan, \$65,000. PI.
31. "Experimental study of reacting jets in crossflow," Pratt & Whitney, 6/1/13-12/31/13, with B. M. Cetegen, \$64,280. PI.

30. "Development of remaining life estimation for thermal barrier coatings," Rolls-Royce, 5/15/13-12/31/13, with E. H. Jordan, \$70,000. PI.
29. "Response of reacting jets to oblique, discrete and complex crossflows," Pratt & Whitney, 11/15/12-5/31/13, with B. M. Cetegen, \$41,001. PI.
28. "Feasibility study for laser-based coating removal," Rolls-Royce, 8/1/12-5/31/13, with E. H. Jordan, \$70,000. PI.
27. "Experimental studies of new main combustor concepts," Pratt & Whitney, 1/1/12-5/31/13, with B. M. Cetegen, \$75,000. Co-PI.
26. "Bluff body stabilized flame dynamics and blowoff studies," Pratt & Whitney, 10/1/11-6/30/12, with B. M. Cetegen, \$30,000. Co-PI.
25. "Bluff body stabilized flame dynamics and blowoff studies," Pratt & Whitney, 1/1/11-12/31/11, with B. M. Cetegen, \$50,000. Co-PI.
24. "REU Site: Engineering next generation energy processes and systems," National Science Foundation, 3/1/11-2/28/15, with K. D. Murphy, \$299,242. PI.
23. "Assessment of reduced order modeling of flame extinction in bluff body flames," Pratt & Whitney, 8/15/10-12/31/11, with B. M. Cetegen, \$40,000. Co-PI.
22. "TRAC: Prototype instrument development for laser cleaning and durability measurements of thermal barrier coatings," National Science Foundation, 9/1/10-8/31/12, with E. H. Jordan, \$200,000. PI.
21. "Ignition studies of premixed hydrocarbon and vitiated gas mixtures at atmospheric and low pressure," Innovative Scientific Solutions, Inc., 7/1/10-9/1/12, with B.M. Cetegen, \$90,000. PI.
20. "Partially-premixed bluff-body flame dynamics and acoustic coupling in vitiated flows," National Science Foundation, 6/1/10-5/31/15, with B. M. Cetegen, \$325,000. PI.
19. "Dynamics of bluff-body stabilized premixed and partially-premixed flames near blowoff," Pratt & Whitney, 1/1/10-12/31/10, with B. M. Cetegen, \$60,000. Co-PI.
18. "Dynamics of bluff-body stabilized premixed and partially-premixed flames near blowoff," Pratt & Whitney, 1/1/09-12/31/09, with B. M. Cetegen, \$100,000. Co-PI.
17. "Bluff-body flame holding in unmixed vitiated air," Pratt & Whitney, 8/20/08-12/31/08, \$5,000. PI.
16. "Remaining life estimation of realistically contaminated turbine blades by oxide fluorescence measurements," Rolls-Royce, 6/1/08-10/31/09, with E. H. Jordan, \$80,921. Co-PI.
15. "PLIF and diode laser measurements in ultra-compact combustor," Spectral Energies, LLC, 1/1/08-8/15/08, \$49,464. PI.
14. "Innovative optical diagnostic tools for fuel cell development and operation control," Connecticut Innovations and United Technologies Corp. Power, 8/1/07-8/31/10, with B. M. Cetegen, T. Molter, and M. Perry, \$264,000. Co-PI.
13. "GOALI: Development of temperature sensing doped particles for plasma deposition diagnostics," National Science Foundation, 9/15/06-8/31/10, with E. H. Jordan, \$349,850. PI.
12. "GOALI: Experimental and computational study of bluff-body flame stabilization with non-homogeneous upstream mixing," National Science Foundation, 5/1/06-4/30/09, with B. M. Cetegen, \$206,000. Co-PI.
11. "Evaluation of evanescent wave diagnostics in coated sapphire fibers for harsh environments," Department of Energy, 1/1/06-12/31/06, with E. H. Jordan, \$50,000. PI.
10. "Study of combustor acoustics using time-series and instantaneous flame-structure measurements," Air Force Office of Scientific Research, 12/1/05-11/30/08, with G. B. King and N. M. Laurendeau, \$450,000. Co-PI.
9. "Installation of a high-pressure combustion research rig," Pratt & Whitney, 6/15/05-6/14/06, with B. M. Cetegen, \$25,000. PI.
8. "Bluff-body flame holding under partially-premixed conditions," Pratt & Whitney, 1/1/05-12/31/07, \$34,000. PI.

7. "In-situ optical diagnostics for measurements of water vapor concentration and temperature in PEM fuel cells – Phase III," U.S. Army, 11/1/04-6/30/05, with B. M. Cetegen, \$14,700. Co-PI.
6. "Acoustic energy anti-ice concept," Pratt & Whitney, 5/15/04-12/31/04, with T. L. Bergman, \$50,000. Co-PI.
5. "CAREER: Characterization of propagating and receding flame edges in composition and velocity gradients," National Science Foundation, 2/1/03-1/31/09, \$417,999. PI.
4. "In-situ optical diagnostics for measurements of water vapor concentration and temperature in PEM fuel cells – Phase II," U.S. Army, 1/22/03-5/22/04, with B. M. Cetegen, \$145,659. Co-PI.
3. "Statistical interpretation of scalar time-series measurements in turbulent partially premixed flames," Air Force Office of Scientific Research, 12/15/02-12/14/05, with N. M. Laurendeau and G. B. King, \$472,568. Co-PI.
2. "Characterization of scalar correlations in turbulent counterflow nonpremixed flames," National Science Foundation, 9/15/01-9/14/05, with N. M. Laurendeau, \$272,002. Co-PI.
1. "Nitric oxide time-series measurements in turbulent jet flames," Link Foundation, 6/1/99-5/31/00, \$20,000. PI.

Technical Service

- Editorial Board Member, *Progress in Energy and Combustion Science*, 2011-2015.
- Executive Board Member, Eastern States Section, Combustion Institute, 2007-2015.
 - Awards Committee Chair, Eastern States Section, Combustion Institute, 2011-2015.
 - Program and Papers Chair, Eastern States Section, Combustion Institute, 2013-2015.
 - Arrangements Chair, Eastern States Section, Combustion Institute, 2012-13.
- Member, Connecticut Clean Energy Task Force, Appointed by Rep. Timothy Bowles (D-Preston), 2013-14
- Organizer and Local Host, Technical Meeting, Eastern States Section of the Combustion Institute, 2011.
- Academic Advisory Board Member, University Turbine Systems Research (UTSR), 2006-8.
- Program Committee: 5th International ASME Conference on Fuel Cell Science, Engineering and Technology, 2006-7, 2nd Symposium on Combustion Diagnostics, 2014.
- Editorial Committee, *Proceedings of the Combustion Institute*, Vol. 28, 2000.
- Reviewer for Journals: *AIAA Journal*, *Applied Optics*, *Applied Spectroscopy*, *ASME International Gas Turbine Institute*, *ASME Journal of Engineering for Gas Turbines and Power*, *ASME Journal of Fluids Engineering*, *ASME Journal of Fuel Cell Science and Technology*, *ASME Journal of Heat Transfer*, *Combustion and Flame*, *Combustion Science and Technology*, *Combustion Theory and Modelling*, *Experiments in Fluids*, *International Journal of Hydrogen Energy*, *International Journal of Spray and Combustion Dynamics*, *International Journal of Thermal Sciences*, *Journal of Power Sources*, *Journal of Propulsion and Power*, *Optics Express*, *Optics Letters*, *Proceedings of the Combustion Institute*, *Progress in Energy and Combustion Science*, *Surface and Coatings Technology*
- Reviewer for Funding Agencies: American Chemical Society, Army Research Office, California Energy Commission, Department of Energy, National Science Foundation, Natural Sciences and Engineering Research Council of Canada
- Session Chair for over 20 Conferences: Eastern and Central States Sections of the Combustion Institute, International Symposium on Combustion, US National Combustion Meeting, Indo-US Workshop on Flame Stabilization, Augmentor Design Systems Conference, ASME Conference on Fuel Cell Science, NSF Hydrogen Workshop.

