

CURRICULUM VITAE

SHANKAR MAHALINGAM

Professor of Mechanical and Aerospace Engineering
Dean of the College of Engineering
The University of Alabama in Huntsville

E-mail: Shankar.Mahalingam@UAH.Edu

Web site: <http://www.uah.edu/engineering/>

College of Engineering, 102 Engineering Building
The University of Alabama in Huntsville, Huntsville, AL 35899
Tele - Office: (256) 824 6474, Fax: (256) 824 6843

EDUCATION

PhD	Mechanical Engineering	Stanford University	1989
MS	Mechanical Engineering	State University of New York at Stony Brook	1982
B. Tech	Mechanical Engineering	Indian Institute of Technology, Madras (<i>Graduated with Distinction</i>)	1980

ACADEMIC APPOINTMENTS

Distinguished Professor	Department of Mechanical and Aerospace Engineering, The University of Alabama in Huntsville, Huntsville (2019 – present)
Professor	Department of Mechanical and Aerospace Engineering, <i>The University of Alabama in Huntsville, Huntsville</i> (2010 – 2019)
Professor	Department of Mechanical Engineering, <i>University of California, Riverside</i> (2000 - 2010)
Graduate Advisor	Department of Mechanical Engineering, <i>University of California, Riverside</i> (2000 – 2002)
Visiting Professor	Department of Mechanical Engineering, University of Coimbra, Coimbra, Portugal, while on sabbatical leave from the University of California, Riverside (in 2008)
Associate Professor	Department of Mechanical Engineering, <i>University of Colorado at Boulder</i> , and member of the Center for Combustion Research (1996 - 2000)
Invited Professor	Laboratoire <i>EM2C, Ecole Centrale Paris</i> , France while on sabbatical leave from the University of Colorado, Boulder (in 1997)
Affiliated Member	Department of Applied Mathematics, <i>University of Colorado at Boulder</i> (1995 - 2000)
Assistant Professor	Department of Mechanical Engineering, <i>University of Colorado at Boulder</i> and member of the Center for Combustion Research (1989 - 1996)

BRIEF BIOGRAPHY

Dr. Shankar Mahalingam is Dean of the College of Engineering and Professor in the Department of Mechanical and Aerospace Engineering at The University of Alabama in Huntsville (UAH). He received his B.Tech., graduating with distinction, from the Indian Institute of Technology, Madras, MS from the State University of New York at Stony Brook (now Stony Brook University), and PhD from Stanford University, all in Mechanical Engineering.

From 1989 to 2000, he was Assistant and then Associate Professor in the Department of Mechanical Engineering at the University of Colorado, Boulder. From 2000 to 2010, he was Professor in the Department of Mechanical Engineering at the University of California, Riverside, and served as Department Chair during six of these ten years. In 2010, he was recruited to his current role as Dean of the College of Engineering at UAH. He served as Visiting Professor in the Department of Mechanical Engineering at the University of Coimbra, Portugal, and Invited Professor at the Laboratoire EM2C, Ecole Centrale Paris, France. He worked as a Systems Engineer for Link Simulation Systems Division, Singer Company, Maryland from 1982-1984.

Professor Mahalingam's research interests include direct and large eddy simulations of turbulent combustion, forest fire modeling, flame spread experiments, computational fluid dynamics applied to turbulent combustion, acoustic-flow interactions pertinent to solid rocket motors, and cardiovascular fluid dynamics. He was amongst the earliest group of researchers to develop direct and large eddy simulation methodology to study coflowing jet diffusion flames. He is one of the leading experts in the area of modeling transition behavior in fires including marginal burning, and transition of surface fires to crown fires, utilizing both simulations and laboratory scale experimentation. He has received funding for his research as PI from a variety of agencies including AFOSR, NSF, ACS-PRF, USDAFS, and UCRLANL, and as co-PI on grants funded by AFOSR, ONR, SERDP, NIST, CAL-EPA-ARB, UCEI, JFSP, and industrial sources. He has authored or coauthored over 160 scientific papers that include 77 peer-reviewed papers (journals and refereed proceedings) and 85 full conference papers. His papers have appeared in leading journals including *International Journal of Wildland Fire, Combustion and Flame, Combustion Theory and Modeling, Combustion Science and Technology, Physics of Fluids, Proceedings of The Combustion Institute*, and the *AIAA Journal*. His current source of research funding is from NSF.

Dr. Mahalingam has taught undergraduate and graduate courses starting from introductory mechanical engineering classes to advanced, special topics classes for graduate students. He has taught over ten undergraduate courses (freshman to senior level) and over ten graduate courses. Dr. Mahalingam was the recipient of two departmental teaching awards and an outstanding advisor award while at the University of Colorado. He has successfully supervised/co-supervised the dissertations of 14 PhD students including 4 from UAH. He is currently co-supervising 1 PhD student and 1 MSE student at UAH and teaches one course every year.

He served as Associate Editor of the *AIAA Journal* and as a Member-at-Large of the Board of the Western States Section of The Combustion Institute.

Professor Mahalingam is a member of The Combustion Institute, American Physical Society (Fluid Dynamics), ASEE, AAAS, Tau Beta Pi, & Sigma Xi.

Dr. Mahalingam is an Associate Fellow of the American Institute of Aeronautics and Astronautics (AIAA), Fellow of the American Society of Mechanical Engineers (ASME), and Fellow of the American Association for the Advancement of Science (AAAS).

ADMINISTRATIVE APPOINTMENTS

Dean of the College of Engineering, *The University of Alabama in Huntsville, Huntsville* (2010 – present)

Responsibilities include:

Providing academic leadership in all its facets for a College composed of five academic departments, in the midst of a high technology community consisting of Fortune 500 corporations and governmental organizations including NASA's Marshall Space Flight Center and the Redstone Army Base. The College enrolls nearly 36% of UAH's undergraduates in ABET-accredited programs in aerospace, chemical, civil, computer, electrical, industrial and systems, and mechanical engineering. In January 2019, a BS in Cybersecurity Engineering degree offered by the College was established. In addition to MSE/MS degrees, PhD programs are offered in civil, computer, electrical, mechanical, industrial and systems engineering, materials science, optical science and engineering, and biotechnology science and engineering. The Dean, as chief academic and executive officer, reports to the Provost and Executive Vice President for Academic Affairs.

Summary Profile:

The College of Engineering (COE) has 2,947 undergraduate students, 497 graduate students, 57 FTE tenure line faculty, 6 lecturers, 3 clinical faculty, and 17 administrative and technical staff (Fall 2020 data). College annual budget excluding research contracts and grants is ~ \$10.2 million. In 2019-2020, 425 Bachelors, 129 Masters, and 30 PhD's in engineering were awarded.

US News and World Report Graduate Engineering Program Ranking of COE has shown an overall upward trend with the most recent ranking of: 95 (2019), 89 (2018), 87 (2017), 90 (2016), 102 (2015).

Chair of the Department of Mechanical Engineering, *University of California, Riverside* (2002-2006, & 2008 - 2010)

Responsibilities included:

Planning the programs of the department in teaching, research, and other functions, including curriculum development, recruitment and evaluation of faculty and staff personnel, maintaining a climate hospitable to diversity and maintaining a department affirmative action program, budget preparation and administration of department financial affairs in accordance with University procedures.

Summary Profile:

Department of Mechanical Engineering established in 2000, BS program is ABET accredited continuously since 1998, MS and PhD programs established in 2001. In 2010, the ME department had 15 faculty members, 4 office staff FTE's, 2 Technical staff FTE's, 449 undergraduate and 60 graduate students (figures as of October 2009). Annual research expenditure in 2008 was \$1.8 million. New research grants with ME faculty members as PI's for fiscal year (July 1, 2009 – June 30, 2010) was over \$2.5 million, 22 Masters and PhD degrees awarded in 2009, 2005 US News and World Report ranking of graduate program: 85 amongst 164 Mechanical Engineering programs surveyed.

