Michael J. Gollner

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CURRICULUM VITAE

EDUCATION

2010 – 2012	Ph.D. in Mechanical Engineering from the University of California, San Diego Thesis: *Studies on Upward Flame Spread* Advisor: Prof. Forman A. Williams
2008 – 2010	M.S. in Mechanical Engineering from the University of California, San Diego Thesis: *A Fundamental Approach towards Storage Commodity Classification* Advisor: Prof. Forman A. Williams
2003 – 2008	B.S. in Mechanical Engineering from the University of California, San Diego

PROFESSIONAL EXPERIENCE

8/2017 – present	Associate Professor	Department of Fire Protection Engineering
	Affiliate Associate Professor	Department of Mechanical Engineering
	Affiliate Associate Professor	Department of Aerospace Engineering
		University of Maryland, College Park, MD
9/2012 – 8/2017	Assistant Professor	Department of Fire Protection Engineering
		University of Maryland, College Park, MD
2011 – 2012	Graduate Research Assistant	MAE, University of California, San Diego
2008 – 2011	Teaching Assistant	MAE, University of California, San Diego
2006 – 2008	Consulting Engineer	Schirmer Engineering, CA

ACADEMIC SERVICE

Professional Leadership

2016 – 2018	Board of Directors	International Association of Wildland Fire
2015 – 2018	Research Advisory Board	NFPA Fire Protection Research Foundation
2014 – present	Principal Member	NFPA Technical Committee on Wildland and Rural Fire Protection
2014 – 2017	Management Committee	International Association of Fire Safety Science (IAFSS)
2012 – present	Chair	IAFSS New Technologies Subcommittee

Conference and Workshop Organization

2016 – 2018	Steering Committee	Fire Continuum Conference
2016 – 2018	Host Committee	10^{th} US National Combustion Meeting
2015	Co-Organizer	NSF-funded WIFIRE Workshop: "*Towards Data-Driven Operational Wildland Spread Modeling.*"
2015 – present	Task Leader	International Workshop on Measurement and Computation of Fire Phenomena (MaCFP Workshop)
2015 – 2017	Program Committee & Wildland Fire Co-Chair	8^{th} International Symposium on Fire Safety Science

Editorial Positions

2014 – present	Associate Editor	Fire Technology
2014 – present	Guest Editor	Fire Technology Special Issue on Detection and Suppression
2014 – present	Editorial Board Member	Fire Safety Journal
2014 – present	Editorial Board Member	Technology
2016 – present	Editorial Board Member	Frontiers in Mechanical Engineering

AWARDS AND FELLOWSHIPS

2017	Proulx Early Career Award	International Association of Fire Safety Science
2016	Fire Protection Research Foundation Medal	National Fire Protection Association
2016	CAREER Award	National Science Foundation
2013	Jack Watts Award	Outstanding Reviewer for Fire Technology
2010	Chancellor's Award for Sustainability	University of California, San Diego
2010	Recipient, Student Research Grant	SFPE Educational and Scientific Foundation
2010	Honorable Mention	NSF Graduate Student Researcher Program
2010	Rae K. Hepps Graduate Fellowship	University of California, San Diego
2010	Gordon Scholar	Jacobs School of Engineering, UC San Diego

BEST POSTERS AND PAPERS

2017	Delegates Choice Outstanding Image	12^{th} International Symposium on Fire Safety Science
2017	Judge's Choice Outstanding Student Poster	12^{th} International Symposium on Fire Safety Science
2017	1^{st} Prize for Artistic Merit	10^{th} US National Combustion Meeting
2015	Distinguished Paper, Fire Colloquium	35^{th} International Symposium on Combustion
2015	Best Workshop Paper	International Conference on Computational Science
2014	3 Readers and Editors Choice Awards	HPCwire Magazine
2012	Doctoral Dissertation Fellowship	MAE Department, UC San Diego
2011	Best Poster Award	10^{th} International Symposium on Fire Safety Science
2011	Best Fire Science Image Award	10^{th} International Symposium on Fire Safety Science
2011	3^{rd} Place, Science Art Competition	US National Combustion Meeting, Atlanta, GA

CONTRACTS AND GRANTS [1]

Research Funding received as a PI or co-I while at UMD: $ 2.7 million, my share: $ 2.1 million.

As Principal Investigator ($ 1.8 million)

Department of Interior, Bureau of Safety and Environmental Enforcement (BSEE)

9/17–3/18	$440,745	"Efficient Remediation of Oil Spills over Water Using Fire Whirls" (PI with Oran (Co-I))

Society of Fire Protection Engineers

7/16–6/17	$5,000	An Introduction to Math and Physics through Fire Dynamics (PI)

National Science Foundation

04/16–4/21	$500,000	CAREER: Understanding the Mechanisms of Wildland Fire Spread (PI)

National Institute for Standards and Technology Fire Research Grant (3 separate awards)

01/16–8/18	$338,520	Understanding Ignition Susceptibility of Wildland Urban Interface (WUI) Fuels to Firebrand Attack (PI)

National Fire Protection Association, Fire Protection Research Foundation

06/14–06/15	$25,000	Pathways to Fire Spread in the Wildland-Urban Interface (PI)

USDA Forest Service Rocky Mountain Research Station (yearly renewal)

07/13–08/18	$493,710	Entrainment, attachment, and turbulence structure of inclined flames. (PI with Trouve (Co-I), Cooperative Agreement, U.S. Forest Service, Missoula Fire Sciences Laboratory)

National Fire Protection Association, Fire Protection Research Foundation

07/13–07/14	$5,000	Student Project on Hybrid Water Mist System (PI)

As Lead Investigator from the University of Maryland ($ 0.8 million)

Joint Fire Science Program

09/15–09/17	$47,065	Fire Ember Production from Wildland and Structural Fuels (Subcontract-PI with Zhou (UNCC))

National Science Foundation

10/13–9/16	$467,075	Hazards SEES Type 2: WIFIRE: A Scalable Data-Driven Monitoring, Dynamic Prediction and Resilience Cyberinfrastructure for Wildfires (Subcontract-PI with Altintas (UCSD))

US Department of Homeland Security Fire Prevention and Safety Grant

06/13–06/14	$368,224	Quantification of Green Building Features on Firefighter Safety, (Subcontract-PI with Meacham (WPI))

As a Co-Investigator

National Science Foundation

01/16–12/16	$63,090	EAGER: Fire Whirls on Water: Clean and Efficient Hydrocarbon Combustion (Co-PI with Oran).