Course Instruction

Undergraduate

- Thermodynamic Principles: Spring 2000, Fall 2000, Fall 2001, Spring 2003, Fall 2009, Fall 2011
- Applied Thermodynamics: Spring 2001, Spring 2002, Spring 2007, Fall 2012
- Fluid Mechanics: Spring 2006, Fall 2006, Spring 2014, Spring 2015, Spring 2016

Graduate

- Advanced Thermodynamics: Fall 2005, Fall 2007, Fall 2008, Fall 2010, Fall 2014
- Advanced Thermo-Fluids I: Fall 2002
- Statistical Thermodynamics: Fall 2003, Fall 2004
- Advanced Thermo-Fluids II: Spring 2005, Spring 2008, Fall 2013
- Convection Heat Transfer: Spring 2004
- Advanced Measurement Techniques: Spring 2009, Spring 2011, Spring 2013

Academic Service

University Level, University of Connecticut

- Research Excellence Program Reviewer, 2015
- Large Grant Review Panel, 2011-12
- Laser Safety Committee, 2005-9

College of Engineering, University of Kentucky

- Diversity and Inclusion Committee, 2015-Present
- Chairs Promotion and Tenure Committee, 2015-Present

School of Engineering, University of Connecticut

- Alumni and Service Awards Committee, 2009-14
- Faculty Grade Change Review Panel, 2011, 2013
- MENG Faculty Search Committee, Chair 2012-3
- Internal Proposal Review Committee, 2011
- NSF CAREER Proposal Practice Review, 2009-10
- Eminent Faculty Search Committee, 2008-9
- Graduate Education and Research Committee, 2007-9
- Computing Advisory Committee, 2005-6

Mechanical Engineering Department, University of Connecticut

- Promotion, Tenure and Reappointment Committee, 2009-13, 2014-15
- Task Force on Undergraduate and Graduate Programs, 2014-15
- Academic Advisor, Undergraduate Honors Students, 2006-9, 2013-15
- Student Recruitment and Student Awards Committee, 2002-9, 2011-15, Chair 2006-9
- Space Allocation Committee, 2009-15, Chair 2009-11
- Adjunct Faculty Hiring Committee, 2012-15
- Ph.D. Qualifying Examining Committee, 2002-9, 2011-15, Chair 2006-9
- Staff Position Search Committee, 2004-5, 2009, 2013-14, Chair 2009, 2013-14
- ME Head Review Committee, 2009, 2014
- ABET Objectives and Outcomes Committee, 2005-14, Chair 2009-14
- K-12 Outreach and Graduation Ceremonies, Coordinator 2009-14
- Laboratory Committee, 2002-3, 2006-14, Chair 2009-11
- Faculty Search Committee, 2007-8, 2012-13

- Professor in Residence Search Committee, 2009, 2013, Chair 2009
- Faculty Teaching Load and Merit Raise Committee, 2006-7, 2011-12, Chair 2011-12
- Thermal/Fluids Faculty Group, Chair 2009-11
- Ph.D. Exam Review Committee, 2006, 2010-11, Chair 2006
- Graduate Admissions Committee, 2002-5, 2006-9, Chair 2006-9
- MENG Program Committee, 2006-9
- Pratt & Whitney Chair Search Committee, 2007-8
- Computing Resources Committee, 2005-6
- ME Head Search Committee, 2006

Student and Postdoctoral Advisees

Postdoctoral and Visiting Scholars

2. Weilai Liu, Ph.D. (2006) University of Science and Technology of China
August 2014-July 2015
1. Mark Majewski, Ph.D. (2011) University of Connecticut
January-August 2011

Ph.D. Major Advisees

Current

8. James Dayton, Ph.D. Student (University of Connecticut)
7. Stephen Grib, Ph.D. Student

Graduates

6. Kathryn Gosselin, "Novel optical diagnostic methods for the study of turbulent combustion and extinction," Ph.D. Thesis (2015)
Current Position: Assistant Professor, San Jose State University (San Jose, CA)
5. Kristin Kopp-Vaughan, "Experimental investigation of some flame behaviors exhibited in afterburners," Ph.D. Thesis (2011)
Current Position: Pratt & Whitney (East Hartford, CT)
4. Mark Majewski, "Optical diagnostics of thermal barrier coatings," Ph.D. Thesis (2011)
Current Position: DRS Technologies (Fitchburg, MA)
3. Steven Tuttle, "Blowoff behavior of bluff body stabilized flames in vitiated and partially premixed flows," Ph.D. Thesis (2010)
Current Position: Naval Research Laboratories (Washington, D.C.)
2. Stanislav Kostka, "Experimental study of laminar and turbulent flame stabilization using laser diagnostics," Ph.D. Thesis (2009).
Current Position: Pratt & Whitney (East Hartford, CT)
1. William Carnell Jr., "Experimental and numerical study of extinction in negative edge laminar flames," Ph.D. Thesis (2006).
Current Position: General Electric Energy (Greenville, SC)

M.S. Major Advisees (thesis option)

Graduates

11. Hyung Kim, "Improvements to optical diagnostics of thermal barrier coatings: Contaminant identification during laser cleaning and time gated photoluminescence piezospectroscopy," M.S. Thesis (2015).
10. Marc Schneider, "Experimental studies of turbulent local extinction," M.S. Thesis (2014).
Current Position: Electric Boat (Groton, CT)
9. Martin Hawron, "Non-destructive evaluation and maintenance of thermal barrier coatings," M.S. Thesis (2014).

- Current Position: Cooper Tire (Texarkana, TX)
8. Christopher Perron, "Particle image velocimetry with bluff body and jet in cross-flow flame holder applications," M.S. Thesis (2013).
Current Position: Zeeco (Tulsa, OK)
 7. Jerod Lake, "Thermal barrier coating analysis of remaining life and contaminant composition," M.S. Thesis (2012).
Current Position: Cidra Precision Services (Wallingford, CT)
 6. Trevor Jensen, "An optical analysis of the blowoff behavior for bluff body-stabilized flames in vitiated flow," M.S. Thesis (2011).
Co-advised with Prof. B. M. Cetegen
Current Position: Honeywell (Phoenix, AZ)
 5. Thomas Boucher, "The design and development of an in-situ laser diagnostic tool for water measurements in a commercial PEM fuel cell," M.S. Thesis (2009).
Current Position: Sensata (Attleboro, MA)
 4. Naison Mastrocola, "Stabilization of reignition flame fronts in an axisymmetric counterflow burner," M.S. Thesis (2009).
Current Position: UTC Aerospace Systems (Windsor Locks, CT)
 3. Yonghong Wang, "Application of higher-order statistics to the analysis of scalar time series in turbulent non-premixed jet flames," M.S. Thesis (2006).
Current Position: Ernst and Young (Chicago, IL)
 2. Amit Wason, "Velocity and scalar measurements in neighboring lifted edge flames," M.S. Thesis (2005).
Current Position: Microsoft (Washington, D.C.)
 1. Hang Xu Hardill, "In-situ optical diagnostics for measurements of water vapor concentration and temperature in PEM fuel cells," M.S. Thesis (2004).
Current Position: Intelligent Energy (Leicester, UK)

M.S. Major Advisees (non-thesis option)

Graduates

5. Christopher Beaulieu, M.S. (2014)
Project: Water hammer and liquid column separation in condensate return pipeline.
Current Position: Electric Boat (Groton, CT)
4. Javier Martinez, M.S. (2013)
Project: Simulation of interactions among propagating edge flames.
3. Michael Zinn, M.S. (2012)
Project: Analysis of the role of the pressure hammer effect in the sinking of the USS Thresher
Current Position: Electric Boat (Groton, CT)
2. Danielle Archangel, M.S. (2007)
Project: Optimal area ratio C-D nozzle design for low fan pressure ratios
Current Position: Pratt & Whitney (East Hartford, CT)
1. Andrew Milliken, M.S. (2006)
Project: A computational fluid dynamics study of two-dimensional axi-symmetric swirl flow in a drum cavity
Current Position: Pratt & Whitney (East Hartford, CT)