OTHER PROFESSIONAL POSITIONS

Systems Engineer Link Simulation Systems Division, Singer Company, Silver Spring, MD (1982-1984)

AWARDS/RECOGNITIONS

Pi Tau Sigma award of “Outstanding 1991 ME Professor at CU” at the University of Colorado at Boulder (Spring 1991)

Pi Tau Sigma award of “Outstanding ME Professor at CU” at the University of Colorado at Boulder (Fall 1991)

University of Colorado Outstanding Undergraduate Advisor for 1991-92

Associate Editor, *AIAA Journal*, Term of appointment: 2002-2005

Associate Fellow AIAA (elected 2003)

Fellow ASME (elected 2010)

Tau Beta Pi (inducted 2014)

Fellow AAAS (elected 2015)

PROFESSIONAL & HONOR SOCIETIES

Member of Sigma Xi, Tau Beta Pi, American Physical Society, The Combustion Institute, International Association of Fire Safety Science (IAFSS), AAAS, AIAA, and ASME

DISSERTATIONS & THESES SUPERVISED AS PRINCIPAL ADVISOR

Student	PhD Dissertation Title	Year	University	Current Position
1. Akbar Ghafourian (supervised joint with John W. Daily)	Combustion Response to Acoustic Perturbation in Liquid Rocket Engines	1993	University of Colorado, Boulder	Associate Professor of Aerospace Engineering, Sharif University of Technology, Iran
2. Nedunchezian Swaminathan	Structure of turbulent and laminar reaction zones	1994	University of Colorado, Boulder	Professor, Department of Engineering, Director of Studies & Fellow, Robinson College, University of Cambridge, UK
3. Kevin R. Anderson (supervised joint with Jean R. Hertzberg)	Effects of semi-confinement and heat release on the dynamics of unsteady reacting jets	1998	University of Colorado, Boulder	Professor of Mechanical Engineering, CalPoly University, Pomona, CA
4. Yottana Khunatorn (supervised joint with Robin Shandas)	A fluid dynamics study of the total cavopulmonary connection	2002	University of Colorado, Boulder	Assistant Professor, Department of Mechanical Engineering, Faculty of Engineering, Chiang Mai University,

				Thailand
5. Joshua Hsu	Incorporating Reduced Kinetic Mechanisms in Numerical Simulations of Nonpremixed Flames	2002	University of Colorado, Boulder	Senior Project Engineer at Meggitt PLC, North Hollywood, CA
6. Watit Pakdee	Analysis of Turbulent Nonpremixed Combustion of Wood Pyrolysis Gas via Numerical Simulations	2003	University of Colorado, Boulder	Associate Professor, Department of Mechanical Engineering, Thammasat University, Thailand
7. Lulu Sun	Experimental and Theoretical Investigations of Fire Behavior in Live Fuels	2006	University of California, Riverside	Professor, Freshmen Engineering Department, Embry-Riddle Aeronautical University, FL
8. Prasad Pokkuniri	A study of turbulent nonpremixed hydrogen combustion with different levels of modeling and computation	2007	University of California, Riverside	Associate Professor, Department of Mechanical Engineering, Mahindra Ecole Centrale, India
9. Watchrapong Tachajapong	Understanding Crown Fire Initiation via Experimental and Computational Modeling	2008	University of California, Riverside	Assistant Professor, Department of Mechanical Engineering, Chiang Mai University, Thailand
10. Jesse Lozano	An investigation of surface and crown fire dynamics in shrub fuels	2011	University of California, Riverside	Currently Mechanical Engineer at Naval Sea Systems Command, CA
11. Ambarish Dahale (supervised joint with Babak Shotorban)	Dynamics of shrub fires investigated via physics based modeling	2014	The University of Alabama in Huntsville	Currently Principal Research Engineer at Convergent Science Inc., Madison, WI
12. B. L. Yashwanth (supervised joint with Babak Shotorban)	Computational investigation of the influence of heating modes and moisture content on pyrolysis and ignition of live fuels	2015	The University of Alabama in Huntsville	Currently Senior Analytical Engineer at American Axle & Manufacturing, Detroit, MI
13. Satyajee Padhi (supervised joint with Babak Shotorban)	A computational investigation of shrub fire dynamics under the influence of wind	2016	The University of Alabama in Huntsville	Currently Senior Technical Services Engineer at Ansys, Waterloo, Canada
14. Chandana Anand (supervised joint with Babak Shotorban)	Computational investigations of ignition characteristics of live	2018	The University of Alabama in Huntsville	Currently Mechanical Engineer at DuPont,

Shotorban)	fuels and deposition of firebrands in a turbulent boundary layer			Wilmington, DE
------------	--	--	--	----------------

- 1) M. S. Thesis, Neal P. Sullivan, “*Numerical Experiments on Forced, Isotropic, Homogeneous Turbulence*,” [University of Colorado at Boulder](#), August 1992 (He later completed his PhD under the supervision of Professor Melvyn Branch). Currently Associate Professor, Department of Mechanical Engineering, Colorado School of Mines, Golden, CO.
- 2) M. S. Thesis, Siming Mu, “*Direct Numerical Simulation of Acoustic-Mean Flow Interactions in Solid Rocket Motors*,” [University of Colorado at Boulder](#), December 1994.
- 3) M. S. Thesis, Jesse S. Lozano, “*Environmental Effects on the Fluid Dynamic Properties of a Propagating Flame*,” [University of California, Riverside](#), August 2008.
- 4) MS Thesis, Jing Li, “*Experimental Investigation of Bulk Density and its Role in Fire Behavior in Live Shrub Fuels*,” [University of California, Riverside](#), June 2011.
- 5) MSE Thesis, William Shannon, “*An investigation of burning behavior in multiple burning shrubs*,” [The University of Alabama in Huntsville](#), May 2020.

Currently co-supervising Peyman Rahimi-Borujerdi, and Joshua Morehouse

OTHER SENIOR PERSONNEL SUPERVISED

Xiangyang Zhou, Postdoctoral Researcher (2000-2004), Staff Research Associate (2004-2006), University of California, Riverside. Currently working as Senior Research Scientist at FM Global, Boston, MA.

UNDERGRADUATE STUDENTS SUPERVISED

Michael McCall (University of Colorado, Boulder, 1991) – Independent Study
Kevin Cash (University of Colorado, Boulder, 1991) – Independent Study
Christopher Connor (University of Colorado, Boulder, 1991-1993) – UROP Research Project
Michael Cotton (University of Colorado, Boulder, 1992) – Independent Study
Michael Read (University of Colorado, Boulder, 1995-1997) – Research
Michael Sheppy (UC Riverside) – Summer 2004
Luis Cardenas (UC Riverside) – MSIRP student from Stanford University - Summer 2004
Melvyn Taylor (UC Riverside) – Spring 2005 – Independent Study
Philip Ho (UC Riverside) – Fall 2005 – Independent Research
Nehemiah Aguirre (UC Riverside) – Spring 2008 – Independent Research
David Becerra – (UC Riverside) Fall 2008, Winter 2009 – Independent Research
Ramon Rodriguez – (UC Riverside) Fall 2009 – Independent Research

VISITING STUDENTS

Carlos Rossa, PhD student of Professor Viegas from the University of Coimbra, Portugal (2006)
Marc Sinou, undergraduate student, visiting from ENSICAEN, Caen, France (Summer 2009)

RECENT RESEARCH GRANTS & CONTRACTS

Joint Fire Sciences Program (JFSP) funded through the USDAFS for research titled “Simulation of the Effects of Convection and Radiation on Pyrolysis and Ignition of Moist Live Fuels,” 09/11 – 09/15, \$217,869 (Co-Principal Investigator, PI: Shotorban)

SERDP for research titled “Fundamental measurements and modeling of prescribed fire behavior in the naturally heterogeneous fuel beds of southern pine forests,” 03/2016-01/2020, \$2,112,347 (Co-Principal Investigator at UAH for \$394,287, PI: Shotorban)

National Institute for Standards and Technology (NIST) for research titled “Development of methodology for determination of ignition propensity by firebrands in wildland-urban interface,” \$563,276 (Co-Principal Investigator)

National Science Foundation for research titled “Collaborative Research: Merging horizontally and vertically separated flames in Wildfires,” 08/2016-07/21, \$180,000 (Principal Investigator)

TEACHING

The University of Alabama in Huntsville (Semester system), 2010 - present

Class size ranged from ~ 20-50 for sophomore and junior level classes, and ~10 for graduate class. MAE 310 is taught as a UAH QEPO certified (2020) asynchronous online class. All classes are 3 semester hour courses. I teach one course per academic year.