University of Maryland Council on the Environment Seed Grant

2/14–2/16	$90,000	Quantifying wildfire pollutant/aerosol emissions using simulations, data assimilation and satellite observations (Co-PI with Trouve, Ellicott)

[1] Totals shown represent UMD share of grants.

JOURNAL PUBLICATIONS

Bold and italic *names indicate advised students or postdocs,* underlined *names indicate research leadership. Authorship is generally assigned at publication based upon effort on the project, typically with students and postdocs first and advisors last.*

Accepted Articles in Referred Journals

29. ***Miller, C.H., Tang, W., Sluder, E.***, Finney, M.A., McAllister, S., Forthofer, J. and Gollner, M.J., "Boundary layer instabilities in mixed convection and diffusion flames with an unheated starting length," *International Journal of Heat and Mass Transfer*, accepted for publication

28. ***Tohidi, A.***, Gollner, M.J., ***Xiao, H.***, "Fire Whirls," *Annual Review of Fluid Mechanics*, 50, 2018. DOI: 10.1146/annurev-fluid-122316-045209

27. Gollner, M.J., ***Miller, C.H., Tang, W., Singh, A.V.***, "The Effect of Flow and Geometry on Concurrent Flame Spread," *Fire Safety Journal*, 91: 68-78, 2017.

26. ***Miller, C.H., Tang, W.***, Finney, M.A., McAllister, S., Forthofer, J.M., Gollner, M.J., "An investigation of coherent structures in laminar boundary layer flames," *Combustion and Flame*, 181: 12-125, 2017.

25. ***Zhang, C.***, Rochoux, M., ***Tang, W.***, Gollner, M.J., Filippi, J-P., Trouve, A., "Evaluation of a data-driven wildland fire spread forecast model with spatially-distributed parameter estimation in simulations of the FireFlux I field-scale experiment," *Fire Safety Journal*, 91: 758–767, 2017

24. ***Miller, C.H.***, Finney, M.A., McAllister, S., ***Sluder, E.***, Gollner, M.J., "Investigating coherent streaks in wildfires via heated plates in crosswind," *Fire Safety Journal*, 91: 735–741, 2017

23. ***Tang, W.***, Gorham, D.J., Finney, M.A., McAllister, S., Cohen, J., Forthofer, J. and Gollner, M.J., "An experimental study on the intermittent extension of flames in wind-driven fires," *Fire Safety Journal*, 91: 742–748, 2017

22. ***Hall, B.H.***, Gollner, M.J., "A Survey of Transient Fire Load on Passenger Ferry Vessels," *Fire Technology*, 53(3):1471-1478, 2017.

21. ***Jiang, L.***, ***Miller, C.H.***, Gollner, M.J. and Sun, J., "Sample Width Effects on Horizontal Flame Spread Over a Thin PMMA Surface", *Proceedings of the Combustion Institute*, 36(2): 2987–2994, 2017.

20. ***Tang, W., Miller, C.H.*** and Gollner, M.J., "Local Flame Attachment and Heat Fluxes in Wind-Driven Line Fires," *Proceedings of the Combustion Institute*, 36(2): 3253–3261, 2017.

19. ***Singh, A.V.*** and Gollner, M.J., "Steady and Transient Pyrolysis of a Non-charring Solid Fuel Under Forced Flow", *Proceedings of the Combustion Institute*, 36(2): 3253–3261, 2017.

18. Gorham, D.J., ***Hakes, R., Caton, S., Gorham, D.J.,*** Gollner, M.J., "Pathways to Fire Spread in the Wildland Urban Interface Part II: Response of Components and Systems and Mitigation Strategies," *Fire Technology*, 53(2), 475–515, 2017.

17. ***Caton, S., Hakes, R.***, Gorham, D.J., Gollner, M.J, "Pathways to Fire Spread in the Wildland Urban Interface Part I: Exposure conditions," *Fire Technology*, 53(2), 429–473, 2017.

16. ***Xiao, H.***, Gollner, M.J., Oran, E.S., "From fire whirls to blue whirls and combustion with reduced pollution," *Proceedings of the National Academy of Sciences*, 113(34):9457-9462, 2016.

15. Gollner, M.J. "Detection and Suppression of Fires: a Cornerstone of Fire Protection Engineering," *Fire Technology*, 52(5): 1193-1196, 2016.

14. ***Singh, A.V.*** and Gollner, M.J., "Experimental Methodology for Estimation of Local Heat Fluxes and Burning Rates in Steady Laminar Boundary Layer Diffusion Flames," *Journal of Visualized Experiments*, e54029, 2016.

13. ***Singh, A.V.*** and Gollner, M.J., "Local Burning Rates and Heat Flux for Boundary Layer Diffusion Flames Under Forced Flow," *AIAA Journal*, 54(2): 408–418, 2016.

12. ***Miller, C.*** and Gollner, M.J., "Upward Flame Spread over Discrete Fuels," *Fire Safety Journal*, 77: 36-45, 2015.

11. Finney, M., Cohen, J., Forthofer, J., McAllister, S., Gollner, M.J., ***Gorham, D.***, Saito, K., Adam, B. and English, J., "The Influence of Buoyant Dyanmics on Wildfire Spread," *Proceedings of the National Academy of Sciences*, 112(32): 9833–9838, 2015.

10. ***Singh, A.V.*** and Gollner, M.J., "A methodology for Estimation of Local Heat Fluxes in Steady Laminar Boundary Layer Diffusion Flames," *Combustion and Flame*, 162: 2214-2230, 2015.

9. ***Singh, A.V.*** and Gollner, M.J., "Estimation of local mass burning rates for steady laminar boundary layer diffusion flames',' *Proceedings of the Combustion Institute*, 35(3): 2527–2534, 2015
Selected Distingiushed Paper, 35th International Symposium on Combustion.