Publications and Presentations

Refereed Articles

57. Wagner, J. A., Grib, S. W., Renfro, M. W., and Cetegen, B. M. (2015). Flowfield measurements and flame stabilization of a premixed reacting jet in vitiated crossflow. *Combustion and Flame*, v. 162, 3711-3727.
56. Gosselin, K. R., Carnell Jr., W. F., and Renfro, M. W. (2015). Formaldehyde fluorescence as a marker for scalar dissipation through local extinction. *Combustion Science and Technology*, v. 187, 1742-1758.
55. Weber, B. W., Sung, C.-J., and Renfro, M. W. (2015). On the uncertainty of temperature estimation in a rapid compression machine. *Combustion and Flame*, v. 162, 2518-2528.
54. Kim, H. N., Hawron, M. P., Hassan, W., Jordan, E. H., and Renfro, M. W. (2015). Contaminant identification during laser cleaning of thermal barrier coatings. *Surface and Coatings Technology*, v. 270, 86-94.
53. Biswas, S., Kopp-Vaughan, K. M., Renfro, M. W., and Cetegen, B. M. (2013). Phase resolved characterization of conical premixed flames near and far from blowoff. *Combustion and Flame*, v. 160, 2843-2855.
52. Tuttle, S. G., Chaudhuri, S., Kopp-Vaughan, K. M., Jensen, T. R., Cetegen, B. M., Renfro, M. W., and Cohen, J. M. (2013). Lean blow off behavior of asymmetrically-fueled bluff body-stabilized flames. *Combustion and Flame*, v. 160, 1677-1692.
51. Kopp-Vaughan, K. M., Jensen, T. R., Cetegen, B. M., and Renfro, M. W. (2013). Analysis of blowoff dynamics from flames with stratified fueling. *Proceedings of the Combustion Institute*, v. 34, 1491-1498.
50. Kopp-Vaughan, K. M. and Renfro, M. W. (2012). Flame shape and spatially resolved Rayleigh criterion using proper orthogonal decomposition. *International Journal of Spray and Combustion Dynamics*, v. 4, 255-274.
49. Kostka, S., Branam, R. D., Renfro, M. W., Lakusta, P. J., Gord, J. R., and Roy, S. (2012). Laser-induced fluorescence measurements of product penetration within an ultracompact combustor. *Journal of Propulsion and Power*, v. 28, 617-624.
48. Chen, D., Jordan, E. H., Renfro, M. W., and Gell, M. (2012). Solution precursor plasma spray Eu: Y₂O₃ phosphor coating. *International Journal of Applied Ceramic Technology*, v. 9, 636-641.
47. Gosselin, K. R. and Renfro, M. W. (2012). Reconstruction of three-dimensional chemiluminescence images with a maximum entropy deconvolution algorithm. *Applied Optics*, v. 51, 1671-1680.
46. Majewski, M. S., Kelley, C., Lake, J., Hassan, W., Brindley, W., Jordan, E. H., and Renfro, M. W. (2012). Obtaining stress measurements through photoluminescence piezospectroscopy on TBC coated engine run turbine components. *Surface and Coatings Technology*, v. 206, 2751-2758.
45. Chaudhuri, S., Kostka, S., Renfro, M. W., and Cetegen, B. M. (2012). Blowoff mechanism of harmonically forced bluff body stabilized turbulent premixed flames. *Combustion and Flame*, v. 159, 638-640.
44. Tuttle, S. G., Chaudhuri, S., Kostka Jr., S., Kopp-Vaughan, K. M., Jensen, T. R., Cetegen, B. M. and Renfro, M. W. (2012). Time-resolved blowoff transition measurements for two-dimensional bluff body-stabilized flames in vitiated flow. *Combustion and Flame*, v. 159, 291-305.
43. Majewski, M. S., Kelley, C., Hassan, W., Brindley, W., Jordan, E. H., and Renfro, M. W. (2011). Laser induced breakdown spectroscopy for contamination removal on engine-run thermal barrier coatings. *Surface and Coatings Technology*, v. 205, 4614-4619.
42. Chaudhuri, S., Kostka, S., Tuttle, S. G., Renfro, M. W., and Cetegen, B. M. (2011). Blowoff mechanism of two dimensional bluff-body stabilized turbulent premixed flames in a prototypical combustor. *Combustion and Flame*, v. 158, 1358-1371.
41. Chaudhuri, S., Kostka, S., Renfro, M. W., and Cetegen, B. M. (2010). Blowoff dynamics of bluff body stabilized turbulent premixed flames. *Combustion and Flame*, v. 157, 790-802.

40. Sur, R., Boucher, T. J., Renfro, M. W., and Cetegen, B. M. (2010). Technique for in-situ wavelength calibration using normalized wavelength modulation spectroscopy for application to PEM fuel cell measurements. *Applied Optics*, v. 49, 61-70.
39. Sur, R., Boucher, T. J., Renfro, M. W., and Cetegen, B. M. (2010). In-situ measurements of water concentration and temperature dynamics in a PEM fuel cell. *Journal of the Electrochemical Society*, v. 157, B45-B53.
38. Kostka Jr., S., Roy, S., Lakusta, P. J., Meyer, T. R., Renfro, M. W., Gord, J. R., and Branam, R. (2009). Comparison of line-center and line-scanning excitations in two-color laser-induced fluorescence thermometry of OH. *Applied Optics*, v. 48, 6332-6343.
37. Noble, A. C., Venkatesan, K. K., King, G. B., Laurendeau, N. M., and Renfro, M. W. (2009). Singular spectrum analysis applied to time-series measurements in a self-excited tube combustor. *Journal of Propulsion and Power*, v. 25, 1148-1151.
36. Kopp-Vaughan, K. M., Tuttle, S. G., Renfro, M. W., and King, G. B. (2009). Heat release and flame structure measurements of self-excited acoustically-driven premixed methane flames. *Combustion and Flame*, v. 156, 1971-1982.
35. Venkatesan, K. K., King, G. B., Laurendeau, N. M., Renfro, M. W., Böhm, B. (2009). Spatial and temporal characteristics of OH in turbulent opposed-jet double flames. *Flow, Turbulence and Combustion*, v. 83, 131-152.
34. Chen, D., Jordan, E. H., Renfro, M. W., and Gell, M. (2009). Dy:YAG phosphor coating using the solution precursor plasma spray process. *Journal of the American Ceramic Society*, v. 92, 268-271.
33. Kostka Jr., S., Carnell Jr., W. F., and Renfro, M. W. (2008). Propagating edge flame response to multiple stoichiometry gradients. *Combustion and Flame*, v. 154, 82-95.
32. Venkatesan, K. K., Zhang, J., King, G. B., Laurendeau, N. M., and Renfro, M. W. (2007). Space-time correlation measurements in partially premixed turbulent opposed-jet flames. *Applied Physics B*, v. 89, 129-140.
31. Zhang, J., King, G. B., Laurendeau, N. M., and Renfro, M. W. (2007). Two-point time-series measurements of hydroxyl concentration in a turbulent nonpremixed flame. *Applied Optics*, v. 46, 5742-5754.
30. Venkatesan, K., King, G. B., Laurendeau, N. M., and Renfro, M. W. (2007). Hydroxyl time-scale correlations in turbulent counterflow nonpremixed flames. *Combustion Science and Technology*, v. 179, 787-811.
29. Carnell Jr., W. F. and Renfro, M. W. (2007). Raman scattering measurements during extinction of a diffusion flame. *International Journal of Alternative Propulsion*, v. 1, 135-153.
28. Böhm, B., Geyer, D., Dreizler, A., Venkatesan, K. K., Laurendeau, N. M., Renfro, M. W. (2007). Simultaneous PIV/PTV/OH PLIF imaging: Conditional flow field statistics in partially-premixed turbulent opposed jet flames. *Proceedings of the Combustion Institute*, v. 31, 709-717.
27. Basu, S., Renfro, M. W., and Cetegen, B. M. (2006). Spatially-resolved optical measurements of water partial pressure and temperature in a PEM fuel cell under cyclic operating conditions. *Journal of Power Sources*, v. 162, 286-293.
26. Carnell Jr., W. F., and Renfro, M. W. (2006). Influence of advective heat flux on extinction scalar dissipation rate and velocity in negative edge flames. *Combustion Theory and Modelling*, v. 10, 815-830.
25. Guttenfelder, W. A., Renfro, M. W., Laurendeau, N. M., Ji, J., King, G. B., and Gore, J. P. (2006). Hydroxyl time-series and recirculation in turbulent non-premixed swirling flames. *Combustion and Flame*, v. 147, 11-21.
24. Venkatesan, K. K., Laurendeau, N. M., Renfro, M. W., Geyer, D., and Dreizler, A. (2006). Time-resolved measurements of hydroxyl in stable and extinguishing partially premixed turbulent opposed-jet flames. *Flow, Turbulence and Combustion*, v. 76, 257-278.