Undergraduate Courses	Graduate Courses
Statics (MAE/CE 271)	Computational Fluid Dynamics I (MAE 623)
Fluid Mechanics (MAE310)	

University of California, Riverside (Quarter system), 2000-2010

Class size ranged from ~ 120 for Introduction to Mechanical Engineering, ~90 for sophomore, ~70 for junior classes, ~60 for senior classes, ~5-20 for graduate classes. I led the effort in developing the curriculum for several graduate courses leading up to approval of the graduate program (MS and PhD) in 2001. Most classes were 4 quarter hour classes including 3 lecture hours, and 1 discussion hour (the latter was typically handled by a TA in the case of undergraduate classes). I taught 4 courses per academic year, except during most of the years I served as department chair when I taught 2 courses per academic year.

Undergraduate Courses	Graduate Courses
Engineering Modeling and Analysis	Methods of Engineering Analysis
Combustion Engineering	Computational Methods in Engineering
Statics	Combustion and Environmental Applications

Fluid Mechanics Combustion and Energy Systems Transport Phenomena Introduction to Mechanical Engineering Introduction to Engineering Computation	
--	--

University of Colorado, Boulder (Semester system), 1989-2000

Class sizes were typically 60-80 for junior level classes, exceeding 100 in some cases. Graduate level classes ranged from a one-time high of 80 to typical numbers between 5 and 20. Some graduate classes taught via distance learning program (CATECS). Nearly all classes were 3 semester units. I taught four courses per academic year.

Undergraduate Courses	Graduate Courses
Fluid Mechanics	Viscous Flow
Heat Transfer	Spectral Computational Methods
Computational Methods	Combustion Science and Applications (team taught)
Mathematical Methods	Heat Transfer
	Turbulence
	Combustion Theory
	Computational Fluid Dynamics, Heat Transfer & Combustion
	Advanced Engineering Mathematics I
	Advanced Engineering Mathematics II

ENGINEERING EDUCATION RELATED MATERIAL ON THE WEB

“Ordinary Differential Equations (ODE) Survival Guide,” by S. Mahalingam, 2001, <http://www.engr.ucr.edu/~shankar/oderev.pdf>
 “Essential Mathematics for Undergraduate Students in Mechanical Engineering,” by S. Mahalingam, April 2007, <http://www.engr.ucr.edu/~shankar/ME-UGRAD-MATH.pdf>

PEER-REVIEWED ARCHIVAL JOURNAL PUBLICATIONS

(SM's current/former MS/PhD thesis students appearing as coauthors indicated with double asterisks)

1990

- (A01) Mahalingam S., B. J. Cantwell and J. H. Ferziger, "Full numerical simulation of coflowing, axisymmetric jet diffusion flames," *Physics of Fluids A*, **2** (5), pp. 720-728, 1990 (with SM's PhD Advisors).
- (A02) Mahalingam S., J. H. Ferziger and B. J. Cantwell, "Self-Similar Diffusion Flame," *Combustion and Flame*, **82**, pp. 231-234, 1990 (with SM's PhD Advisors).

1991

- (A03) Mahalingam S., B. J. Cantwell and J. H. Ferziger, "Stability of low speed reacting flows," *Physics of Fluids A*, **3** (6), pp. 1533-1543, 1991 (with SM's PhD Advisors).

1992

- (A04) Mahalingam S., "Numerical solution of the viscous stability equations for low speed reacting flows," *International Journal for Numerical methods in Fluids*, **15** (6), pp. 729-741, 1992 (based on SM's PhD Thesis Research).

1993

- (A05) Mahalingam S., "Self-Similar Diffusion Flame Including Effects of Streamwise Diffusion," *Combustion Science and Technology*, **89** (5-6), pp. 363-373, (1993).

1994

- (A06) **Sullivan, N. P., S. Mahalingam, and R. W. Kerr, "Deterministic forcing of homogeneous, isotropic turbulence," *Physics of Fluids*, **6** (4), pp. 1612-1614, 1994.

1995

- (A07) Mahalingam, S., J. H. Chen, and L. Vervisch, "Finite-rate chemistry and transient effects in direct numerical simulations of turbulent non-premixed flames," *Combustion and Flame*, **102** (3), pp. 285-297, 1995.

1996

- (A08) ** Swaminathan, N., and S. Mahalingam, "Effects of shear and strain on the temporal evolution of laminar diffusion flames," *AIAA Journal*, **34** (1), pp. 89-95, 1996.
- (A09) ** Mu, S., and S. Mahalingam, "Direct numerical simulation of acoustic-mean flow interactions in two-dimensional ducts," *AIAA Journal*, **34** (2), pp. 237-243, 1996.
- (A10) ** Swaminathan, N., S. Mahalingam, and R. W. Kerr, "Structure of non-premixed reaction zones in numerical isotropic turbulence," *Theoretical and Computational Fluid Dynamics*, **8** (3) pp. 201-218, 1996.
- (A11) ** Anderson, K. A., J. R. Hertzberg, and S. Mahalingam, "Classification of absolute and convective instabilities in premixed bluff-body stabilized flames," *Combustion Science and Technology*, **112**, pp. 257-269, 1996.
- (A12) ** Swaminathan, N., and S. Mahalingam, "Assessment of conditional moment closure for single and multistep chemistry," *Combustion Science and Technology*, **112**, pp. 301-326, 1996.
- (A13) Hwang, J., M. Sassi, S. Mahalingam, and J. W. Daily, "Laser-based characterization of a flame-assisted plasma," *Plasma Chemistry and Plasma Processing*, **16** (3), pp. 417-448, 1996.

1997

- (A14) Weidman, P. D., and S. Mahalingam, "Axisymmetric stagnation point flow impinging on a transversely oscillating plate with suction," *Journal of Engineering Mathematics*, **31**, pp. 305-318, 1997.

1998

- (A15) Mallik, S., D. Angirasa, and S. Mahalingam, "Limitations of boundary layer analyses for buoyant convection in stably stratified fluids," *Numerical Heat Transfer, Part A: Applications*, **34** (6), pp. 617-631, 1998.

1999

- (A16) Mahalingam S., D. Thevenin, S. Candel, and D. Veynante, "Analysis and numerical simulation of a nonpremixed flame in a corner," *Combustion and Flame*, **118**, pp. 221-232, 1999.
- (A17) **Anderson, K. R., S. Mahalingam, and J. Hertzberg, "A two-dimensional planar computational investigation of flame broadening in confined non-premixed jets," *Combustion and Flame*, **118**, pp. 233-247, 1999.

2000

- (A18) **Anderson, K, R., and S. Mahalingam, "Numerical study of vortex/flame interaction in actively forced confined non-premixed jets," *Journal of Heat Transfer*, **122**, pp. 376-380, 2000.

2001

- (A19) Shandas, R., M. Mitchell, C. Conrad, O. Knudson, J. Sorrell, S. Mahalingam, M. Frago, and L. M. Valdes-Cruz, "A general method for estimating deformation and forces imposed *in vivo* on bioprosthetic heart valves with flexible annuli: *in vitro* and animal validation studies," *Journal of Heart Valve Disease*, **10** (4), pp. 495-504, 2001.
- (A20) Zhou, X., and S. Mahalingam, "Evaluation of reduced mechanism for modeling combustion of pyrolysis gas in wildland fire," *Combustion Science and Technology*, **171**, pp. 39-70, 2001.

2002

- (A21) Mahalingam, S., and P. D. Weidman, "Activation energy asymptotic analysis and numerical modeling of a strained corner flame," *Combustion Theory and Modeling*, **6** (1), pp. 155-172, 2002.
- (A22) **Khunatorn, Y., S. Mahalingam, R. Shandas, and C. DeGroff, "Influence of connection geometry and SVC-IVC flow rate ratio on flow structures within the total cavopulmonary connection: A numerical study," *ASME Journal of Biomechanical Engineering*, **124**(4), pp. 364-377, 2002.
- (A23) Zhou, X., and S. Mahalingam, "A Flame Surface Density Based Model for Large Eddy Simulation of Turbulent Nonpremixed Combustion," *Physics of Fluids*, **14**(11), pp. L77-80, 2002.