8. ***Huang, X.*** and Gollner, M.J., "Correlations for Evaluation of Flame Spread over an Inclined Fuel Surface," *Fire Safety Science*, 11:222-233, 2015.

7. Zhang, Y., Bustamante, M.J., Gollner, M.J., Sunderland, P.B., Quintiere, J.G., "Burning on Flat Wicks at Various Orientations," *Journal of Fire Sciences*, 32(1): 51–71, 2014.

6. Gollner, M. J., Sanchez, A. L., and Williams, F. A., " On the heat transferred to the air surrounding a semi-infinite inclined hot plate," *Journal of Fluid Mechanics*, 732: 304–315, 2013.

5. Gollner, M. J., ***Huang, X., Cobian, J.***, Rangwala, A. S. and Williams, F. A., "Experimental Study of Upward Flame Spread of an Inclined Fuel Surface," *Proceedings of the Combustion Institute*, 34(2): 2531–2538, 2013.

4. Gollner, M. J., Xie, Y., Lee, M., Nakamura, Y., Rangwala, A.S., "Burning behavior of vertical matchstick arrays," *Combustion Science and Technology*, 184(5): 585–607, 2012.

3. Overholt, K., Gollner, M. J., Williams, F. A., Rangwala, A. S. and Perricone, J., "Warehouse commodity classification from fundamental principles. Part II: flame height prediction," *Fire Safety Journal*, 46(6): 317–329, 2011.

2. Gollner, M. J., Overholt, K., Williams, F. A., Rangwala, A. S. and Perricone, J., "Warehouse commodity classification from fundamental principles. Part I: commodity and burning rates," *Fire Safety Journal*, 46(6): 305–316, 2011.

1. Gollner, M. J., Williams, F. A. and Rangwala, A. S. "Upward flame spread over corrugated cardboard," *Combustion and Flame*, 158(7): 1401–1412, 2011.

Refereed and Published Conference Proceedings

4. Altintas, I., Block, J., de Callafon, R., Crawl, D., Cowart, C., Gupta, A., Gollner, M.J., Trouve, A., Smarr, L., "Towards an Integrated Cyberinfrastructure for Scalable Data-Driven Monitoring, Dynamic Prediction and Resilience of Wildfires", *Procedia Computer Science*, International Conference On Computational Science, ICCS 2015 – Computational Science at the Gates of Nature, Volume 51, 2015, Pages 1633–1642.
Awarded Best Conference Paper.

3. ***A.V. Singh*** and M.J. Gollner, "Local Burning Rates and Heat Flux for Boundary Layer Diffusion Flames Under Forced Flow," *53rd AIAA Aerospace Sciences Meeting*, January, 2015

2. M.A. Finney, J. Cohen, J. Forthofer, S. McAllister, B. Adam, N. Akafuah, J. English, K. Saito, M.J. Gollner and ***D. Gorham***, " Experimental Evidence of Buoyancy Controlled Flame Spread in Wildland Fires," *Advances in Forest Fire Research*, D. Viegas, *ed.*, *VII International Conference on Forest Fire Research*, Coimbra, Portugal, 14 to 20 Nov, 2014.

1. ***D.J. Gorham***, R. Hakes, A. Singh, J. Forthofer, M.A. Finney and M.J. Gollner, "Studying Wildland Fire Spread Using Stationary Fires," *Advances in Forest Fire Research*, D. Viegas, *ed.*, *VII International Conference on Forest Fire Research*, Coimbra, Portugal, 14 to 20 Nov, 2014.

PRESENTATIONS AND CONFERENCES

Invited Seminars

19. "Fire Modeling" as part of "Understanding Wildland Fires: How new research can help fire-management efforts to protect lives and property," **Congressional Briefing hosted by UCAR**, Senate Hart Building. April 12, 2017.

18. "Probing the Structure of Wall-Bounded Flames," Invited Seminar, Department of Mechanical Engineering, **San Diego State University**, San Diego, California. December, 2016.

17. "From Fire Whirls to Blue Whirl and Combustion with Reduced Pollution," Invited Presentation with Xiao, H., DuPont Summit, Washington, D.C., USA, December, 2016

16. "Understanding the Mechanisms of Flame Spread: From Bench-Scale Experiments to Field-Scale Wildfires," Invited Seminar, Department of Mechanical Engineering, **Brigham Young University**, Salt Lake City, Utah. February, 2016.

15. "The Role of Buoyant Flame Dynamics in Wildfire Spread," Invited Seminar, Fluid Mechanics and Combustion Seminar, Department of Mechanical and Aerospace Engineering, **University of California, San Diego**. October, 2015.

14. "The Dynamics of Wind-Blown Flames," Invited Seminar, BRE Center for Fire Safety Engineering, **University of Edinburgh**, Scotland, August, 2015.

13. "The Dynamics of Wind-Blown Flames," Invited Thermofluids Seminar, **Imperial College, London**, UK, July, 2015.

12. "Pathways to Fire Spread in the Wildland-Urban Interface: A Literature Review and Gap Analysis," Invited Seminar, **National Institute for Standards and Technology**, Gaithersburg, MD, April, 2015.

11. "Fire Protection Engineering - A Unique Program in the American Educational System," Invited Seminar, **Toyohashi University of Technology**, Toyohashi, Japan, March, 2015.

10. "International Exchange Programs at the University of Maryland," Invited Seminar, **Toyohashi University of Technology**, Toyohashi, Japan, March, 2015.

9. "Modeling Wildfires: Past, Present and Future," Invited Seminar, Engineering Colloquium and Safety Week, **NASA Goddard Space Flight Center**, Greenbelt, MD, April, 2014.

8. "Exploring the Dynamics of Laminar and Turbulent Boundary Layer Diffusion Flames," Invited Seminar, **Hokkaido University**, Japan. December, 2013.

7. "Exploring the Dynamics of Laminar and Turbulent Boundary Layer Diffusion Flames," Invited Seminar, **Muroran Institute of Technology**, Japan. December, 2013.

