MARK ALEXANDER MIKOFSKI

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EDUCATION

UNIVERSITY OF CALIFORNIA AT BERKELEY — DEC 2005
Ph.D. in Mechanical Engineering
Dissertation: Flame Structure and Soot Formation in Inverse Diffusion Flames
Major: Combustion. *Minors:* Fluid Mechanics and Air Quality
Advisor: Professor A.C. Fernandez-Pello

UNIVERSITY OF CALIFORNIA AT BERKELEY — MAY 2004
M.S. in Mechanical Engineering

SAN FRANCISCO STATE UNIVERSITY — APR 1997
California Teaching Credential for Physics and Mathematics, *U.S. Peace Corps Fellow*

BOSTON UNIVERSITY — MAY 1993
B.S. in Mechanical Engineering, *Cum Laude*

PROFESSIONAL EXPERIENCE

SENIOR RESEARCHER, MODELING & PERFORMANCE — 2007-PRESENT
AREVA Solar (formerly Ausra), Mountain View CA
Initiated development of transient and steady state thermal-hydraulic models of solar thermal steam generators (SSG) used for design and optimization of controls algorithms, operating procedures and performance testing. Modeling thermo-hydraulics of SSG requires non-linear solver, optimized for several configurations. Code was validated against RETRAN software, accepted in by Nuclear Regulatory Committee (NRC). Modeled optics of solar thermal installations to determine gross heat input from direct solar insolation for use in transient analysis of thermo-hydraulics and in annual analysis of plant performance. Developed ambient loss radiation models and pipe-to-pipe heat transfer models for use in transient and annual analyses.

APPLICATIONS ENGINEER, HARDWARE — 1999-2000
Pinnacle Technologies, San Francisco, CA
Modified, assembled and repaired tiltmeter hardware for real-time monitoring of secondary recovery operations and subsidence in oilfields, as well as for detection of earthquake, landslide and volcanic activity. Developed prototypes and conducted testing for tiltmeter hardware development.

RESEARCH EXPERIENCE

POST DOCTORAL RESEARCHER — 2006
University of California at Berkeley, Combustion Processes Laboratory
Researched fluidized catalytic nano-particle reactor for environmentally clean power generation.

GRADUATE STUDENT RESEARCHER — 2000-2005
University of California at Berkeley, Microgravity Combustion Laboratory
Conducted experiments on and simulations of methane and ethylene inverse diffusion flames in normal-gravity and micro-gravity to study the formation of soot and carbon monoxide in underventilated fires. Mapped temperature with thermocouples. Sampled and analyzed CO and soot emissions. Measured radiant emission with radiometer. Used laser diagnostics to obtain species profiles. Project sponsored by NASA in collaboration with NIST and Sandia National Laboratory.

PROGRAMMING & MODELING PROFICIENCY

MATLAB, COMSOL, RETRAN, FORTRAN, C++, MS VBS, Simulink

TEACHING EXPERIENCE

PHYSICS TEACHER 2006-2007
Lighthouse Community Charter High School, Oakland, CA
Started science department at new high school serving inner city students of mostly Hispanic background. Developed physics curriculum using expeditionary learning and standards based models.

GRADUATE STUDENT INSTRUCTOR 2002-2004
University of California at Berkeley, Department of Mechanical Engineering
Conducted discussions for undergraduate thermodynamics and heat transfer courses and corrected exams. Led laboratory section for undergraduate combustion course and corrected exams

ADJUNCT INSTRUCTOR 2004
University of California at Berkeley, Student Learning Center
Developed and taught lessons for undergraduate calculus adjunct course, corrected and graded exams.

MATH, PHYSICS, AND GENERAL SCIENCE TEACHER 1997-1999
McAteer High School, S.F.U.S.D., San Francisco, CA
Created lessons meeting district standards and appealing to at-risk youth. Served as treasurer for Staff Development Committee.

MATH AND PHYSICS TEACHER 1994-1996
United States Peace Corps/Tanzania (East Africa)
Taught high school math and physics to second language learners in English and Swahili. Organized health education for students and teachers. Led two successful student trips to summit Mt. Kilimanjaro.

PUBLICATIONS AND CONFERENCE PRESENTATIONS

PUBLICATIONS

- Mikofski, M.A.; Williams, T.C.; Shaddix, C.R.; Blevins, L.G.; *Flame Height Measurement of Laminar Inverse Diffusion Flames*, Combust. Flame, 2006.
- Mikofski, M.A.; Williams, T.C.; Shaddix, C.R.; Fernandez-Pello, A.C.; Blevins, L.G.; *Structure of Laminar Sooting Inverse Diffusion Flames*, Combust. Flame, 2007.

CONFERENCE PRESENTATIONS AND POSTERS

- Macko, K.T.; Mikofski, M.A.; Fernandez-Pello, A.C.; Blevins, L.G.; Davis, R.W.; *Laser Extinction in Laminar Inverse Diffusion Flames*, Western States Section of the Comb. Inst., Fall Meeting, October 2005.
- Mikofski, M.A.; Blevins, L.G.; Shaddix, C.R.; Williams, T.C.; *Effect of Varied Air Flow on Flame Structure of Laminar Inverse Diffusion Flames*, work in progress poster (WIPP) at the 30th Proc. of the Comb. Inst., July 2004.
- Mikofski, M.A.; Blevins, L.G.; Shaddix, C.R.; Williams, T.C.; *Effect of Varied Air Flow on Flame Structure of Laminar Inverse Diffusion Flames*, Western States Section of the Comb. Inst., Spring Meeting, March 2004.
- Mikofski, M.A.; Blevins, L.G.; Davis, R.W.; Moore, E.F.; Mulholland, G.W.; *COSMIC: Carbon Monoxide and Soot in Microgravity Inverse Combustion*, 7th International Workshop on Microgravity Combustion and Chemically Reacting Systems, June 2003.

- Blevins, L.G.; Yang, N.Y.C.; Mikofski, M.A.; Mulholland, G.W.; Davis, R.W.; *Alteration of Early Soot Pathways Using Microgravity*, Proc. of the 41st Aerospace Sciences Meeting & Exhibit, Amer. Inst. of Aero. & Astro., January 2003.