2003

- (A24) Zhou, X., and S. Mahalingam, "A suitable mixture fraction for diffusion flames of wood pyrolysis gas," *Combustion and Flame*, **133**, pp. 197-199, 2003.
- (A25) Zhou, X., **L. Sun, D. Weise and S. Mahalingam, "Thermal particle image velocity estimation for fire plume flow," *Combustion Science and Technology*, **175** (7), pp. 1293-1316, 2003.
- (A26) **Hsu, J., and S. Mahalingam. "Performance of reduced reaction mechanisms in unsteady nonpremixed flame simulations," *Combustion Theory and Modelling*, **7**, pp. 365-382, 2003.
- (A27) **Khunatorn, Y., R. Shandas, C. DeGroff, and S. Mahalingam, "Comparison of *in vitro* velocity field measurements in a scaled total cavopulmonary connection with computational predictions," *Annals of Biomedical Engineering*, **31**(7), pp. 810-822, 2003.
- (A28) **Pakdee, W., and S. Mahalingam, "An Accurate Method to Implement Boundary Conditions for Reacting Flows based on Characteristic Wave Analysis," *Combustion Theory and Modelling*, **7**(4), pp. 705-729, 2003.

2004

- (A29) Coen, J., S. Mahalingam, and J. W. Daily, "Infrared imagery of crownfire dynamics during FROSTFIRE," *Journal of Applied Meteorology*, **43**(9), pp. 1241-1259, 2004.
- (A30) Zhou, X., **Pakdee, W., and S. Mahalingam, "Assessment of a Flame Surface Density-Based Subgrid Turbulent Combustion Model for Nonpremixed Flames of Wood Pyrolysis Gas," *Physics of Fluids*, **16** (10), pp. 3795-3807, 2004.

2005

- (A31) Zhou, X., Weise, D., and S. Mahalingam, "Experimental measurements and numerical modeling of marginal burning in live chaparral shrub fuel beds," *Proceedings of The Combustion Institute*, **30**, pp. 2287-2294, 2005.
- (A32) Weise, D. R., X. Zhou, **L. Sun, and S. Mahalingam, "Fire spread in chaparral – "go or no-go?" *International Journal of Wildland Fire*, **14**, pp. 99-106, 2005.
- (A33) X. Zhou, S. Mahalingam, and D. Weise, "Modeling of Marginal Burning State of Fire Spread in Live Chaparral Shrub Fuel Bed," *Combustion and Flame*, **143**, pp. 183-198, 2005.

2006

- (A34) **L. Sun, X. Zhou, S. Mahalingam, and D. R. Weise, "Comparison of burning characteristics of live and dead fuels," *Combustion and Flame*, **144**, pp. 349-359, 2006.

2007

- (A35) X. Zhou, S. Mahalingam, and D. Weise, "Experimental Study and Large Eddy Simulation of Effect of Terrain Slope on Marginal Burning in Shrub Fuel Beds," *Proceedings of The Combustion Institute*, **31**, pp. 2547-2555, 2007.
- (A36) ** P. Prasad, and S. Mahalingam, "Exhaust gas recirculation effects on hydrogen air combustion," *Combustion Science and Technology*, **179**, pp. 1131-1157, 2007.
- (A37) ** Pakdee, W., and S. Mahalingam, "Numerical investigation of turbulent combustion of wood pyrolysis gas – implication for turbulent model development," *Combustion, Explosion, and Shock Waves*, **43** (3), pp. 258-275, 2007.

2008

- (A38) **W. Tachajapong, **J. Lozano, S. Mahalingam, X. Zhou, and D. R. Weise, "An Investigation of Crown Fuel Bulk Density Effects on the Dynamics of Crown Fire Initiation," *Combustion Science and Technology*, **180** (4): 593-615, 2008.

2009

- (A39) **W. Tachajapong, **J. Lozano, S. Mahalingam, X. Zhou, and D. R. Weise, "Experimental and Numerical Modeling of Shrub Crown Fire Initiation," *Combustion Science and Technology*, **181**: 618-640, 2009.

2010

- (A40) **J. Lozano, **W. Tachajapong, D. R. Weise, S. Mahalingam, and M. Princevac, "Fluid Dynamics Structures in a Fire Environment Observed in Laboratory Scale Experiments," *Combustion Science and Technology*, **182**: 858-878, 2010.

- (A41) S. Hosseini, Q. Li, D. Cocker, D. R. Weise, A. Miller, M. Sharivastava, M. Lemmetty, W. Miller, S. Mahalingam, M. Princevac, W. M. Hao, R. Yokelson, M. T. Odman, .T.J. Johnson, J. Reardon, and H. Jung, “Particle Size Distribution, Morphology and Density From Laboratory-Scale Biomass Fires Using Fast Response Instruments and TEM Analysis,” *Atmospheric Chemistry and Physics*, **10**: 8065-8076, 2010.

2013

- (A42) **A. Dahale, **S. Ferguson, B. Shotorban, and S. Mahalingam, “Effects of Distribution of Bulk Density and Moisture Content on Shrub Fires,” *International J. Wildland Fire*, **22** (5), pp. 625-641, 2013.
- (A43) **S. Ferguson, **A. R. Dahale, B. Shotorban, S. Mahalingam, and D. R. Weise, “The role of moisture on combustion of pyrolysis gases in wildland fires,” *Combustion Science and Technology*, **185**: 435-453, 2013.

2014

- (A44) Samimi Abianeh, O., C. P. Chen, and S. Mahalingam, “Numerical modeling of multi-component diesel fuel spray evaporation process,” *International Journal of Heat and Mass Transfer*, **69**: 44-53, 2014.
- (A45) **W. Tachajapong, **J. Lozano, S. Mahalingam, and D. R. Weise, “Experimental modeling of crown fire initiation in open and closed shrubland systems,” *International J. Wildland Fire*, **4**, pp. 451-462, 2014.
- (A46) H. Pan, S. Pournazeri, M. Princevac, J. W. Miller, S. Mahalingam, M. Y. Khan, V. Jayaram, and W. A. Welch, “Effect of Hydrogen Addition on Criteria and Greenhouse Gas Emissions for a Marine Diesel Engine,” *International Journal of Hydrogen Energy*, **39** (21), pp.11336-11345, 2014.
- (A47) Samimi Abianeh, O., C. P. Chen, and S. Mahalingam, “Modelling of Multi-Component Droplet Coalescence in Evaporating and Non-Evaporating Diesel Fuel Sprays,” *International Journal of Automotive Technology*, pp. 1091-1100, **15** (7), 2014.

2015

- (A48) **Yashwanth, B. L., B. Shotorban, S. Mahalingam, and D. R. Weise, “An investigation of the influence of heating modes on ignition and pyrolysis of woody wildland fuel,” *Combustion Science and Technology*, **187**, pp. 780-796, 2015.
- (A49) **Dahale, A., B. Shotorban, and S. Mahalingam, “Interactions of fires of neighboring shrubs in two- and three-shrub arrangements,” *International J. Wildland Fire*, **24** (5), pp. 624-639, 2015.

2016

- (A50) **Yashwanth, B. L., B. Shotorban, S. Mahalingam, C. Lautenberger, and D. R. Weise, “A numerical investigation of the effect of radiation and moisture on the pyrolysis and ignition of a leaf-like fuel element” *Combustion and Flame*, **163**, pp. 301-316, 2016.
- (A51) **Padhi, S., B. Shotorban, and S. Mahalingam, “Computational investigation of flame characteristics of a non-propagating shrub fire,” *Fire Safety Journal*, **81**, pp. 64-73, 2016.
- (A52) Weise, D. R., E. Koo, X. Zhou, S. Mahalingam, F. Morandini, and J.-H. Balbi, “Fire spread in chapparal – a comparison of laboratory data and model predictions in burning live fuels,” *International J. Wildland Fire*, **25** (9), pp. 980-994, 2016. <https://doi.org/10.1071/WF15177>

2017

- (A53) **Li, J., S. Mahalingam, and D. R. Weise, “Experimental investigation of fire propagation in single live shrubs,” *International Journal of Wildland Fire*, **26**(1), pp. 58-70, 2017. <http://dx.doi.org/10.1071/WF16042>.
- (A54) **C. Anand, B. Shotorban, S. Mahalingam, S. McAllister, and D. R. Weise, “Physics-based modeling of live wildland fuel ignition experiments in the forced ignition and flame test

apparatus,” *Combustion Science and Technology*, **189**(9), pp. 1551-1570, 2017.
<http://dx.doi.org/10.1080/00102202.2017.1308357>

- (A55) **Padhi, S., B. Shotorban, and S. Mahalingam, “A Computational Study of the Interactions of Three Adjacent Burning Shrubs Subjected to Wind,” presented at the 12th *International Symposium on Fire Safety Science*, June 12-16, 2017, and also *Fire Safety Journal*, **91**, pp. 749-757, 2017. <https://doi.org/10.1016/j.firesaf.2017.03.028>

