



Combustion

Science & Engineering, Inc.

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RESEARCH INTERESTS:

- Fuel Chemistry (Oxidation and Pyrolysis) of Gas Turbine and Scramjet relevant Fuels
- Combustion Phenomena of Flame Instability in Scramjets, Gas Turbines and Augmenters
- Surrogate Kinetic Model Development for Practical Fuels such as Diesel, Aviation Fuels, etc.
- Reduced Kinetic Models for CFD Simulation to Predict Emissions and Flame Instability
- Chemical Kinetic Modeling of Multi-Phase Coal Gasification and Combustion

EDUCATION:

NSERC Post-Doctoral Fellow: **Princeton University**
Princeton, NJ, U. S. A., 2003

Ph.D. in Chemical Engineering: **Queen's University**
Kingston, ON, Canada. 2002

M.Sc. in Chemical Engineering: **Queen's University**
Kingston, ON, Canada. 1997

B.Sc. in Chemical Engineering: **University of Moratuwa**
Moratuwa, Sri Lanka, 1994

EMPLOYMENT:

7/2008 — Current **Principal Engineer**
Combustion Science & Engineering, Inc.
Columbia, MD

12/2003 — 6/2008 **Senior Engineer**
Combustion Science & Engineering, Inc.
Columbia, MD

7/2002 — 11/2003 **Post-doctoral Research Fellow**
Dept. of Mechanical & Aerospace Engineering
Princeton University, Princeton, NJ

1/1995 — 5/2002 **Graduate Research Assistant and Teaching Assistant**
Dept. of Chemical Engineering, Queen's University
Kingston, Ontario, Canada

PROFESSIONAL ACTIVITIES

- Member of the “Combustion & Fuels Committee” of the International Gas Turbine Institute
- Senior Member, American Institute of Chemical Engineers (AIChE)
- Senior Member, American Institute of Aeronautics and Astronautics (AIAA)
- Member, American Society of Mechanical Engineers (ASME)
- Member, Combustion Institute

RELATED PUBLICATIONS

1. Gokulakrishnan, P., K. Foli, M. Klassen, R. Roby, M. Soteriou, B. Kiel and B. Sekar (2009), “LES-PDF Modeling of Flame Instability and Blow-out in Bluff-Body Stabilized Flames”, 45th AIAA/ASME/SAE/ASEE Joint Propulsion Conference & Exhibit, AIAA-2009-5409.
2. Gokulakrishnan, P., Bikkani, R., Klassen, M. S., Roby, R. J., & Kiel, B. V. (2009), “Influence of Turbulence-Chemistry Interaction in Blow-out Predictions of Bluff-Body Stabilized Flames” 47th AIAA Aerospace Sciences Meeting and Aerospace Exposition, AIAA-2009-1179.
3. Holton, M., Gokulakrishnan, P., Klassen, M., Roby, R., and Jackson, G. (2009), “Autoignition Delay Time Measurements of Methane Ethane and Propane Pure Fuels and Methane-Based Fuel Blends”, Journal of Engineering for Gas Turbines and Power, accepted for publication.
4. Gokulakrishnan, P., Ramotowski, M. J., Gaines, G., Fuller, C., Joklik, R., Eskin, L. D., Klassen, M. S. and Roby, R. J. (2008), “A Novel Low NO_x Lean, Premixed, and Pre-vaporized Combustion System for Liquid Fuels”, Journal of Engineering for Gas Turbines and Power, Vol. 130, pp. 051501:1-7.
5. Gokulakrishnan, P., Klassen, M. S. and Roby, R. J. (2008), “Ignition Characteristics of A Fischer-Tropsch Synthetic Jet Fuel”, Proceeding of the International Gas Turbine Institute, ASME Turbo-Expo, Berlin, Germany, GT2008-51211.
6. Gokulakrishnan, P., Gaines, G., Currano, J., Klassen, M. S. and Roby, R. J. (2007), “Experimental and Kinetic Modeling of Kerosene-Type Fuels at Gas Turbine Operating Conditions”, Journal of Engineering for Gas Turbines and Power, Vol. 129, pp. 655–663.
7. Chaos, M., Zhao, Z., Kazakov, A., Gokulakrishnan, P., Angioletti, M. and Dryer, F. L. (2007), “A PRF+Toluene Surrogate Fuel Model for Simulating Gasoline Kinetics”, Proceedings of the Fifth US Combustion Meeting, The Combustion Institute, San Diego, CA.
8. Gokulakrishnan, P., S. Pal, M. S. Klassen, A. J. Hamer, R. J. Roby, O. Kozaka and S. Menon (2006), “Supersonic Combustion Simulation of Cavity-Stabilized Hydrocarbon Flames using Ethylene Reduced Kinetic Mechanism”, AIAA/ASME/SAE 42nd Joint Propulsion Conference, Sacramento, CA, AIAA 2006-5092.
9. Gokulakrishnan, P., McLellan, P. J., Lawrence, A. D. and Grandmaison, E. W. (2005), “Kinetic Analysis and Model Reduction of NO-Sensitized Methane Oxidation”, Chemical Engineering Science, Vol. 60, pp. 3683 –3692.
10. Gokulakrishnan, P., McLellan, P. J., Lawrence, A. D. and Grandmaison, E. W. (2004), “Application of Functional-PCA to Analyze and Reduce Complicated Chemical Mechanisms”, Computers and Chemical Engineering, Vol. 30, pp. 1093–1101.