



Combustion

Science & Engineering, Inc.

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MICHAEL J. RAMOTOWSKI

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EDUCATION:

M.S., Mechanical Engineering, Drexel University, Philadelphia, PA., 1992
B.S., Mechanical Engineering, Drexel University, Philadelphia, PA., 1990

THESIS:

Ramotowski, M.J., *The Oxidation of Propane and n-Butane at Elevated Pressure in the Region of Negative Temperature Coefficient*, Drexel University, October, 1992

PROFESSIONAL EXPERIENCE:

Senior Engineer, Combustion Science & Engineering, Inc., April 2004 to present.

Designed, developed, built & tested several laboratory scale (75-150 kW_{th}) and one pilot scale (1,800 kW_{th}) fuel conditioning device for liquid-fueled dry low emission gas turbines. Performed several single burner tests in both an atmospheric & pressurized test stand to evaluate gas turbine emissions performance using conventional and unconventional gaseous fuels. Set-up a laboratory scale high pressure (20 atm) swirl stabilized burner facility with air pre-heat to test both gaseous and liquid fuels under simulated gas turbine combustor inlet conditions. Performed CFD analysis of: A novel gas turbine fuel injection system ; Gas turbine dry low-NO_x combustion system; Fuel conditioning device for liquid-fueled dry low emission gas turbines

Senior Project Engineer, John Zink Company, LLC (TODD Combustion Group), 2001 to April 2002.

Responsible for product design and management of low NO_x combustion equipment orders for package and utility boilers firing natural gas, refinery gas, waste gas, oil and waste liquid fuels for both new and retrofit applications. Managed more than a dozen projects at a time totaling approximately 2.5 million dollars. Primary activities included interfacing with design/drafting, purchasing, manufacturing, Vendors, Customers and End-Users. Assisted in proposal efforts and field service troubleshooting

Lead Engineer, General Electric Power Systems (Generator Technology: Fluid Dynamics & Heat Transfer), January 2000 to January 2001.

Performed CFD analyses on the effects of blade angle, number of blades, tip clearance, airfoil profile and blade aspect ratio to support performance/efficiency/cost trade-off studies for the design of axial fans for large air and hydrogen-cooled industrial generators. Developed a new test procedure for determining axial fan performance with greater certainty during factory performance tests. Performed conjugate heat transfer analyses of ventilated copper coils using CFD to determine "hot-spots" in new proposed designs. Received GE Power Systems Award (November, 2000). Received six-sigma green belt (January, 2001)

Project Manager/Group Leader, Arthur D. Little (Epyx Corporation), July 1998 to October 1999

Project Manager of a modular pressurized multi-fuel reformer test facility for conducting R&D on fuel reforming technology for fuel cell power systems. Group leader of the Combustion & Chemical Engineering group (5 people). Responsible for coordinating system and process modeling, CFD analyses, investigations into fuel reforming technology issues, test planning, execution and reporting. Designed, developed & tested several multi-fuel reformers utilizing partial oxidation, autothermal and steam reforming technology. Designed, developed and tested several anode gas ("tail-gas) combustors. Involved with the design, development and shakedown testing of a 10 kWe multi-fuel reformer based fuel cell power system for transportation applications

Supervising Engineer, Analysis and Design Application Company Limited (ADAPCO), December 1995 to July 1998.

Supervisor of several CFD Project Engineers. Responsible for written reports documenting analytical results. Performed the following CFD projects: A transient analysis of fuel/air mixing in an industrial gas turbine fuel feed manifold; A two-phase flow analysis of a flue gas desulfurization (FGD) scrubber for a coal fired boiler; A two-phase compressible flow analysis of a pulverized coal burner for a tangentially fired boiler; A two-phase flow design optimization study of a blade cooling air circuit sand particle separator for a gas turbine engine; A transient moving mesh analysis of a multi-stage liquid hydrogen fuel pump

Development Engineer/Staff Engineer, Foster Wheeler Energy Corporation, June 1993 to November 1995

Responsible for the design, testing and written reports documenting a prototype scroll insert for use with low NO_x pulverized coal burners. Project Coordinator for a two-phase cold flow modeling facility, responsible for test programs and reports, prototype designs, model procurement and project scheduling. Prepared boiler emission optimization test programs and evaluated test data to verify that contractual guarantees were met. Performed CFD analyses on boiler windboxes and low NO_x coal-fired fuel injectors

PROFESSIONAL STANDING:

Member of the Combustion Institute

Member of ASME

Associate member of SAE