2018

- (A56) Shotorban, B., **Yashwanth, B. L., S. Mahalingam, and **D. J. Haring, “An investigation of pyrolysis and ignition of a moist leaf-like fuel subject to convective heating,” *Combustion and Flame*, **190**, pp.25-35, 2018. <https://doi.org/10.1016/j.combustflame.2017.11.008>
- (A57) Weise, D. R., T. Fletcher, S. Mahalingam, X. Zhou, **L. Sun, and **J. Li, “Fire spread in Chaparral – evaluating flame models with laboratory data,” *Combustion and Flame*, **191**, pp. 500-512, 2018. <https://doi.org/10.1016/j.combustflame.2018.02.012>
- (A58) **Anand, C., B. Shotorban, and S. Mahalingam, “Dispersion and deposition of firebrands in a turbulent boundary layer,” *International Journal of Multiphase Flow*, **109**, pp. 98-113, 2018. <https://doi.org/10.1016/j.ijmultiphaseflow.2018.07.012>

2019

- (A59) Bartolome, C., M. Princevac, D. R. Weise, S. Mahalingam, M. Ghasemian, A. Venkatram, H. Vu, and G. Aguilar, “Laboratory and numerical modeling of the formation of superfog from wildland fires,” *Fire Safety Journal*, **106**, pp. 94-104, 2019. <https://doi.org/10.1016/j.firesaf.2019.04.009>
- (A60) **Rahimi Borujerdi, P., B. Shotorban, S. Mahalingam, and D. R. Weise, “Modeling of water evaporation from a shrinking biomass slab subject to heating: Arrhenius approach versus equilibrium approach,” *International Journal of Heat and Mass Transfer*, **145**, 118672, 2019. <https://doi.org/10.1016/j.ijheatmasstransfer.2019.118672>

2020

- (A61) **Rahimi Borujerdi, P., B. Shotorban, and S. Mahalingam, “A computational study of burning of vertically oriented leaves with various fuel moisture contents by upward convective heating,” *Fuel*, **276**, 118030, 2020. <https://doi.org/10.1016/j.fuel.2020.118030>.
- (A62) **Shannon, W., **C. Anand, B. Shotorban, and S. Mahalingam, “Fire behavior in multiple burning shrubs separated horizontally and vertically,” *Fire Safety Journal*, **118**, 103236, 2020. <https://doi.org/10.1016/j.firesaf.2020.103236>.

RECENT REFEREED CONFERENCE PROCEEDINGS

- (RC13) **Dover, S., **A. Dahale, B. Shotorban, S. Mahalingam, and D. R. Weise, “Influence of Vegetation Moisture on Combustion of Pyrolysis gases in Wildland Fires,” *Proceedings of the ASME 2011 IMECE*, November 11-17, Denver, 2011.
- (RC14) **Dahale, A., **S. Dover, B. Shotorban, and S. Mahalingam, “Effects of Crown bulk Density Distribution and Thermophoresis Forces on Soot Particles in Wildland Fires,” *Proceedings of the ASME 2011 IMECE*, November 11-17, Denver, 2011.
- (RC15) Weise, D. R., T. Fletcher, S. Mahalingam, X. Zhou, and **L. Sun, “Fire Spread in Chaparral: Comparison of Data with Flame-Mass Loss Relationships,” *Proceedings of the Eighth International Symposium on Scale Modeling (ISSM-8)*, September 12-14, Portland, OR, 2017.

CONFERENCE PROCEEDINGS (FULL PAPERS, NON-REFEREED, NOTE ONLY ABSTRACTS PEER REVIEWED)

- (C01) Leonard A. D., J. C. Hill, S. Mahalingam and J. H. Ferziger, "Analysis of homogeneous turbulent reacting flows," Proceedings of the 1988 Summer Program, Center for Turbulence Research Report CTR-S88, December 1988.
- (C02) Mahalingam S., B. J. Cantwell and J. H. Ferziger, "Effects of Heat Release on the Structure and Stability of a Coflowing, Chemically Reacting Jet," Paper AIAA 89-0661, January 1989.
- (C03) Mahalingam S., "Effect of viscosity on the stability of low speed reacting flows," Spring Technical Meeting of the Western States and Canadian Sections of the Combustion Institute, April-May 1990.
- (C04) A. Ghafourian, S. Mahalingam, H. Dindi, and J. W. Daily, "A Review of Atomization in Liquid Rocket Engines," 27th JANNAF Combustion Meeting, Cheyenne, Wyoming, November, 1990, and as paper AIAA-91-0283, 1991.
- (C05) A. Ghafourian, C. Huynh, H. Dindi, S. Mahalingam, and J. W. Daily, "Combustor design for study of combustion instabilities in liquid rocket engines," paper 91-54 presented at the 1991 Spring Meeting of the Western States Section of The Combustion Institute, Boulder, Colorado, March 1991.
- (C06) S. Hevert, S. Mahalingam, and J. W. Daily, "Velocity profile effects on the stability of a liquid jet," paper 91-41 presented at the 1991 Spring Meeting of the Western States Section of The Combustion Institute, Boulder, Colorado, March 1991.
- (C07) S. Hevert, and S. Mahalingam, "Understanding Linear Theory Results for a Liquid Jet," paper presented at the Fall Meeting of the Western States Section of The Combustion Institute, Los Angeles, October 1991.
- (C08) C. Huynh, A. Ghafourian, S. Mahalingam, and J. W. Daily, "Combustor Design for Atomization Study in Liquid Rocket Engines," AIAA paper AIAA 92-0465, 1992.
- (C09) C. Huynh, A. Ghafourian, S. Mahalingam, and J. W. Daily, "Dynamic Behavior of Atomizing Jets in Liquid Rocket Engines," paper 92-16 presented at the Spring 1992 Meeting of the Western States Section of The Combustion Institute, Eugene, March 1992.
- (C10) J. H. Chen, S. Mahalingam, I. K. Puri, and L. Vervisch, "Effect of Finite-rate Chemistry and Unequal Schmidt Numbers on Turbulent Non-premixed Flames Modeled with Single-Step Chemistry," paper 92-52 presented at the Fall 1992 Meeting of the Western States Section of The Combustion Institute, Berkeley, October 1992, also appears in Proceedings of the 1992 Summer Program, Center for Turbulence Research Report CTRS-92, Stanford, 1992.
- (C11) J. H. Chen, S. Mahalingam, I. K. Puri, and L. Vervisch, "Structure of Turbulent Non-premixed Flames modeled with Two-Step Chemistry," paper 92-51 presented at the Fall 1992 Meeting of the Western States Section of The Combustion Institute, Berkeley, October 1992, also appears in Proceedings of the 1992 Summer Program, Center for Turbulence Research Report CTRS-92, Stanford, 1992.
- (C12) N. Swaminathan, S. Mahalingam, and R. W. Kerr, "Direct Numerical Simulation of Reversible and Irreversible Chemical Reactions in Turbulent Nonpremixed Flames," AIAA paper AIAA-93-0103, 1993.
- (C13) A. Ghafourian, R. McGuffin, S. Mahalingam, and J. W. Daily, "Dynamic response to acoustic perturbation of an atomizing coaxial jet in a liquid rocket engine," AIAA paper AIAA-93-0232, 1993.
- (C14) Swaminathan, N., and S. Mahalingam, "The temporal evolution of laminar flows in linear flow fields," Paper WSS/CI 93-033 presented at the Spring Meeting of the Western States Section of the Combustion Institute (WSSCI), March 22-24, Salt lake City, Utah, 1993.