23. Basu, S., Renfro, M. W., Gorgun, H., and Cetegen, B. M. (2006). In-situ simultaneous measurements of temperature and water partial pressure in a PEM fuel cell under steady state and dynamic cycling. *Journal of Power Sources*, v. 159, 987-994.
22. Wason, A., Carnell Jr., W. F., and Renfro, M. W. (2006). Velocity and scalar measurements in neighboring lifted edge flames. *Combustion Science and Technology*, v. 178, 789-811.
21. Basu, S., Xu, H., Renfro, M. W., and Cetegen, B. M. (2006). In-situ optical diagnostics for measurements of water vapor partial pressure in a PEM fuel cell. *ASME Journal of Fuel Cell Science and Technology*, v. 3, 1-7.
20. Zhang, J., Venkatesan, K. K., King, G. B., Laurendeau, N. M., and Renfro, M. W. (2005). Two-point time-series measurements of minor-species concentrations in a turbulent nonpremixed flame. *Optics Letters*, v. 30, 3144-3146.
19. Carnell Jr., W. F., and Renfro, M. W. (2005). Stable negative edge flame formation in a counterflow burner. *Combustion and Flame*, v. 141, 350-359.
18. Renfro, M. W., Chaturvedy, A., King, G. B., Laurendeau, N. M., Kempf, A., Dreizler, A., and Janicka, J. (2004). Comparison of OH time-series measurements and large-eddy simulations in hydrogen jet flames. *Combustion and Flame*, v. 139, 142-151.
17. Guttenfelder, W. A., King, G. B., Gore, J. P., Laurendeau, N. M., and Renfro, M. W. (2003). Hydroxyl time-series measurements and simulations for turbulent premixed jet flames in thickened preheat regime. *Combustion and Flame*, v. 135, 381-403.
16. Renfro, M. W., Venkatesan, K. K., and Laurendeau, N. M. (2002). Cross-sections for quenching of $\text{CH} \ A^2\Delta, v'=0$ by N_2 and H_2O from 1740 to 2160 K. *Proceedings of the Combustion Institute*, v. 29, 2695-2702.
15. Renfro, M. W., Gore, J. P., and Laurendeau, N. M. (2002). Scalar time-series simulations using flamelet state relationships for turbulent non-premixed flames. *Combustion and Flame*, v. 129, 120-135.
14. Renfro, M. W. (2002). Fluorescence lifetime measurements in atmospheric-pressure flames using nanosecond-pulsed lasers. *Applied Physics B*, v. 74, 167-174.
13. Renfro, M. W., Chaturvedy, A., and Laurendeau, N. M. (2001). Semi-quantitative measurements of CH concentration in atmospheric-pressure counterflow diffusion flames using picosecond laser-induced fluorescence. *Combustion Science and Technology*, v. 169, 25-43.
12. Lakshmanarao, A., Renfro, M. W., King, G. B., and Laurendeau, N. M. (2001). Acetone as a tracer for mixture fraction time-series measurements in turbulent non-reacting jets. *Experiments in Fluids*, v. 30, 595-596.
11. Renfro, M. W., Guttenfelder, W. A., King, G. B., and Laurendeau, N. M. (2000). Scalar time-series measurements in turbulent $\text{CH}_4/\text{H}_2/\text{N}_2$ nonpremixed flames: OH. *Combustion and Flame*, v. 123, 389-401.
10. Renfro, M. W., Gore, J. P., King, G. B., and Laurendeau, N. M. (2000). Self-similarity of hydroxyl-concentration temporal statistics in turbulent nonpremixed jet flames. *AIAA Journal*, v. 38, 1230-1236.
9. Renfro, M. W., King, G. B., and Laurendeau, N. M. (2000). Scalar time-series measurements in turbulent $\text{CH}_4/\text{H}_2/\text{N}_2$ nonpremixed flames: CH. *Combustion and Flame*, v. 122, 139-150.
8. Blevins, L. G., Renfro, M. W., Lyle, K. H., Laurendeau, N. M., and Gore, J. P. (1999). Experimental study of temperature and CH radical location in partially-premixed CH_4/air coflow flames. *Combustion and Flame*, v. 118, 684-696.
7. Renfro, M. W., King, G. B., and Laurendeau, N. M. (1999). Quantitative hydroxyl concentration time-series measurements in turbulent nonpremixed flames. *Applied Optics*, v. 38, 4596-4608.
6. Renfro, M. W., Pack, S. D., King, G. B., and Laurendeau, N. M. (1999). A pulse-pileup correction procedure for rapid measurements of hydroxyl concentrations using picosecond time-resolved laser-induced fluorescence. *Applied Physics B*, v. 69, 137-146.

5. Pack, S. D., Renfro, M. W., King, G. B., and Laurendeau, N. M. (1998). Laser-induced fluorescence triple-integration method applied to hydroxyl concentration and fluorescence lifetime measurements. *Combustion Science and Technology*, v. 140, 405-425.
4. Renfro, M. W., Sivathanu, Y. R., Gore, J. P., King, G. B., and Laurendeau, N. M. (1998). Time-series analysis and measurements of intermediate species concentration spectra in turbulent nonpremixed flames. *Proceedings of the Combustion Institute*, v. 27, 1015-1022.
3. Renfro, M. W., Pack, S. D., King, G. B., and Laurendeau, N. M. (1998). Hydroxyl time-series measurements in laminar and moderately turbulent methane/air diffusion flames. *Combustion and Flame*, v. 115, 443-455.
2. Pack, S. D., Renfro, M. W., King, G. B., and Laurendeau, N. M. (1998). Photon-counting technique for rapid fluorescence decay measurements. *Optics Letters*, v. 23, 1215-1217.
1. Renfro, M. W., Klassen, M. S., King, G. B., and Laurendeau, N. M. (1997). Time-series measurements of CH concentration in turbulent CH₄/air flames by use of picosecond time-resolved laser-induced fluorescence. *Optics Letters*, v. 22, 175-177.

Book Chapters and Theses

3. Renfro, M. W. (2001). Nitric oxide measurements in jet flames with a Ti:Sapphire laser, in *Energy, Simulation-Training, Ocean Engineering and Instrumentation: Research Reports of the Link Energy Fellows*, v. 1 (ed. B. J. Thompson), The University of Rochester Press, Rochester, NY, pp. 3-20.
2. Renfro, M. W. (2000). Quantitative time series for minor-species concentrations: measurements and modeling in turbulent nonpremixed flames. Ph.D. Dissertation, Purdue University, West Lafayette, IN.
1. Renfro, M. W. (1997). Time-series measurements of laser-induced OH and CH fluorescence in laminar and turbulent flames. M.S. Thesis, Purdue University, West Lafayette, IN.