6. "Buoyancy Effects on Burning Behavior and Flame Spread," Invited Seminar, **U.S. Forest Service, Rocky Mountain Research Station, Missoula Fire Sciences Laboratory**, Missoula, Montana. January, 2013.

5. "Flame Spread and Commodity Behavior in Warehouse Fires," Invited Seminar, **Underwriter Laboratories, Inc.** Deerfield, Il. November, 2012.

4. "Buoyancy Effects on Burning Behavior and Flame Spread," Invited Seminar, **University of Maryland, College Park**, Department of Fire Protection Engineering. May, 2012.

3. "Buoyancy Effects on Burning Behavior and Flame Spread," Invited Seminar, **University of California, Merced**, Department of Mechanical Engineering and Applied Mechanics. May, 2012.

2. "An Experimental Study of Inclined Flame Spread," Invited Seminar, **Worcester Polytechnic Institute**, Department of Fire Protection Engineering. May, 2011, MA.

1. "Warehouse Commodity Classification and Upward Flame Spread," Invited Seminar, **University of Edinburgh**, Department of Fire Safety Engineering. June, Edinburgh, UK. 2010.

Invited Conference Presentations

7. "Pathways to Fire Spread in the Wildland-Urban Interface: Research Summary," Invited Talk, *National Fire Protection Association, Fire Protection Research Foundation Wildfire and WUI Research Planning Workshop*, Denver, CO, July, 2015.

6. "Pathways to Fire Spread in the Wildland-Urban Interface," Invited Online Webinar, *National Fire Protection Association*, Quincy, MA, April, 2015.

5. "Hybrid Water Mist Fire Protection Systems," Invited Talk, *NFPA Fire Protection Research Foundation Suppression and Detection Conference*, Orlando, FL, March, 2014.

4. "Flammability Characterization of Warehouse Commodities," Invited Talk, *Chesapeake Chapter of the Society of Fire Protection Engineers*, Columbia, MD. October, 2013.

3. "Overview of Fire Research," Invited Talk, University of Maryland, College Park Chapter of the Society of Fire Protection Engineers, College Park, MD. April, 2013.

2. "High Challenge Warehouse Workshop at the SUPDET 2010 Conference," Co-Chair, National Fire Protection Association. February 2010.

1. "A Fundamental Approach towards Fire Hazard Classification," Invited Talk, San Diego Chapter of the Society of Fire Protection Engineers. April, 2009

Conference Papers: Refereed Abstracts

33. ***Tohidi, A.***, ***Caton, S.***, Gollner, M.J., Bryner, N., "Scaling Firebrand Formation Mechanisms from Thermally-Degraded Cylindrical Wooden Dowels," Eighth International Symposium on Scale Modeling (ISSM-8), Portland, Oregon, USA, Sept 12-14, 2017.

32. ***Tang, W.***, Finney, M.A., McAllister, S., Gollner, M.J., "Scale modeling of wind-driven stationary flames to understand wildland fire behavior," Eighth International Symposium on Scale Modeling (ISSM-8), Portland, Oregon, USA, Sept 12-14, 2017.

31. ***Maisto, P.F.***, Marshall, A.W., Gollner, M.J., "Predicting Detector Response Time Using Saltwater Modeling on Sloped Ceilings," 16th International Conference on Automatic Fire Detection and the Suppression, Detection and Signaling Research and Applications Conference (SUPDET 2017), Hyattsville, MD, USA, September 12 –14, 2017.

30. ***Tohidi, A.***, Gollner, M.J., Alfano, C., Quarles, Q., "Computer Vision Techniques for Firebrand Detection and Characterization," 16th International Conference on Automatic Fire Detection and the Suppression, Detection and Signaling Research and Applications Conference (SUPDET 2017), Hyattsville, MD, USA, September 12 –14, 2017.

29. ***Tang, W.***, Finney, M.A., McAllister, S., Gollner, M.J., "An experimental study of the flame intermittent frequencies of wind-driven line fires," 10^{th} U. S. National Combustion Meeting, College Park, Maryland, USA, April 23-26, 2017.

28. ***Maisto, P.M.F.***, Marshall, A.W., Gollner, M.J., Characterization of sloped ceiling jet flow using laser-assisted saltwater modeling technique," 10^{th} U. S. National Combustion Meeting, College Park, Maryland, USA, April 23-26, 2017.

27. ***Tohidi, A., Caton, S.***, Gollner, M.J., Bryner, N., "Thermo-Mechanical Breakage Mechanism of Firebrands," 10^{th} U. S. National Combustion Meeting, College Park, Maryland, USA, April 23-26, 2017.

26. ***May, N.A.***, Ellicot, E.A., Gollner, M.J., "Moisture content effects on energy and emissions released during the combustion of pyrophytic vegetation from various regional ecosystems," 10^{th} U. S. National Combustion Meeting, College Park, Maryland, USA, April 23-26, 2017.

25. ***Zhang, C.***, Rochoux, M., Collin, A., Moireau, P., ***Tang, W.***, Gollner, M.J., Ellicott, E.A., Trouve, A., "Front Shape Comparison in Data-Driven Wildland Fire Spread Simulations," 10^{th} U. S. National Combustion Meeting, College Park, Maryland, USA, April 23-26, 2017.

24. ***Hariharan, S.B., Anderson, P.M., Hu, Y., Xiao, H.***, Gollner, M.J., Oran, E.S., "The Thermal Structure of the Blue Whirl using Different Liquid Fuels," 10^{th} U. S. National Combustion Meeting, College Park, Maryland, USA, April 23-26, 2017.

23. ***Hakes, R.S.P., Weston-Dawkes, M.J., Caton, S.E., Sluder, E.T.,***, Gollner, M.J., Bryner, N., "Understanding Ignition Susceptibility of Wildland-Urban Interface Fuels to Firebrand Attack," Fire and Materials Conference, San Francisco, CA, USA, February, 2017.