- (C15) J. H. Chen, J. M. Card, M. Day, and S. Mahalingam, "Direct numerical simulations of turbulent nonpremixed flames with reduced chemistry," Proceedings of the 1994 Summer Program of the Center for Turbulence Research, Center for Turbulence Research Report CTRS-94, Stanford, 1994.
- (C16) Swaminathan, N., R. W. Bilger, and S. Mahalingam, "Prediction and validation of conditional moment closure for turbulent nonpremixed reacting flows," Presented at the 1995 Australian Symposium on Combustion and the fourth Australian flame days, Gawler, South Australia, Nov. 9-10, 1995.
- (C17) Anderson, K., K. Center, S. Mahalingam, and J. Hertzberg, "Effects of active forcing on nonpremixed combustion in coflowing jets," AIAA paper AIAA 96-0757, 1996.
- (C18) Center, K., K. Anderson, S. Mahalingam, and J. Hertzberg, "Simulation of reacting vortex structures within a confined domain," AIAA paper AIAA 96-0709, 1996.
- (C19) Anderson, K. R., S. Mahalingam, and J. Hertzberg, "Combined effects of heat release and semi-confinement on the dynamics of unsteady non-premixed flames," WSS/CI Paper No. 96F-107 presented at the Fall WSS/CI Meeting, Combustion Institute, Los Angeles, California, October 28-29, 1996, also CCR Report No. 96-12, October 1996.
- (C20) Mahalingam, S., and P. D. Weidman, "Activation energy asymptotics applied to corner flames," Paper 00S-22 presented at the Spring WSS/CI Meeting, Combustion Institute, Golden, Colorado, March 13-14, 2000.
- (C21) Hsu, J., and S. Mahalingam, "Reduced kinetic mechanisms in time dependent simulations of nonpremixed flames," Paper 00S-12 presented at the Spring WSS/CI Meeting, Combustion Institute, Golden, Colorado, March 13-14, 2000.
- (C22) Brown, A. L., D. C. Dayton, J. W. Daily, S. Mahalingam, and J. Milford, "Molecular beam/mass spectrometer analysis of primary pyrolysis products of black spruce fuel samples from the Frostfire controlled burns near Fairbanks, Alaska, 1999," Paper 00S-40 presented at the Spring WSS/CI Meeting of The Combustion Institute, Golden, Colorado, March 13-14, 2000.
- (C23) Daily, J. W., S. Mahalingam, J. Milford, Y. Khunatorn, T. L. Clark, J. Coen, and L. Radke, "Visible and IR imaging and UV-Spectral analysis of the Frostfire controlled burn near Fairbanks, Alaska, July 1999," Paper 00S-20 presented at the Spring WSS/CI Meeting of The Combustion Institute, Golden, Colorado, March 13-14, 2000.
- (C24) Hsu, J., and S. Mahalingam, "Evaluation of reduced kinetic mechanisms in numerical simulations of nonpremixed flames," AIAA Paper AIAA-2001-0947, 2001.
- (C25) Zhou, X., and S. Mahalingam, "A reduced mechanism for combustion modeling of pyrolysis gas in wildland fire," paper presented at the 2nd Joint Meeting of the US Sections of The Combustion Institute, Oakland, California, March 25-28, 2001.
- (C26) Mahalingam, S., and X. Zhou, "Development of reduced reaction mechanisms for premixed and diffusion flames of pyrolysis gases for wildfire modeling," paper presented at the Italian Section of the Combustion Institute, September 2001. **This was presented as an invited paper at an NSF sponsored workshop titled "New combustion Models with practical Fuels," Santa Margherita, Italy, September 2001.**
- (C27) Zhou, X., and S. Mahalingam, "Opposed-flow diffusion flames of wood pyrolysis gas with detailed and reduced reaction mechanism," paper 01F15 presented at the Fall WSS/CI meeting of The Combustion Institute, Utah, October 2001.
- (C28) Zhou, X., W. Pakdee, and S. Mahalingam "Direct and large eddy simulation of turbulent non premixed flames of wood pyrolysis gas," paper 01F18 presented at the Fall WSS/CI meeting of The Combustion Institute, Utah, October 2001.

- (C29) Pakdee, W., Zhou, X., and S. Mahalingam, "Direct and large-eddy simulation applied to modeling of combustion of pyrolysis fuel gas," AIAA Paper AIAA-2002-1083, 2002.
- (C30) Sun, L., Zhou, X, D. Weise, and S. Mahalingam, "IR-Based Estimation of Velocities Above Flames Spreading over Different Fuels," paper 02S-88 presented at the Spring WSS/CI meeting of The Combustion Institute, San Diego, CA, March 25-26, 2002.
- (C31) Zhou, X., W. Pakdee, and S. Mahalingam, "Large eddy simulation of turbulent nonpremixed flames of wood pyrolysis gas," AIAA Paper AIAA 2003-0961, 2003.
- (C32) Pakdee, W., X. Zhou, and S. Mahalingam, "A Detailed Examination of Turbulent Nonpremixed Flame Structure of Wood Pyrolysis Gas via Numerical Simulations," Paper E-18, 3rd Joint Meeting of the US Sections of The Combustion Institute, Chicago, IL, March 16-19, 2003.
- (C33) Sun, L., X. Zhou, S. Mahalingam, and D. Weise, "Fire behavior of some Southern California live chaparral fuels," Paper PF-08, 3rd Joint Meeting of the US Sections of The Combustion Institute, Chicago, IL, March 16-19, 2003.
- (C34) Sun, L., X. Zhou, S. Mahalingam, and D. R. Weise, "Comparison of seasonal burning characteristics of live chamise," paper 03F-92 presented at the Fall WSS/CI Meeting of The Combustion Institute, Los Angeles, CA, October 20-21, 2003.
- (C35) Zhou, X., D. R. Weise, and S. Mahalingam, "Experimental and Numerical Study of Marginal Burning of Live Chaparral Fuel," paper 03F-43 presented at the Fall WSS/CI Meeting of The Combustion Institute, Los Angeles, CA, October 20-21, 2003.
- (C36) Prasad, P. V. R. K. S., and S. Mahalingam, "An examination of time scale effects on the combustion of hydrogen in air," paper 03F-46 presented at the Fall WSS/CI Meeting of The Combustion Institute, Los Angeles, CA, October 20-21, 2003.
- (C37) Weise, D. R., X. Zhou, L. Sun, and S. Mahalingam, "Fire spread in chaparral – "go or no-go?,"" paper presented at the 2nd International Wildland Fire Ecology and Fire Management Congress (concurrently with American Meteorological Society's 5th Symposium on Fire and Forest Meteorology), Orlando, FL, November 16-20, 2003.
- (C38) Sun, L., Zhou, X., S. Mahalingam, and D. R. Weise, "Experimental study on Fire Behavior of Live Chaparral Fuels," paper presented at the 2nd International Wildland Fire Ecology and Fire Management Congress (concurrently with American Meteorological Society's 5th Symposium on Fire and Forest Meteorology), Orlando, FL, November 16-20, 2003.
- (C39) Sun, L., X. Zhou, S. Mahalingam, J. Canfield, and R. Linn, "Numerical simulation of live chaparral fire behavior using FIRETEC," Paper ??, 4th Joint Meeting of the US Sections of The Combustion Institute, Philadelphia, PA, March, 2005.
- (C40) Tachajapong, W., X. Zhou, D. Weise, and S. Mahalingam, "The Effects of Crown Fuel Characteristics on Crown Fire Initiation," Paper ??, 4th Joint Meeting of the US Sections of The Combustion Institute, Philadelphia, PA, March, 2005.
- (C41) Tachajapong, W., X. Zhou, D. Weise, and S. Mahalingam, "The Effects of Wind on Crown Fire Initiation," Paper 05F-17 presented at the Fall WSS/CI Meeting of The Combustion Institute, Stanford, CA, October 17-18, 2005.
- (C42) Prasad, P. V. R. K. S., X. Zhou, and S. Mahalingam, "Large Eddy Simulation of Turbulent Reacting Mixing Layers", Paper 05F-69 presented at the Fall WSS/CI Meeting of The Combustion Institute, Stanford, CA, October 17-18, 2005.
- (C43) Mahalingam, S., X. Zhou, W. Tachajapong, and D. R. Weise, "An examination of marginal burning and transition from ground-to-crown fires using laboratory and computational modeling," **Invited Paper**, presented at the 5th *International Symposium on Forest Fire Protection*, National Research Institute of Fire and Disaster, Mitaka, Tokyo, Japan, November 30 – December 2, 2005.