Invited Presentations and Seminars

26. "Aerospace research at UK: Flame stability in gas turbine engines," ASME Bluegrass Section Meeting, Lexington, KY, October 29, 2015.
25. "Contamination removal, stripping and stress analysis of ceramic coatings," Painting Technology Workshop, Lexington, KY, October 13, 2015.
24. "Stabilization and blowoff dynamics of bluff-body flames," Department of Mechanical Engineering, University of Kentucky, Lexington, KY, February 16, 2015.
23. "Understanding blowoff dynamics for bluff-body stabilized flames using PIV, PLIF and high-speed chemiluminescence imaging," Second Symposium on Combustion Diagnostics, Suzhou, China, October 23, 2014.
22. "Blowoff dynamics for bluff body stabilized flames with thermoacoustic coupling," University of Shanghai for Science and Technology, Shanghai, China, October 22, 2014.
21. "Blowoff dynamics for bluff-body stabilized premixed flames via high-speed image analysis," Clean Combustion Workshop, King Abdullah University of Science and Technology, Thuwal, Saudi Arabia, February 19, 2014.
20. "Optical diagnostics," Short Course, Department of Thermal Engineering, Tsinghua University, Beijing, China, July 17-24, 2013.
19. "Diagnostics and modeling to understand flame stability in aircraft combustors," Department of Mechanical Engineering, Indian Institute of Science, Bangalore, India, August 9, 2012.
18. "Blowoff dynamics for bluff body stabilized flames with thermoacoustic coupling," Indo-US Workshop on Flame Stabilization and Combustion Instability, Chennai, India, August 8, 2012.
17. "Ignition studies of vitiated fuel-oxidizer mixtures at atmospheric and low pressure," Augmentor Design Systems Conference, Ponte Vedra Beach, FL, March 21, 2012.
16. "Tracking blowoff dynamics of flames utilizing proper orthogonal decomposition," 50th AIAA Aerospace Sciences Meeting, Nashville, TN, January 11, 2012.

15. "Transitional blowoff behavior of wake-stabilized premixed flames in unvitiated and vitiated flow," Augmentor Design Systems Conference, Ponte Vedra Beach, FL, March 19, 2010.
14. "Local measurements of flame propagation and extinction via laser diagnostics," FM Global, Norwood, MA, October 6, 2009.
13. "Local diagnostics in combustion and fuel cell systems," Air Force Research Laboratories, Dayton, OH, March 28, 2008.
12. "Local extinction in diffusion flame sheets," Department of Mechanical and Aerospace Engineering, The State University of New York at Buffalo, NY, November 29, 2007.
11. "High-bandwidth ps-LIF measurements in turbulent nonpremixed flames," Fachgebiet Energie- und Kraftwerkstechnik, Technische Universität Darmstadt, Germany, January 26, 2005.
10. "Applications of laser-induced fluorescence for combustion diagnostics," Department of Mechanical, Industrial and Manufacturing Engineering, Northeastern University, Boston, MA, November 7, 2003.
9. "Concentration and velocity measurements in combustion and fuel cell systems," Alstom Power Plant Laboratories, Windsor, CT, September 3, 2003.
8. "Applications of picosecond time-resolved laser-induced fluorescence in laminar and turbulent flames," Department of Mechanical Engineering, Yale University, New Haven, CT, September 11, 2002.
7. "Applications of picosecond time-resolved laser-induced fluorescence in laminar and turbulent flames," Air Force Research Laboratories, Dayton, OH, May 23, 2002.
6. "Applications of picosecond and nanosecond laser-induced fluorescence for combustion diagnostics," School of Mechanical Engineering, Purdue University, West Lafayette, IN, February 27, 2002.
5. "Applications of laser-induced fluorescence to laminar and turbulent flame measurements of CH and OH," Department of Mechanical Engineering, University of Connecticut, Storrs, CT, January 22, 2002.
4. "Applications of picosecond laser-induced fluorescence to laminar and turbulent flame measurements," Department of Mechanical Engineering, Washington University, St. Louis, MO, July 11, 2001.
3. "Measurements and modeling of scalar power spectra in turbulent jet flames," School of Mechanical Engineering, Purdue University, West Lafayette, IN, November 9, 1999.
2. "Hydroxyl time-series measurements in turbulent diffusion flames," School of Mechanical Engineering, Purdue University, West Lafayette, IN, November 4, 1997.
1. "Time-series measurements of CH concentration by picosecond time-resolved laser-induced fluorescence," School of Mechanical Engineering, Purdue University, West Lafayette, IN, October 15, 1996.

Conference Proceedings and Presentations

95. Grib, S. W., Wagner, J. A., Renfro, M. W., and Cetegen, B. M. (2015). Ignition of a reacting jet in vitiated crossflow. Proceedings of the 9th U.S. National Combustion Meeting, The Combustion Institute, Cincinnati, OH.
94. Wagner, J. A., Grib, S. W., Renfro, M. W., and Cetegen, B. M. (2015). Experimental studies of a reacting jet in a vitiated crossflow. Proceedings of the 9th U.S. National Combustion Meeting, The Combustion Institute, Cincinnati, OH.
93. Emerson, B., Jagtap, S., Renfro, M. W., Cetegen, B. M., and Lieuwen, T. (2015). Stability analysis of reacting wakes: Flow and density asymmetry effects. 53rd AIAA Aerospace Sciences Meeting, Kissimmee, FL.
92. Gosselin, K. R., Carnell Jr., W. F., and Renfro, M. W. (2014). Formaldehyde fluorescence as a marker for scalar dissipation through local extinction. 35th International Symposium on Combustion, San Francisco, CA.

91. Gosselin, K. R., Carnell, W. C., and Renfro, M. W. (2013). Formaldehyde fluorescence as a marker for scalar dissipation through local extinction. Proceedings of the 2013 Technical Meeting of the Eastern States Section, The Combustion Institute, Clemson, SC.
90. Wagner, J. A., Lapaan, G. M., Renfro, M. W., and Cetegen, B. M. (2013). Chemiluminescence imaging of a reacting jet in a vitiated crossflow. Proceedings of the 2013 Technical Meeting of the Eastern States Section, The Combustion Institute, Clemson, SC.
89. Gosselin, K. R., Kopp-Vaughan, K. M., and Renfro, M. W. (2013). Influence of fuel type on advective heat flux and extinction scalar dissipation rate in negative edge flames. Proceedings of the 8th U.S. National Combustion Meeting, The Combustion Institute, Park City, UT.
88. Gosselin, K. R., Cetegen, B. M., and Renfro, M. W. (2012). Ignition studies of vitiated fuel-oxidizer mixtures at atmospheric and low pressure, Augmentor Design Systems Conference, Ponte Vedra Beach, FL.
87. Jordan, E. H., Majewski, M. S., Kelley, C., Lake, J., Hassan, W., Brindley, W., and Renfro, M. W. (2012). Challenges and solutions to TGO stress measurement in engine run gas turbine components. 36th International Conference and Exposition on Advanced Ceramics and Composites, Daytona Beach, FL.
86. Kopp-Vaughan, K. M., Jensen, T. R., Cetegen, B. M., and Renfro, M. W. (2012). Tracking blowoff dynamics of flames utilizing proper orthogonal decomposition. 50th AIAA Aerospace Sciences Meeting, Nashville, TN.
85. Kopp-Vaughan, K. M., Jensen, T. R., Turner, J. J., Cetegen, B. M., and Renfro, M. W. (2011). Blow off dynamics of acoustically coupled bluff body stabilized flames using proper orthogonal decomposition. Proceedings of the 2011 Technical Meeting of the Eastern States Section, The Combustion Institute, Storrs, CT.
84. Biswas, S., Kopp-Vaughan, K. M., Turner, J. J., Renfro, M. W., and Cetegen, B. M. (2011). Phase-resolved characterization of conical premixed flames near and far from blowoff. Proceedings of the 2011 Technical Meeting of the Eastern States Section, The Combustion Institute, Storrs, CT.
83. Jensen, T. R., Kopp-Vaughan, K. M., Tuttle, S. G., Biswas, S., Renfro, M. W., and Cetegen, B. M. (2011). High-speed imaging of near blowoff behavior for bluff-body stabilized flames in vitiated flow with uniform and stratified fueling. Proceedings of the 7th U.S. National Combustion Meeting, The Combustion Institute, Atlanta, GA.
82. Gosselin, K. R. and Renfro, M. W. (2011). Reconstruction of three-dimensional chemiluminescence images with a maximum entropy deconvolution algorithm. Proceedings of the 7th U.S. National Combustion Meeting, The Combustion Institute, Atlanta, GA.
81. Kopp-Vaughan, K. M., Jensen, T. R., Cetegen, B. M., Renfro, M. W., Davis, D. W., and Cohen, J. M. (2011). Blow off dynamics and time series analysis of stratified bluff body flames. Proceedings of the 7th U.S. National Combustion Meeting, The Combustion Institute, Atlanta, GA.
80. Tuttle, S. G., Chaudhuri, S., Kopp-Vaughan, K. M., Jensen, T. R., Cetegen, B. M., and Renfro, M. W. (2011). Blowoff behavior of bluff-body flames in vitiated and stratified flows. Augmentor Design Systems Conference, Ponte Vedra Beach, FL.
79. Jordan, E. H., Kelley, C., Majewski, M. S., and Renfro, M. W. (2011). Deposition of gas turbine thermal barrier coatings with thermographic phosphors used for temperature measurement. 35th International Conference and Exposition on Advanced Ceramics and Composites, Daytona Beach, FL.
78. Tuttle, S. G., Chaudhuri, S., Kopp-Vaughan, K. M., Jensen, T., Cetegen, B. M., Renfro, M. W., and Cohen, J. M. (2011). Blowoff dynamics of asymmetrically-fueled bluffbody flames. 49th AIAA Aerospace Sciences Meeting, Orlando, FL.
77. Roy, A., Pasaogullari, U., Renfro, M. W., and Cetegen, B. M. (2010). Validation and calibration of a proton exchange membrane fuel cell model against transient experimental data. Proceedings of the ASME 8th International Fuel Cell Science, Engineering and Technology Conference, New York, NY.