22. ***Caton, S.E., Hakes, R.S.P., Weston-Dawkes, M.J., Tohidi, A.***, Gollner, M.J., Yang, J., "Laboratory Studies on the Generation of Firebrands from Cylindrical Wooden Rods," Fire and Materials Conference, San Francisco, CA, USA, February, 2017.

21. Gollner, M.J., ***Tang, W., Gorham, D.J.***, Finney, M.A., McAllister, S., Cohen, J. and Forthofer, J., "Dynamic Behavior and Structure of Wind Blown Flames," 25th International Colloquium on the Dynamics of Explosions and Reacting Systems, August 2-7, Leeds, UK, 2015.

20. Finney, M.A., Cohen, J., Forthofer, J., McAllister, S., Saito, K., Akafuah, N., Gollner, M.J., ***Gorham, D.J.***, "Buoyant Instabilities and Flame Spread in Wildland Fires: Implication of the Need for Scaling Instability Analysis," 25th Canadian Congress of Applied Mechanics (CANCAM 2015), London, Ontario, Canada, May 31, 2015.

19. ***A.V. Singh***, M.J. Gollner, "Boundary Layer Combustion Under Forced Flow," 9th U.S. National Combustion Meeting, May 17-20, 2015, Cincinnati, Ohio.

18. ***M.F. Maisto***, T. Layton, M. J. Gollner, A. W. Marshall, "Salt-Water Modeling to Probe Sub-Grid Scale Turbulent Mixing of Fire Plumes", 9th U.S. National Combustion Meeting, May 17-20, 2015, Cincinnati, Ohio.

17. ***C.H. Miller***, M.J. Gollner, M.A. Finney, ***D.J. Gorham***, "An Investigation of Wildfire Dynamics via Fixed Inclinable Burners", 9th U.S. National Combustion Meeting, May 17-20, 2015, Cincinnati, Ohio.

16. ***C.H. Miller***, M.J. Gollner, "Upward Flame Spread over Discrete Fuels," 9th U.S. National Combustion Meeting, May 17-20, 2015, Cincinnati, Ohio.

15. ***Tang, D.J.***, ***Gorham, D.J.***, Gollner, M.J., Forthofer, J., Finney, M.A., "Forward pulsation behavior of wind-driven line fires," 9th U.S. National Combustion Meeting, May 17-20, 2015, Cincinnati, Ohio.

14. Zhang, C., Durand, M., ***Tang, W.***, Gollner, M., Trouve, A., Rochoux, M.C., Ricci, S., Cuenot, B., Filippi, J.-B., and Clements, C.B., "Evaluation of a Sensor-Driven Wildland Fire Spread Modeling Strategy Using the FireFlux Experiment," 15th International Conference on Numerical Combustion, Avignon, France, April 19-22, 2015.

13. You, Y-G., Yin, M., Martin, D., Meacham, B., Dembsey, N., Gollner, M.J., Marshall, A., **Maisto, P.**, Ahrens, M., Grant, C. and Rodrigue, T., "Quantification of Green Building Features on Firefighter Safety: Problem Definition, Data Collection, Preliminary Analysis and Experimental Plan," SFPE 10th International Conference on Performance-Based Codes and Fire Safety Design Methods, Queensland, Australia, 2014.

12. Altintas, I., Block, J., Braun, H.W., de Callafon, R., Gollner, M.J., Smarr, L. and Trouve, A., "WIFIRE: A Real-Time Cyberinfrastructure for Wildfire Sensing and Prediction." Large Wildland Fires Conference, Missoula, MT, May 19-22, 2014

11. ***Singh, A.V.*** and Gollner, M.J., "Thermal and burning rate characteristics of laminar boundary layer diffusion flames." Fall Technical Meeting of the Eastern States Section of the Combustion Institute, Clemson, SC, October, 2013.

10. ***Gorham, D.*** and Gollner, M. J., "Buoyancy-enhanced flame spread over continuous surfaces," Eighth U.S. National Meeting of the Combustion Institute, Park City, UT, May, 2013.

9. ***Zhao, Z., Gorham, D.*** and Gollner, M. J., "Flame Spread through Arrays of Wooden Dowels," Eighth U.S. National Meeting of the Combustion Institute, Park City, UT, May, 2013.

8. Zhang, Y., Bustamante, M.J., Gollner, M.J., Sunderland, P.B., Quintiere, J.G., "Burning on Flat Wicks at Various Orientations," 7th International Seminar on Fire and Explosion Hazards, May, 2013.

7. Gollner, M. J., ***Huang, X., Cobian, J.***, Rangwala, A. S. and Williams, F. A., "Burning of Inclined Fuel Surfaces," Western States Section of the Combustion Institute, Spring Technical Meeting, Tempe, AZ, March 2012.

6. Gollner, M. J., Huang, X., Rangwala, A. S. and Williams, F. A., "Effects of Inclination on Upward Flame Spread," Western States Section of the Combustion Institute, Fall Technical Meeting, Riverside, CA, October 2011.

5. Gollner, M. J., Xie, Y., Lee, M., Nakamura, Y. and Rangwala, A.S., "Flame spread on vertical matchstick arrays," Western States Section of the Combustion Institute, Fall Technical Meeting, Riverside, CA, October 2011.

4. Gollner, M. J., ***Huang, X.***, Williams, F. A. and Rangwala, A.S., "Buoyancy-enhanced flame spread over continuous surfaces," Seventh U.S. National Meeting of the Combustion Institute, Atlanta, GA, March 2011.

3. Gollner, M. J., Williams, F. A., Overholt, K., Rangwala, A. S. and Perricone, J., "Nondimensional Commodity Classification and an Analysis of Upward Spread." InterFlam, Nottingham, UK. July, 2010.

2. Gollner, M. J., Overholt, K., Rangwala, A. S., Williams, F. A. and Perricone, J., "The B-number as a Criterion for Commodity Classification." Combustion Institute Western States Fall Meeting, Irvine, CA, October 2009.

   Overholt, K., Gollner, M.J, and Rangwala, A.S., "Characterizing the Flammability of Corrugated Cardboard Using a Cone Calorimeter." Sixth U.S. National Meeting of the Combustion Institute, Ann Arbor, MI, May 2009.