- (C44) Tachajapong, W., X. Zhou, S. Mahalingam, and D. R. Weise, “Experimental and Numerical Modeling of Crown Fire Initiation,” paper presented at the *V International Conference on Fire Research*, Figuera da Foz, Portugal, 27-30 November 2006.
- (C45) Tachajapong, W., J. Lozano, S. Mahalingam, and D. R. Weise, “An investigation of canopy bulk density effects on the dynamics of crown fire initiation,” Paper #P14, 5th Joint US Combustion Institute Meeting, San Diego, CA, March 25-28, 2007.
- (C46) Swanson A., C. Kelley, B. Baldauf, F. Fendell, S. Mahalingam, M. Princevac, J. Lozano, W. Tachajapong, and H. Pan, “Northrop Grumman Fire Tunnel Facility: Physical characteristics, velocity measurements and particulate matter emission in controlled fire propagation over level terrain,” poster paper presentation at the Association for Fire Ecology Regional Conference 2008: Fire in The Southwest: Integrating Fire into Management of Changing Ecosystems, January 28-31, 2008, Tuscon, AZ, January 28-31, 2008.
- (C47) Pan, H., J. Lozano, W. Tachajapong, A. Swanson, C. Kelley, S. Mahalingam, and M. Princevac, “Wind tunnel study of particulate emissions, fire spread and velocity field within the flame,” Paper 08S-5 presented at the Spring WSS/CI Meeting of The Combustion Institute, Los Angeles, CA, March 17-18, 2008.
- (C48) Mahalingam, S., and D. X. Viegas, “An Examination of Laboratory Scale Fire Spread Through Discrete Fuel Elements,” Paper 13B3, 6th Joint Meeting of the US Sections of The Combustion Institute, Ann Arbor, MI, May, 2009.
- (C49) Lozano, J., S. Mahalingam, and D. R. Weise, “An Investigation of the Effect of Crown Fuel Separation on the Dynamics of Multiple Crown Fire Initiation in Shrub Fuels ,” Paper 09F-27, presented at the Fall WSS/CI Meeting of The Combustion Institute, Irvine, CA, October 26-27, 2009.
- (C50) Lozano, J., W. Tachajapong, S. Mahalingam, D. R. Weise, “Fluid Dynamics Structures Within and Around a Spreading Laboratory Scale Surface Fire,” Paper 09F-12, presented at the Fall WSS/CI Meeting of The Combustion Institute, Irvine, CA, October 26-27, 2009.
- (C51) Maynard, T., M. Princevac, S. Mahalingam, E. Hosseini, H. Jung, and R. Yokelson, “Laboratory study of particulate emission factors of prescribed wildland fires,” Paper 09F-38, presented at the Fall WSS/CI Meeting of The Combustion Institute, Irvine, CA, October 26-27, 2009.
- (C52) **Maynard, T., S. Hosseini, M. Princevac, S. Mahalingam, H. Jung, D. Cocker, W. Miller, D. R. Weise, W. Hao, and R. Yokelson, “Laboratory-based experimental measurement of particulate emission factors for wildland fuels,” Paper presented at the 16th Conference on Air Pollution Meteorology, Atlanta, GA, January 17–21 2010.
- **Best Oral Presentation awarded to graduate student Trevor Maynard, lead author this paper.*
- (C53) Hosseini, S., Q. Li, A. Miller, M. Sharivastava, D. Cocker, W. Miller, S. Mahalingam, M. Princevac, D. Weise, M. T. Odman, J. Reardon, T. Johnson, and H. Jung, “Particle size distribution from a controlled biomass burning in the laboratory using fast response particle instruments,” Paper 10S-11, presented at the Spring WSS/CI Meeting of The Combustion Institute, Boulder, CO, March 21-23, 2010.
- (C54) Weise, D., X. Zhou, D. V. Sandberg, S. Mahalingam, and E. Koo, “A Laboratory-Scale Comparison of Rate of Spread Model Predictions using Chaparral Fuel Beds, “ Proceedings of 3rd Fire Behavior and Fuels Conference, October 25-29, 2010, Spokane, Washington, USA Published by the International Association of Wildland Fire, Birmingham, Alabama, USA.

- (C55) Coen J., S. Mahalingam, and J. W. Daily, "Application of Infrared Imagery for Understanding Wildfire Dynamics," Paper presented at the InfraMation 2010 Conference, Las Vegas, NE, November 8-12, 2010.
- (C56) J. Lozano, S. Mahalingam, and D. R. Weise, "A detailed examination of laboratory scale crown fire initiation in spatially segregated shrubs," paper presented at the *VI International Conference on Fire Research*, Coimbra, Portugal, 15-18 November 2010.
- (C57) C. Bartolome, M. Princevac, A. Venkatram, S. Mahalingam, D. R. Weise, G. Achtemeier, H. Vu, and G. Aguilar, "Laboratory Measurements and Sensitivity Modeling of Droplet Characteristics and Implications for Superfog," paper ILASS2011-146, 23rd Annual Conference of ILASS-Americas, Ventura, CA, May 15-18, 2011.
- (C58) Bartolome, C., M. Princevac, A. Venkatram, S. Mahalingam, G. Achtemeier, D. R. Weise, H. Vu, and G. Aguilar, "Numerical and physical investigation of the properties of superfog," 92nd Annual American Meteorological Society Meeting, New Orleans, LA, January 22-26, 2012.
- (C59) Lu, V., K. Tsui, C. Bartolome, M. Princevac, A. Venkatram, S. Mahalingam, G. Achtemeier, and D. R. Weise, "Laboratory measurements and characterization of smoldering smoke from pine needle fuel beds," 92nd Annual American Meteorological Society Meeting, New Orleans, LA, January 22-26, 2012.
- (C60) Weise, D. R., W. E. Mell, X. Zhou, and S. Mahalingam, "Use of the Wildland-urban interface Fire Dynamics Simulator to Model Fire Spread in Chamise Chaparral Fuel Beds," Paper 12S-06, presented at the Spring WSS/CI Meeting of The Combustion Institute, Tempe, AZ, March 19-20, 2012.
- (C61) Padhi, S., A. R. Dahale, B. Shotorban, and S. Mahalingam, "Effects of crown separation distance and wind on crown fuel ignition in sparse vegetation," Paper presented at the CSS/CI Meeting of The Combustion Institute, Dayton, OH, April 22-24, 2012.
- (C62) Abianeh, O. S., C. P. Chen, and S. Mahalingam, "Modeling of multicomponent droplets collision in dense evaporating and cold sprays," Paper to be presented at the 25th Annual Conference on Liquid Atomization and Spray Systems, Pittsburgh, PA, May 5-8, 2013.
- (C63) Padhi, S., A. R. Dahale, B. Shotorban, and S. Mahalingam, "Numerical investigation of stationary shrub fire in crosswind," Paper 070FR-0073 to be presented at the 8th U.S. National Combustion Meeting, Salt Lake City, UT, May 19-22, 2013.
- (C64) Dahale, A., S. Padhi, B. Shotorban, and S. Mahalingam, "Flame merging in two neighboring shrub fires," Paper 070FR-0198 presented at the 8th U.S. National Combustion Meeting, Salt Lake City, UT, May 19-22, 2013.
- (C65) Yashwanth, B.L., S. Ferguson, B. Shotorban, S. Mahalingam, and D. R. Weise, "Numerical investigation of influence of moisture content on thermal behavior of heated wood," Paper 070FR-0208, presented at the 8th U.S. National Combustion Meeting, Salt Lake City, UT, May 19-22, 2013.
- (C66) Abianeh, O. S., C. P. Chen, and S. Mahalingam, "Multicomponent fuel evaporating spray in high pressure hot gas flow," AIChE Annual Meeting, November 3-8, 2013.
- (C67) Yashwanth, B. L., B. Shotorban, S. Mahalingam, and D. R. Weise, "A numerical investigation of the effect of moisture content on pyrolysis and combustion of live fuels," Paper D402, Central States Section of The Combustion Institute, Spring Technical Meeting, Tulsa, OK, March 17-18, 2014.
- (C68) Anand, C., B. Shotorban, and S. Mahalingam, "Development of a module for modeling dynamical and thermal behavior of firebrands in WFDS," Paper 2D05, 9th US National Combustion Meeting, Cincinnati, OH, May 17-20, 2015.

