Bryan W. Weber

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Education

University of Connecticut, Storrs, CT
Doctor of Philosophy, Mechanical Engineering, 2013 (Planned)
Working Dissertation Title: High Pressure Ignition Chemistry of Alternative Fuels

Master of Science, Mechanical Engineering, 2010
Thesis Title: Autoignition of *n*-Butanol at Low to Intermediate Temperature and Elevated Pressure

Advisor: Dr. Chih-Jen (Jackie) Sung

Case Western Reserve University, Cleveland, OH
Bachelor of Science, Aerospace Engineering, 2009
Senior Project Title: Analysis of Heavy Hydrocarbon Fuels using Gas Chromatography with Mass Spectrometry
Advisor: Dr. Chih-Jen (Jackie) Sung

Research Experience

Combustion Diagnostics Laboratory **2007-Present**
University of Connecticut, Storrs, CT
Case Western Reserve University, Cleveland, OH

Ongoing Projects:

- Computational and experimental study of the ignition properties of the butanol isomers over a wide pressure range
- Experimental investigation of the high-pressure autoignition of actual and surrogate bio-diesel fuels
- Design of a species sampling apparatus for time-resolved species measurements in the rapid compression machine

Completed Projects:

- Characterization of the components of heavy hydrocarbon fuels, including conventional and synthetic jet fuels, using gas chromatography/mass spectrometry
- Experimental investigation of the autoignition of *iso*-pentanol

Awards, Fellowships and Grants

Graduate Assistantship in Areas of National Need **Spring 2010**
Awarded in area of Sustainable Energy Technologies

Fred H. Vose Prize **Spring 2009**

Awarded to the senior in Mechanical and Aerospace Engineering at Case Western Reserve University showing the most promise for future leadership

Summer Undergraduate Research in Energy Sciences Grant **Summer 2008**

Awarded for research to analyze the composition of traditional petroleum-based hydrocarbon fuels using GC/MS

Presentations and Publications

Journal Articles

B. W. Weber, K. Kumar, Y. Zhang, and C.J. Sung. Autoignition of n-butanol at elevated pressure and low-to-intermediate temperature. *Combustion and Flame*, vol. 158, no. 5, pp. 809-819, Mar. 2011. doi:10.1016/j.combustflame.2011.02.005

Conference Presentations

B. W. Weber and C.J. Sung. Comparative Investigation of the High Pressure Autoignition of the Butanol Isomers. Fall Technical Meeting of the Eastern States Section of the Combustion Institute, Storrs, CT, October 2011.

B. W. Weber and C.J. Sung. A Rapid Compression Study of the Butanol Isomers at Elevated Pressure. 7th US National Technical Meeting of the Combustion Institute, Georgia Institute of Technology, Atlanta, GA, March 2011.

B. W. Weber, K. Kumar, and C.J. Sung. Autoignition of Butanol Isomers at Low to Intermediate Temperature and Elevated Pressure. 49th Annual Aerospace Sciences Meeting, Orlando, FL, January 2011.

Poster Presentations

B. W. Weber and C.J. Sung. Validation of Kinetic Models of the Butanol Isomers At High Pressure using a Rapid Compression Machine. 7th International Conference on Chemical Kinetics, Massachusetts Institute of Technology, Cambridge, MA, July 2011.

B. W. Weber. Autoignition of *n*-Butanol at Elevated Pressure and Low to Intermediate Temperature. 1st Combustion Energy Frontiers Research Center Annual Meeting, Princeton University, Princeton, NJ, September 2010.

B. W. Weber, K. Kumar, and C.J. Sung. An Investigation of Hydrocarbon Flames using Probe Sampling and Gas Chromatography/Mass Spectrometry. Support of Undergraduate Research and Creative Endeavors Symposium and Poster Session, Case Western Reserve University, Cleveland, OH, April 2009.

Other Presentations

B. W. Weber and C.J. Sung. Analysis of Hydrocarbon Fuels using Gas Chromatography/Mass Spectrometry. Summer Undergraduate Research in Energy Sciences, Dominion Energy East Ohio Branch, Cleveland, OH, August 2008.