1. Gollner, M.J., Hetrick, T., Rangwala, A.S., Perricone, J. and Williams, F. A., "Controlling parameters involved in the burning of standard storage commodities: a fundamental approach towards fire hazard classification." Sixth U.S. National Meeting of the Combustion Institute, Ann Arbor, MI, May 2009.

Conference Presentations

23. Meacham, B., Gollner, M.J., Kamath, P., "Fire Performance of Green Building Features: Experimental Outcomes," National Fire Protection Association Conference and Expo, Boston, MA, USA, June, 2017.

22. Rochoux, M.C., ***Zhang, C***, Gollner, M.J., Trouve, A., "Designing datadriven modeling strategies for realtime wildfire spread forecasting," Earth Observation Summit 2017, Montreal, Canada, June 20–22, 2017.

21. ***S. Verma, C. Miller, W. Tang***, M. Gollner and A. C. Trouve, "Use of large eddy simulation for understanding the structure and dynamics of wildland fire flames," 9^{th} FM Global Open Source CFD Fire Modeling Workshop, Norwood, MA, USA, May 9-10, 2017.

20. Rochoux, M.C., Collin, A., ***Zhang, C***, Lucor, D., Ricci, S., Gollner, M.J., Ellicott, E., Trouve, A., Moireau, P., "Front shape similarity measure for data-driven wildfire spread modeling," Colloque National d?Assimilation de données, Grenoble, France, Nov 30 ? Dec 2, 2016.

19. ***Miller, C.***, Finney, M.A., Forthofer, J., McAllister, S., Gollner, M.J., "An investigation of streaklike instabilities in laminar boundary layer flames," American Physical Society 69^{th} Annual Division of Fluid Dynamics Meeting, Portland, Oregon, USA, November 20–22, 2016.

18. Oran, E.S., ***Xiao, H.***, Gollner, M.J., "Fire Whirls, Vortex Breakdown(?), and Blue Whirls," American Physical Society 69^{th} Annual Division of Fluid Dynamics Meeting, Portland, Oregon, USA, November 20–22, 2016.

17. ***Maisto, P.F.***, Marshall, A.W., Gollner, M.J., "Quantitative saltwater modeling for validation of sub-grid scale LES turbulent mixing and transport models for fire," 68th Annual Meeting of the APS Division of Fluid Dynamics, November 22–24, 2015, Boston, Massachusetts.

16. ***Miller, C.H.***, Verma, S., Trouve, A., Finney, M.A., Forthofer, J., McAllister, S, and Gollner, M.J., "An Investigation of Hydrodynamic Instabilities in Wind-Driven Flames," 68th Annual Meeting of the APS Division of Fluid Dynamics, November 22–24, 2015, Boston, Massachusetts.

15. ***Miller, C.H., Tang, W.***, Verma, S., Trouve, A., Gollner, M.J., "A fundamental exploration of Flame Structure in Wildland Fires," 6th International Fire Ecology & Management Congress, November 16–20, 2015, San Antonio, Texas.

14. Trouve, A., Verma, S., ***Miller, C.H.***, Gollner, M.J., "Numerical Simulations of the Structure of Wildland Fire Flames," 6th International Fire Ecology & Management Congress, November 16–20, 2015, San Antonio, Texas.

13. Gorham, D.J. and Gollner, M.J., "Pathways For Building Fire Spread at the Wildland Urban Interface," NFPA's 2015 Backyards & Beyond Wildland Fire Education Conference, October 22–24, 2015, Myrtle Beach, South Carolina.

12. Gollner, M.J., ***Singh, A.S.***, Trouve, A., ***Gorham, D.J.***, Verma, S., ***Tang, W., Miller, C.***, Forthofer, J. and Finney, M.A., "Probing the Structure of Wall-Bounded Flames," FM Global Open Source CFD Fire Modeling Workshop, Norwood, MA, May, 2015.

11. Gollner, M.J., ***Caton, S., Kohler, K.*** and ***Hakes, R.*** "Pathways for Building Fire Spread at the Wildland Urban Interface," Workshop on Structure Ignition in Wildland-Urban Interface (WUI) Fires, Sponsored by ASTM International Committee E05, Anaheim, CA, June, 2015.

10. Meacham, B. Martin, D. and Gollner, M.J., "Impact of Green Building Features on Firefighter Safety," National Fire Protection Association Conference and Expo, Chicago, IL, June, 2015.

9. ***Caton, S., Kohler, K., Hakes, R.*** and Gollner, M.J., "Pathways for Building Fire Spread at the Wildland Urban Interface," National Fire Protection Association Conference and Expo, Chicago, IL, June, 2015.

8. Gollner, M.J. and Trouve, A., "Modeling Wildland Fire Propagation: Physical Proesses and Real Time Data-Driven Modeling, Operation Tomodachi - Fire Research, Joint US-Japan workshop for fire-structure interaction and large outdoor fires," National Institute for Standards and Technology, March 16-18, Gaithersburg, MD, 2015.

7. Gollner, M.J. and ***Raia, P.***, "Hybrid Water Mist Fire Protection Systems," National Fire Protection Association Conference and Expo, Las Vegas, NV, June, 2014.

6. Gollner, M.J., ***Gorham, D.*** and ***Zhao, Z.***, "Determining the Flammability and Flame Spread Properties Between Discrete Fuels," Society of Fire Protection Engineers Annual Engineering Technology Conference, Austin, TX, October, 2013.

5. Gollner, M.J., Sanchez, A. S. and Williams, F. A., "Effects of buoyancy on heat transfer under an inclined flat plate," 65th Annual Meeting of the APS Division of Fluid Dynamics, Volume 57, Number 17, November 18–20, 2012; San Diego, California.

4. Gollner, M.J., Williams, F.A., and Rangwala, A.S., "Upward flame spread over corrugated cardboard," Society of Fire Protection Engineers Annual Engineering Technology Conference, New Orleans, LA, October, 2010.

3. Gollner, M.J., Olney, K., Kleissel, J., "Clean Renewable Energy Bonds - A funding case study in San Diego, CA," 2010 International Conference on Environment and Alternative Energy, San Diego, CA, 2010.