- (C69) Padhi, S., B. Shotorban, and S. Mahalingam, “A computational investigation of the interactions of shrub fires under the influence of wind,” Paper 2D06, 9th US National Combustion Meeting, Cincinnati, OH, May 17-20, 2015.
- (C70) Yashwanth, B. L., B. Shotorban, and S. Mahalingam, “Understanding the role of moisture in live fuels subject to pyrolysis and ignition through radiation heat transfer,” Paper 1D05, 9th US National Combustion Meeting, Cincinnati, OH, May 17-20, 2015.
- (C71) Yashwanth, B. L., B. Shotorban, and S. Mahalingam, “A computational investigation of the role of moisture in live fuels subject to pyrolysis and ignition through convective heat transfer,” Paper 1D18, 9th US National Combustion Meeting, Cincinnati, OH, May 17-20, 2015.
- (C72) Yashwanth, B. L., J. R. Gallacher, B. Shotorban, S. Mahalingam, T. H. Fletcher, and D. R. Weise, “Experimental and numerical investigation of the effect of heating modes and moisture content on ignition and pyrolysis of live fuels,” Paper 1D06, 9th US National Combustion Meeting, Cincinnati, OH, May 17-20, 2015.
- (C73) Weise, D. R., E. Koo, Z. Zhou, S. Mahalingam, and F. Morandini, “Comparison of Wildland Fire Rate of Spread Models in Chaparral Fuel Beds,” Paper 2D16, 9th US National Combustion Meeting, Cincinnati, OH, May 17-20, 2015.
- (C74) Anand C., S. McAllister, B. Shotorban, S. Mahalingam, and D. R. Weise, “Physics-based modeling of ignition of live wildland fuels in the FIST apparatus,” Central States Section of The Combustion Institute, Spring Technical Meeting, Knoxville, TN, May 15-17, 2016.
- (C75) Anand, C., B. Shotorban, and S. Mahalingam “Modeling transport of firebrands in a spatially developing turbulent boundary layer,” Central States Section of The Combustion Institute, Spring Technical Meeting, Knoxville, TN, May 15-17, 2016.
- (C76) **Anand, C., B. Shotorban, and S. Mahalingam “Modeling transport of firebrands in a spatially developing turbulent boundary layer,” Central States Section of The Combustion Institute, Spring Technical Meeting, Knoxville, TN, May 15-17, 2016.
- (C77) Weise, D. R., Mell, W. E., X. Zhou, and S. Mahalingam, “Comparison of thermal decomposition models in chaparral fuels,” Paper 1B12 presented at the 10th National Combustion Institute Meeting, College Park, MD, April 23-26, 2017.
- (C78) Shotorban, B., **B. L. Yashwanth, S. Mahalingam, **D. J. Haring, and **P. Rahimi Borujerdi, “Pyrolysis and burning of leaf-like fuel by convective heating: A computational study,” Paper 1B17 presented at the 10th National Combustion Institute Meeting, College Park, MD, April 23-26, 2017.
- (C79) Shotorban, B., **C. Anand and S. Mahalingam, “Statistical description of transport and deposition of firebrands in a turbulent atmospheric boundary layer,” Paper 3B05 presented at the 10th National Combustion Institute Meeting, College Park, MD, April 23-26, 2017.
- (C80) Weise, D. R., T. H. Fletcher, T. J. Johnson, W. Hao, M. Ditenberger, M. Princevac, B. Butler, S. McAllister, J. O’Brien, L. Loudermilk, R. Ottmar, A. Hudak, A. Kato, B. Shotorban, S. Mahalingam, and W. E. Mell, “A Project to Measure and Model Pyrolysis to Improve Prediction of Prescribed Fire Behavior,” presented at the VIII International Conference on Fire Research, Coimbra, Portugal, 9-16 November 2018, and in *Advances in Forest Fire Research*, D. X. Viegas (ed), 2018. https://doi.org/10.14195/978-989-26-16-506_33.
- (C81) Rahimi Borujerdi, P., B. Shotorban, S. Mahalingam, and D. R. Weise, “A comparative study of moisture evaporation models in the drying and pyrolysis of moist solid fuels,” Paper 3D02 presented at the 11th US National Combustion Meeting, Pasadena, CA, March 24-27, 2019.
- (C82) Habib, M. A., C. Anand, S. Mahalingam, and B. Shotorban, “A computational study on the fire merging of burning chamise shrubs,” paper 1D15 presented at the 11th US National Combustion Meeting, Pasadena, CA, March 24-27, 2019.

- (C83) Shannon, W., S. Mahalingam, and B. Shotorban, "An investigation of fire behavior in multiple burning shrubs," submitted, Central States Section of The Combustion Institute, Spring Technical Meeting, Huntsville, AL, May 17-19, 2020.
- (C84) Anand, C., B. Shotorban, and S. Mahalingam, "Deposition characteristics of firebrands released from an elevated point in a turbulent boundary layer," submitted, Central States Section of The Combustion Institute, Spring Technical Meeting, Huntsville, AL, May 17-19, 2020.
- (C85) Rahimi-Borujerdi, B. Shotorban, and S. Mahalingam, "A sensitivity investigation of leaf-scale fire modeling to the pyrolysis gas composition," submitted, Central States Section of The Combustion Institute, Spring Technical Meeting, Huntsville, AL, May 17-19, 2020.

SHORT COURSE

Mahalingam, S. "The Role of Combustion and Heat Transfer in Fire Spread," Short Course on Fire Behavior, *6th International Conference on Forest Fire Research*, Coimbra, Portugal, November 13, 2010.

RECENT ABSTRACTS

- 64) Anand, C., B. Shotorban, and S. Mahalingam, "Physics-based modeling of the transport and deposition of firebrands in a spatially developing atmospheric boundary layer," 12th International Symposium on Fire Safety Science, June 12-16, 2017.
- 65) Weise, D., T. H. Fletcher, B. Shotorban, B. Butler, M. Princevac, T. J. Johnson, M. Dietenberger, W. Mell, R. Ottmar, A. Hudak, S. McAllister, W. M. Hao, J. O'Brien, S. Mahalingam, and J. Reardon, "Measuring and modeling pyrolysis to improve prediction of prescribed fire behavior" Poster P21 presented at the 10th National Combustion Institute Meeting, College Park, MD, April 23-26, 2017.
- 66) Shotorban, B., and S. Mahalingam "Modeling the role of fuel moisture on ignition in thin fuels," The Fire Continuum Conference, Missoula, MT, May 21-24, 2018.
- 67) Anand, C., B. Shotorban, and S. Mahalingam, "Influence of thermal degradation in dispersion and deposition of firebrands in a turbulent boundary layer," The Fire Continuum Conference, Missoula, MT, May 21-24, 2018.
- 68) Anand, C., B. Shotorban, and S. Mahalingam, "Dynamical and thermal behavior of depositing firebrands in a turbulent boundary layer," abstract L29.6, 2012 APS (DFD) Meeting, November 18-20, 2018.
- 69) Rahimi Borujerdi, P., B. Shotorban, S. Mahalingam, and D. R. Weise, "Physics based modeling of moisture evaporation from solid fuels: Equilibrium model versus Arrhenius model," 6th International Fire behavior and Fuels Conference, Albuquerque, NM, April 29-May 3, 2019.
- 70) Mahalingam, S., and B. Shotorban, "A computational and experimental investigation of fire behavior within and around isolated and groups of shrubs," **SM was Invited Keynote Speaker**, Fluids Engineering Division Summer Meeting, Orlando, FL, July 12-16, 2020.

PROFESSIONAL ACTIVITIES

Board Member of the Western States Section of the Combustion Institute, representing CU Boulder, 1992-1998, representing UCR, 2003-2008, UCR alternate member, 2008-2010
Reviewer of proposals for NSF, NASA, ARO, American Chemical Society
Referee for several scientific journals including

Combustion and Flame, Combustion Science and Technology, Canadian Journal of Forest Research, ASME Journal of Heat Transfer, International Journal of Heat and Mass Transfer, Journal of Computational Physics, Journal of Computational and Applied Mathematics, Journal of Fluid Mechanics, AIAA Journal, Physics of Fluids, Physical Review Letters, Combustion Theory and Modelling, Proceedings of the Combustion Institute, International Association of Fire Safety Science Symposium, Measurement Science and Technology, International Journal of Wildland Fire

Program Review Subcommittee for the *International Combustion Symposium*, 1990, 1992, 1994, 1996, 1998, 2000

Program Review Subcommittee for the *Eighth International Symposium on Transport Phenomena in Combustion*, San Francisco, July, 1995

Member of the Host Committee, *15th International Colloquium on the Dynamics of Explosions and Reactive Systems*, University of Colorado at Boulder, July-August, 1995

Member of the Organizing Committee, *27th International Combustion Symposium*, University of Colorado at Boulder, July 1998