76. Kostka, S., Roy, S., Renfro, M. W., Gord, J. R., and Branam, R. (2010). Application of two-color laser-induced-fluorescence thermometry of OH in an ultra-compact combustor. 35th Dayton-Cincinnati Aerospace Sciences Symposium, Dayton, OH.
75. Kostka, S., Branam, R., Gord, J. R., Renfro, M. W., and Roy, S. (2010). Two-color OH laser-induced fluorescence for planar thermometry in combustors and augmentors. Augmentor Design Systems Conference, Ponte Vedra Beach, FL.
74. Tuttle, S. G., Chaudhuri, S., Kostka, S., Cetegen, B. M., and Renfro, M. W. (2010). Transitional blowoff behavior of wake-stabilized premixed flames in unvitiated and vitiated flow. Augmentor Design Systems Conference, Ponte Vedra Beach, FL.
73. Jordan, E. H., Renfro, M. W., Kelley, C., Majewski, M. S., and Gell, M. (2010). Synthesis and performance of thermographic phosphors. 34th International Conference and Exposition on Advanced Ceramics and Composites, Daytona Beach, FL.
72. Chaudhuri, S., Kostka Jr., S., Tuttle, S. G., Renfro, M. W., and Cetegen, B. M. (2010). Blowoff dynamics of V-shaped bluff body stabilized, partially premixed turbulent flames in a practical scale rig. 48th AIAA Aerospace Sciences Meeting, Orlando, FL.
71. Tuttle, S. G., Chaudhuri, S., Kostka Jr., S., Cetegen, B. M., and Renfro, M. W. (2010). Transitional blowoff behavior of wake-stabilized, stratified flames in vitiated flow. 48th AIAA Aerospace Sciences Meeting, Orlando, FL.
70. Kostka, S., Roy, S., Meyer, T. R., Renfro, M. W., Gord, J. R., Lakusta, P., Branam, R. (2009). Comparison of line-peak and line-scanning excitation in two-color laser-induced fluorescence thermometry of OH. 5th Dayton Engineering Sciences Symposium, Dayton, OH.
69. Roy, A., Pasaogullari, U., Renfro, M. W., and Cetegen, B. M. (2009). Computational analysis of dry purge in polymer electrolyte fuel cells. Transactions of the Electrochemical Society, Vienna, Austria.
68. Tuttle, S. G., Kostka Jr., S., Chaudhuri, S., Kulakhmetov, M., Cetegen, B. M., and Renfro, M. W. (2009). Instantaneous and time-resolved blowoff transition measurements for two-dimensional bluff body-stabilized flames in vitiated flow. Proceedings of the 2009 Technical Meeting of the Eastern States Section, The Combustion Institute, College Park, MD.
67. Chaudhuri, S., Kostka Jr., S., Tuttle, S. G., Renfro, M. W., and Cetegen, B. M. (2009). Understanding blowoff dynamics of bluff body stabilized turbulent flames in a prototypical combustor. Proceedings of the 2009 Technical Meeting of the Eastern States Section, The Combustion Institute, College Park, MD.
66. Kopp-Vaughan, K. M., and Renfro, M. W. (2009). Flame structure of non-forced acoustically driven flames using proper orthogonal decomposition. Proceedings of the 2009 Technical Meeting of the Eastern States Section, The Combustion Institute, College Park, MD.
65. Roy, A., Serincan, M. F., Pasaogullari, U., Renfro, M. W., and Cetegen, B. M. (2009). Transient computational analysis of proton exchange membrane fuel cells during load change and non-isothermal start-up. Proceedings of the ASME 7th International Fuel Cell Science, Engineering and Technology Conference, Newport Beach, CA.
64. Sur, R., Boucher II, T. J., Renfro, M. W., and Cetegen, B. M. (2009). In-situ optical measurements of water vapor concentration and temperature in a proton exchange membrane fuel cell at steady state and under dynamics cycling. Proceedings of the ASME 7th International Fuel Cell Science, Engineering and Technology Conference, Newport Beach, CA.
63. Chaudhuri, S., Kostka Jr., S., Renfro, M. W., and Cetegen, B. M. (2009). Fluid dynamics of conical premixed flames with and without upstream mixture gradients near and away from blowoff. Proceedings of the 6th U.S. National Combustion Meeting, The Combustion Institute, Ann Arbor, MI.
62. Chaudhuri, S., Kostka Jr., S., Tuttle, S. G., Renfro, M. W., and Cetegen, B. M. (2009). Near blowoff dynamics of bluff body stabilized, partially premixed turbulent flames. Proceedings of the 6th U.S. National Combustion Meeting, The Combustion Institute, Ann Arbor, MI.