2. Gollner, M.J., "Redefining Suppression, Presentation at SUPDET 2010 Conference - High Challenge Warehouse Workshop." National Fire Protection Association, Fire Protection Research Foundation. February, 2010.

1. Gollner, M. J., Overholt, K., Rangwala, A. S., Williams, F. A. and Perricone, J., "A Fundamental Approach towards Storage Commodity Classification," Society of Fire Protection Engineers Annual Engineering Technology Conference, Scottsdale, AZ, October, 2009.

Technical Reports and other Publications

5. Gollner, M.J., "Pathways to Building Fire Spread in the Wildland-Urban Interface", *Society of Fire Protection Engineers Emerging Trends Magazine*, Issue 101, August, 2015.

4. Gollner, M.J., "The Flammability of a Storage Commodity." *Fire Protection Engineering Magazine,* April, 2014.

3. Goller, M.J., ***Hakes, R., Caton, S.***) and ***Kohler, K***, "Pathways for Building Fire Spread at the Wildland Urban Interface," Fire Protection Research Foundation, National Fire Protection Association, March, 2015.

2. ***Raia, P.*** and Gollner, M.J., "Literature Review on Hybrid Fire Suppression Systems," Fire Protection Research Foundation, National Fire Protection Association, 2014.

1. Gollner, M.J., Kimball, A. and Vecchiarelli, T., "Fire Safety Design and Sustainable Buildings: Challenges and Opportunities: Report of a National Symposium," Fire Protection Research Foundation, National Fire Protection Association, 2013.

TEACHING

Courses Taught

- ENFP 300: Undergraduate Fire Protection Fluid Mechanics (Spring 2013, 2014, 2016, 2017)
- ENFP 350: Professional Development Course (Spring 2014)
- ENFP 630: Graduate Diffusion Flames and Burning Rate Theory (Fall 2013, Spring 2015)
- ENFP 489W: Undergraduate Wildland Fires: Science and Applications (Fall 2014, 2015, 2017)
- ENFP 629W: Graduate Wildland Fires: Science and Applications (Fall 2014, 2015, 2017)

Curriculum Development

- ENFP 489W/629W (Fall 2014) Wildland Fires: Science and Applications
  New course created. First engineering-based wildland fire course.

MENTORING AND ADVISING

Graduated Ph.D. Students from the University of Maryland, College Park

2014-2017	Colin Miller, Ph.D.	*Fluid Dynamics of Boundary Layer Combustion*, (Now at Catholic Charities, NY, NY, USA.)
2014-2017	Wei Tang, Ph.D.	*Forward Heating in Wind-Driven Flames*, (Now at the National Institute for Standards and Technology)
2012-2015	Ajay Singh, Ph.D.	*A Fundamental Study of Boundary Layer Diffusion Flames*, (Now Assistant Professor, IIT Kanpur, First post: Postdoctoral Scholar at Stanford University)

Graduated M.S. Students from the University of Maryland, College Park

2014-2017	Sriram Bharath Hariharan, M.S.	*The Structure of the Blue Whirl: A Soot-Free Reacting Vortex Phenomenon*, (Now Ph.D. Student at UMD)
2014-2017	Raquel Hakes, M.S.	*Laboratory Studies on the Generation of Firebrands from Cylindrical Wooden Dowels*, (Now Ph.D. Student at UMD)
2014-2017	Nathaniel May, M.S.	*Moisture Content Effects on Energy and Emissions Released During Combustion of Pyrophytic Vegetation*, (Now Fire Marshall at State of Utah)
2016-2017	Wuquan Cui, M.S.	*Influence of Double-Skinned Facades on Fire Safety* (Through the International Masters in Fire Safety Engineering Program)
2014-2016	Sara Caton, M.S.	*Laboratory Studies on the Generation of Firebrands from Cylindrical Wooden Dowels*, (Now Engineer at Jensen Hughes)
2012-2014	Brian Hall, M.S.	*Transient Fire Load on Aluminum Ferries*, (Now at US Coast Guard)
2012-2014	Zhao Zhao, M.S.	*Flame Spread through Wooden Dowels*, (Now with City of Dallas)
2013-2014	Daniel Gorham, M.S.	*Studying Wildland Fire Spread Using Stationary Burners*, (Now at NFPA)
2013-2014	Colin Miller, M.S.	*Upward Flame Spread over Discreet Fuels* (Now PhD Student at UMD)
2013-2014	Brian Cohen, M.S.	*In Situ Burning Alternatives*, (Now at Arup, NYC)

Current Students and Scholars at the University of Maryland, College Park

Postdoctoral Scholars at the University of Maryland, College Park		
2016-	Ali Tohidi	*Fire whirls and wildfire spread*
PhD Students at the University of Maryland, College Park		
2014-	Pietro Maisto	*Buoyant Flows in Green/Sustainable Buildings*
2017-	Raquel Hakes	*Instabilities in Wildfire Flames*
2017-	Sriram Bharath Hariharan	*Fire Whirls*
2017-	Xingyu Ren	*Wildland Fire Spread*
MS Students at the University of Maryland, College Park		
2017-	Hamed Salehizadeh	*Ignition of Structural Fuels with Firebrands*
2017-	Samiyah Mustafa	*Risk Analysis for WUI Communities*
2017-	Evan Sluder	*Flame Attachment on Slopes*
Undergraduates at the University of Maryland, College Park		
2016-	Erin Griffith	*Firebrand ignition of fuel*
2017-	Alicea Fitzpatrick	*Firebrand ignition of fuel*
2017-	Seth Lattner	*Firebrand ignition of fuel*
2017-	Joseph Dowling	*Fire Whirls*
2017-	John Hoffman	*Intermittent Ignition of fuels*
Visitors at the University of Maryland, College Park		
2016-17	Yu Hu	PhD student from Tsinghua University
2016-17	Xiaoyu Ju	PhD student from USTC