61. Tuttle, S. G., Kostka Jr., S., Chaudhuri, S., Cetegen, B. M., and Renfro, M. W. (2009). Time-resolved blowoff transition behavior for bluff body-stabilized flames in vitiated flow. Proceedings of the 6th U.S. National Combustion Meeting, The Combustion Institute, Ann Arbor, MI.
60. Carnell, Jr., W. F., Gosselin, K. R., and Renfro, M. W. (2009). Comparison of measured and simulated OH and CH₂O distributions through a local extinction. Proceedings of the 6th U.S. National Combustion Meeting, The Combustion Institute, Ann Arbor, MI.
59. Kopp-Vaughan, K. M., Tuttle, S. G., Renfro, M. W., and King, G. B. (2009). Heat release and flame area measurements of self-excited acoustically coupled premixed flames. Proceedings of the 6th U.S. National Combustion Meeting, The Combustion Institute, Ann Arbor, MI.
58. Majewski, M. S., Jordan, E. H., and Renfro, M. W. (2009). Rare earth element doped ceramics and their lifetime characteristics with varying temperature. Proceedings of the 6th U.S. National Combustion Meeting, The Combustion Institute, Ann Arbor, MI.
57. Kostka Jr., S., Roy, S., Lakusta, P. J., Branam, R., Meyer, T. R., Gord, J. R., and Renfro, M. W. (2009). Comparison of line-center and line-scanning excitations in two-color laser-induced fluorescence thermometry of OH. Proceedings of the 6th U.S. National Combustion Meeting, The Combustion Institute, Ann Arbor, MI.
56. Kopp-Vaughan, K. M., Renfro, M. W., Gluesenkamp, M., King, G. B. (2008). Flame structure measurements and principal component analysis in self-excited acoustically-driven premixed flames. Proceedings of the Central States Section Meeting, The Combustion Institute, Tuscaloosa, AL.
55. Gluesenkamp, M., Venkatesan, K. K., Noble, A., King, G. B., Laurendeau, N. M., Kopp-Vaughan, K. M., and Renfro, M. W. (2008). Simultaneous hydroxyl concentration and pressure time-series measurements in a self-excited acoustically-driven tube combustor. Proceedings of the Central States Section Meeting, The Combustion Institute, Tuscaloosa, AL.
54. Venkatesan, K. K., Noble, A., Kirkegaard, K., King, G. B., Laurendeau, N. M., and Renfro, M. W. (2008). Nitric oxide concentration and lifetime measurements using picosecond time-resolved laser-induced fluorescence. Proceedings of the Central States Section Meeting, The Combustion Institute, Tuscaloosa, AL.
53. Majewski, M., Jordan, E. H., and Renfro, M. W. (2008). Rare earth element doped ceramics and their lifetime characteristics with varying temperature. Paper No. AIAA-2008-266, 46th AIAA Aerospace Sciences Meeting, Reno, NV.
52. Carnell Jr., W. F. and Renfro, M. W. (2007). Study of reaction rates through a local extinction point in nonpremixed flames. Proceedings of the 2007 Technical Meeting of the Eastern States Section, The Combustion Institute, Charlottesville, VA.
51. King, G. B., Renfro, M. W., and Laurendeau, N. M. (2007). Two-point scalar time-series measurements and simulations in turbulent partially premixed flames. Proceedings of the AFOSR/ARO Meeting on Chemical Propulsion, Boulder, CO.
50. Basu, S., Renfro, M. W. and Cetegen, B. M. (2007). Spatially resolved measurements and modeling of water vapor and temperature in PEM fuel cells. Proceedings of the ASME 5th International Fuel Cell Science, Engineering and Technology Conference, New York, NY.
49. Kostka Jr., S. and Renfro, M. W. (2007). Propagating edge flame response to multiple stoichiometric gradients. Proceedings of the 5th U.S. Combustion Meeting, The Combustion Institute, San Diego, CA.
48. Venkatesan, K., Zhang, J., King, G., Renfro, M. W., and Laurendeau, N. M. (2007). Hydroxyl space-time correlations in turbulent opposed-jet partially premixed CH₄/air flames. Proceedings of the 5th U.S. Combustion Meeting, The Combustion Institute, San Diego, CA.
47. Zhang, J., King, G. B., Laurendeau, N. M., and Renfro, M. W. (2007). Two-point OH time-series statistics in turbulent partially premixed jet flames. Proceedings of the 5th U.S. Combustion Meeting, The Combustion Institute, San Diego, CA.

46. Carnell Jr., W. F. and Renfro, M. W. (2007). OH and CH₂O measurement and simulation through local extinction of nonpremixed flames. Paper No. AIAA-2007-179, 45th AIAA Aerospace Sciences Meeting, Reno, NV.
45. Kostka Jr., S., Carnell Jr., W. F., and Renfro, M. W. (2007). Numerical study of neighboring edge flame interactions. Paper No. AIAA-2007-377, 45th AIAA Aerospace Sciences Meeting, Reno, NV.
44. King, G. B., Renfro, M. W., and Laurendeau, N. M. (2006). Two-point scalar time-series measurements and simulations in turbulent partially premixed flames. Proceedings of the AFOSR/ARO Meeting on Chemical Propulsion, Arlington, VA.
43. Renfro, M. W. and Jordan, E. H. (2006). Development of sensors using evanescent wave interactions in sapphire optical fibers. Proceedings of the University Coal Research Conference, Pittsburgh, PA.
42. Zhang, J., King, G. B., Laurendeau, N. M., and Renfro, M. W. (2006). Two-point OH time-series measurements in nonpremixed turbulent jet flames. Proceedings of the Central States Section Meeting, The Combustion Institute, Cleveland, OH.
41. Kostka Jr., S., Carnell Jr., W. F., and Renfro, M. W. (2005). Propagating edge flame response to multiple stoichiometric gradients. Proceedings of the 2005 Technical Meeting of the Eastern States Section, The Combustion Institute, Orlando, FL.
40. Carnell Jr., W. F. and Renfro, M. W. (2005). Influence of advective heat flux on steady negative edge flame formation. Proceedings of the 2005 Technical Meeting of the Eastern States Section, The Combustion Institute, Orlando, FL.
39. Basu, S., Renfro, M. W., and Cetegen, B. M. (2005). Simultaneous in-situ measurements of temperature and water partial pressure in a PEM fuel cell under steady and dynamic cycling conditions. Proceedings of the 2005 Technical Meeting of the Eastern States Section, The Combustion Institute, Orlando, FL.
38. Renfro, M. W., King, G. B., and Laurendeau, N. M. (2005). Statistical interpretation of scalar time-series measurements in turbulent partially premixed flames. Proceedings of the AFOSR/ARO Meeting on Chemical Propulsion, Indianapolis, IN.
37. Carnell Jr., W. F., and Renfro, M. W. (2005). Numerical simulation of a negative edge formed in a counterflow geometry. Proceedings of the 2005 Joint U.S. Section Meeting, The Combustion Institute, Philadelphia, PA.
36. Wason, A., Carnell Jr., W. F., and Renfro, M. W. (2005). Interactions between neighboring lifted edge flames. Proceedings of the 2005 Joint U.S. Section Meeting, The Combustion Institute, Philadelphia, PA.
35. Wang, Y., Renfro, M. W., Venkatesan, K. K., King, G. B., and Laurendeau, N. M. (2005). Bispectral analysis of scalar time series in turbulent flames. Proceedings of the 2005 Joint U.S. Section Meeting, The Combustion Institute, Philadelphia, PA.
34. Zhang, J., Venkatesan, K. K., King, G. B., Laurendeau, N. M., and Renfro, M. W. (2005). Two-point OH time-series measurements in a nonpremixed turbulent jet flame. Proceedings of the 2005 Joint U.S. Section Meeting, The Combustion Institute, Philadelphia, PA.
33. Venkatesan, K. K., Laurendeau, N., King, G., Renfro, M. W., Dreizler, A., Geyer, D., and Janicka, J. (2005). Hydroxyl time-series measurements in turbulent counter-flow partially premixed CH₄/air flames: turbulent double flame analysis. Proceedings of the 2005 Joint U.S. Section Meeting, The Combustion Institute, Philadelphia, PA.
32. Renfro, M. W., King, G. B., and Laurendeau, N. M. (2004). Statistical interpretation of scalar time-series measurements in turbulent partially premixed flames. Proceedings of the AFOSR/ARO Meeting on Chemical Propulsion, Tucson, AZ.
31. Basu, S., Xu, H., Renfro, M. W., and Cetegen, B. M. (2004). In-situ optical diagnostics for measurements of water vapor concentration and temperature in PEM fuel cell. Proceedings of the Fourth International Symposium on Radiative Transfer, International Centre for Heat and Mass Transfer, Istanbul, Turkey.

30. Carnell Jr., W. F., and Renfro, M. W. (2004). Scalar measurements in stable negatively propagating edge flames. Proceedings of the Central States Section Meeting, The Combustion Institute, Austin, TX.
29. Venkatesan, K., King, G. B., Laurendeau, N. M., and Renfro, M. W. (2004). Hydroxyl time-series measurements in turbulent counterflow nonpremixed flames. Proceedings of the Central States Section Meeting, The Combustion Institute, Austin, TX.
28. Raguraman, J., King, G. B., Laurendeau, N. M., and Renfro, M. W. (2004). Hydroxyl and Rayleigh scattering time-series measurements in turbulent non-premixed $H_2/CH_4/N_2$ air jet flames. Proceedings of the Central States Section Meeting, The Combustion Institute, Austin, TX.
27. Basu, S., Xu, H., Renfro, M. W., and Cetegen, B. M. (2004). In-situ optical diagnostics for measurements of water vapor concentration and temperature in PEM fuel cell. Proceedings of the First International Conference on Fuel Cell Development and Deployment, Connecticut Global Fuel Cell Center, Storrs, CT.
26. Basu, S., Xu, H., Renfro, M. W., and Cetegen, B. M. (2004). In-situ optical diagnostics for measurements of water vapor concentration and temperature in PEM fuel cell. Proceedings of the Conference on Fuel Cell Power Sources and Systems, U.S. Army RDECOM, Columbia, SC.
25. Wason, A., Quinn, M. A., and Renfro, M. W. (2004). Lift-off heights and flame structure measurements for interacting edge flames. Paper No. AIAA-2004-0141, 42nd AIAA Aerospace Sciences Meeting, Reno, NV.
24. Basu, S., Xu, H., Renfro, M. W., and Cetegen, B. M. (2003). In-situ optical diagnostics for measurements of water vapor concentration and temperature in PEM fuel cell. Proceedings of the 2003 Technical Meeting of the Eastern States Section, The Combustion Institute, University Park, PA.
23. Wang, Y., Renfro, M. W., Chaturvedy, A., King, G. B. and Laurendeau, N. M. (2003). Evaluation of OH time-series asymmetries in turbulent nonpremixed jet flames. Proceedings of the 2003 Technical Meeting of the Eastern States Section, The Combustion Institute, University Park, PA.
22. Wason, A. and Renfro, M. W. (2003). Hydroxyl measurements in interacting edge flames. Proceedings of the 2003 Technical Meeting of the Eastern States Section, The Combustion Institute, University Park, PA.
21. Renfro, M. W., King, G. B., and Laurendeau, N. M. (2003). Statistical interpretation of scalar time-series measurements in turbulent partially premixed flames. Proceedings of the AFOSR/ARO Meeting on Chemical Propulsion, Williamsburg, VA.
20. Chaturvedy, A., King, G. B., Laurendeau, N. M., Renfro, M. W., Kempf, A., Dreizler, A., Sadiki, A., and Janicka, J. (2003). Comparison of OH time-series measurements and large-eddy simulations in hydrogen jet flames. Proceedings of the Third Joint U.S. Section Meeting, The Combustion Institute, Chicago, IL.
19. Venkatesan, K. K., King, G. B., Laurendeau, N. M., and Renfro, M. W. (2003). Hydroxyl time-series measurements in turbulent counter-flow nonpremixed H_2/CH_4 /air flames. Proceedings of the Third Joint U.S. Section Meeting, The Combustion Institute, Chicago, IL.
18. Renfro, M. W. (2002). Fluorescence lifetime measurements in 1-atm flames using nanosecond-pulsed lasers. Proceedings of the Central States Section Meeting, The Combustion Institute, Knoxville, TN.
17. Renfro, M. W., Venkatesan, K., and Laurendeau, N. M. (2002). Cross-sections for CH quenching by N_2 and H_2O from 1740 to 2160 K. Proceedings of the Central States Section Meeting, The Combustion Institute, Knoxville, TN.
16. Guttenfelder, W. A., Renfro, M. W., King, G. B., and Laurendeau, N. M. (2002). Hydroxyl time-series measurements in turbulent non-premixed swirling flames. Proceedings of the Central States Section Meeting, The Combustion Institute, Knoxville, TN.

15. Chaturvedy, A., Renfro, M. W., and Laurendeau, N. M. (2002). Measurements of OH time series in turbulent non-premixed jet flames. Proceedings of the Central States Section Meeting, The Combustion Institute, Knoxville, TN.
14. Renfro, M. W., Guttenfelder, W. A., King, G. B., and Laurendeau, N. M. (2001). Gated photon counting for measurements of scalar-fluctuation time-scales in turbulent flames. Presented at the Annual Meeting, The Optical Society of America, Long Beach, CA.
13. Renfro, M. W., Chaturvedy, A., and Laurendeau, N. M. (2001). Semi-quantitative measurements of CH concentration at atmospheric pressure. Proceedings of the Second Joint U.S. Section Meeting, The Combustion Institute, Oakland, CA.
12. Renfro, M. W., Gore, J. P., and Laurendeau, N. M. (2001). A technique for simulating realistic time series for scalars using a laminar-flamelet construction. Proceedings of the Second Joint U.S. Section Meeting, The Combustion Institute, Oakland, CA.
11. Guttenfelder, W. A., Renfro, M. W., King, G. B., and Laurendeau, N. M. (2001). Time-series measurements of OH in turbulent lean premixed methane/air jet flames. Proceedings of the Second Joint U.S. Section Meeting, The Combustion Institute, Oakland, CA.
10. Renfro, M. W., Gore, J. P., and Laurendeau, N. M. (2000). Simulation of scalar time series in turbulent nonpremixed jet flames. Proceedings of the Central States Section Meeting, The Combustion Institute, Indianapolis, IN.
9. Renfro, M. W., King, G. B., and Laurendeau, N. M. (2000). Time-series measurements of OH and CH in turbulent nonpremixed hydrogen/methane/nitrogen flames. Proceedings of the Central States Section Meeting, The Combustion Institute, Indianapolis, IN.
8. Guttenfelder, W. A., Renfro, M. W., King, G. B., and Laurendeau, N. M. (2000). Time-series measurements of OH in turbulent premixed methane/air jet flames. Proceedings of the Central States Section Meeting, The Combustion Institute, Indianapolis, IN.
7. Renfro, M. W., Pack, S. D., King, G. B., and Laurendeau, N. M. (1999). Time-series measurements of minor-species concentrations in turbulent flames via picosecond time-resolved laser-induced fluorescence. Presented at the Annual Meeting, The Optical Society of America, Santa Clara, CA.
6. Renfro, M. W., King, G. B., and Laurendeau, N. M. (1999). Quantitative hydroxyl-concentration time-series measurements in turbulent diffusion flames. Proceedings of the First Joint U.S. Section Meeting, The Combustion Institute, Washington, D.C.
5. Lakshmanarao, A., Renfro, M. W., King, G. B., and Laurendeau, N. M. (1999). Time-series measurements of mixture fraction in the near field of a turbulent jet. Proceedings of the First Joint U.S. Section Meeting, The Combustion Institute, Washington, D.C.
4. Renfro, M. W., Sivathanu, Y. R., Gore, J. P., King, G. B., and Laurendeau, N. M. (1998). Time-series analysis and measurements of intermediate species concentration spectra in turbulent nonpremixed flames. Proceedings of the Central States Section Meeting, The Combustion Institute, Lexington, KY.
3. Pack, S. D., Renfro, M. W., King, G. B., and Laurendeau, N. M. (1998). Photon-counting technique for rapid fluorescence decay measurements. Proceedings of the Central States Section Meeting, The Combustion Institute, Lexington, KY.
2. Renfro, M. W., Pack, S. D., King, G. B., and Laurendeau, N. M. (1997). Hydroxyl time-series measurements in laminar and turbulent methane/air diffusion flames. Proceedings of the Spring Meeting of the Western States Section, The Combustion Institute, Livermore, CA.
1. Klassen, M. S., Renfro, M. W., King, G. B., and Laurendeau, N. M. (1996). Time-series measurements of CH in turbulent non-premixed CH₄/air flames. Proceedings of the Central States Section Meeting, The Combustion Institute, St. Louis, MO.