Previous Advisees

Undergraduates at the University of Maryland, College Park

2015-17	Matthew Weston-Dawkes	*Firebrand ignition of fuel*
2015-16	Evan Sluder	*Intermittent heating of fine fuels*
2016-17	Nicole Welch	*Firebrand ignition of fuel*
2015	Irene Lemboros	*RISE Academy for Engineering*
2015	Ian Kim	*Structures formed over a hot plate*
2013-14	Conor McCoy	*Intermittent Heating of Wildland Fuels* (RISE Academy for Engineering and University Honors Program)
2013-16	Raquel Hakes	*Instabilities in Wildland Flame Spread and NFPA FPRF WUI Report* (RISE Academy for Engineering)
2014-15	Stephanie Poole	*Imaging Techniques for Wildland Fire Experiments*
2014-15	Sara Caton	*NFPA FPRF WUI Report*
2014-15	Kyle Kohler	*NFPA FPRF WUI Report*
2014	Jonathan Kilpatrick	*Discrete Fuel Flame Spread*
2013-14	Stephen Ernst	*Flame spread over mixed fuels*
2013-14	Peter Raia	*NFPA FPRF Hybrid Water Mist Investigation*
2012	Daniel Gorham	*Flammability of Wildland Fuels*
2012-13	Tyler Pierce	*Flame Spread Through Matchstick Arrays*
2012	Joeseph Praydis	*Inclined Flame Spread on Thin Fuels*

Visitors at the University of Maryland, College Park

2016-17	Liu Qiong	Asst. Professor from Central South University
2016-17	Kun Zhao	PhD student from USTC
2016-17	Xinjie Huang	Asst. Professor from Anhui University of Technology
2015-16	Lin Jiang	PhD student from USTC
2014-15	Jan Zimlich	BS student from Mannheim, Germany
2014-15	Jens Triller	RISE Academy for Engineering

High School students advised at the University of Maryland, College Park

2015-16	Matthew Berg	Performed experiments for Intel Science Fair on wildland fire spread, won first place, MD.

Other Mentoring Activities

At the University of Maryland, College Park

2015-17	Team Adviser	Wood Stove Decathalon Team
2013-14	Science Adviser	FIRST LEGO League "Team Fire"

MEDIA COVERAGE

Television

1. Episode on "Strange Evidence" on Discovery's Science Channel, 2017
2. Feature Story on "Science Presents DNews," "Scientists are Creating Fire Tornados" on the Science Channel, September 5, 2016.
3. Appearance and Feature story on "Daily Planet" on Discovery Canada discussing "Boreal Fire Science," following the Ft. McMurray Fires in Canada, May 18, 2016.
4. Appearance and Feature story on "Daily Planet" on Discovery Canada and the Science Channel in the USA. Feature entitled "Forces of Nature: Fire Tornado" covers our lab?s wildland fire research and a large-scale fire whirl demo, 2014.
5. Appearance and Feature story for "William Shatner's Weird or What," which appeared on History Channel (USA) and Discovery Channel (Europe/Australia) in Spring, 2012.

Print Media

1. “An Effort to Put a Blue, Whirling Vortex of Fire to Good Use,” James Goran, The New York Times, Aug. 30, 2016.
2. “Video of Jim Beam fire tornado could help clean up oil spills,” Fernando Alfonso III, Lexington Herald Leader, Aug. 30, 2016.
3. “Controlled fire storms could be a greener way to clean up marine oil spills,” The Economist, Aug. 12, 2016.
4. “Introducing the ?blue whirl,? a new kind of fire,” Nicole Orttung, the Christian Science Monitor, Aug. 9, 2016.
5. “Scientists have discovered a new kind of fire, and it?s beautiful,” Rafi Letzter, Business Insider, Aug. 8, 2016.
6. “Into the Wildfire,” Paul Tullis, New York Times Magazine, Sept. 19, 2013.
7. “Missoula lab?s fire science breakthrough explains wildfire spread,” Rob Chaney, the Missoulan, July 25, 2015.
8. “County wins big share of solar funds,” San Diego Union Tribune , Onell R. Soto, Oct. 30, 2009.

Digital Media

1. “Is a Blue Fire Tornado the Future of Oil Spill Cleanup,” Kacey Deamer, Fox News, Aug. 31, 2016.
2. “New Form of Fire, Inspired by Bourbon, Might Help with Oil Spills,” James Gorman, The New York Times, Aug. 29, 2016.
3. “Why Scientists are Creating Fire Tornadoes!” Discovery News, Aug. 29, 2016.
4. “Flaming ’blue whirl’ could help clean oil spills, researchers hope,” Jessica Dolcourt, CNET, Aug. 18, 2016.
5. “Scientists just discovered a new kind of fire,” David Nield, Science Alert, Aug. 9, 2016.
6. “Scientists Discovered a New Type of Fire,” Andrew Liszewski, Gizmodo, Aug. 8, 2016.
7. “Researchers Discover a New Type of Fire Called ’Blue Whirl’,” Michele Debczak, Mental Floss, Aug. 8, 2016.
8. “To Clean up an Oil Spill, Light a Fire Tornado,” Nathaniel Scharping, Discover Magazine D-brief, Aug. 8, 2016.
9. “Recent research shows us wildfire behavior like never before,” Matt Makens, Denver ABC Channel 7, July 28, 2015.
10. “WIFIRE helps firefighters get a jump on wildfires,” Science Nation, National Science Foundation, July 28, 2014.
11. “Missoula scientists share new findings on how wildland fires spread,” Kevin Maki, NBC Montana, July 28, 2015.
12. “Scientists upend assumptions about how wildfires spread,” Bob Lafley, Colorado Public Radio, July 27, 2015.
13. “Gorgeous ?Blue Whirl” Flame Might Help Produce Cleaner Energy,” Kate Baggaley, Popular Science, Aug. 5, 2016.
14. “New research findings reveal how wildfires spread,” PhysOrg, July 21, 2015.
15. “New research Reveals how Wildfires Spread,” Fire Engineering, July 20, 2015.
16. “The best combustion art goes up in flames,” New Scientist, July 1, 2011.
17. “Engineers Predict how Fires Spread in Warehouses,” Science Daily Website Feature , Feb. 7, 2011.