

Bryan W. Weber

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Education

Case Western Reserve University, Cleveland, OH
Bachelor of Science, Aerospace Engineering
Graduated *cum laude*, May 2009
Cumulative GPA: 3.73

University of Connecticut, Storrs, CT
Master of Science, Mechanical Engineering
Planned Graduation: August 2010

Laboratory Experience

Master's Thesis (Planned Completion: July 2010)

Combustion Laboratory, University of Connecticut, Storrs, CT

Autoignition of *n*-Butanol at Elevated Pressure

Objective: To determine the ignition characteristics and kinetics of the *n*-Butanol using a rapid compression machine

- Developed LabView instrument to control data sampling from the rapid compression machine
- Designed and constructed an electrical circuit and mechanical system to control diaphragm puncture timing on a sampling apparatus for the rapid compression machine
- Operating the rapid compression machine to measure the autoignition delay associated with *n*-Butanol
- Operating the gas chromatograph, mass spectrometer, and flame ionization detector to determine the kinetic pathways of *n*-Butanol ignition
- Simulating ignition delay and kinetic results of experiments using CHEMKIN software

Senior Project, Summer 2008-Spring 2009

Combustion Diagnostics Laboratory, Case Western Reserve University, Cleveland, OH

Analysis of Heavy Hydrocarbon Fuels using Gas Chromatography with Mass Spectrometry

Characterized the composition of unburned conventional and synthetic jet fuels (Jet-A, JP-8, and S-8)

Mechanical Engineering Laboratory 2, Spring 2008

Combustion Diagnostics Laboratory, Case Western Reserve University, Cleveland, OH

An Investigation of Hydrocarbon Flames using Probe Sampling and Gas Chromatography with Mass Spectrometry

- Constructed gas sampling probe and control system
- Tested sampling probe on flat, premixed methane flames

Internship, Summer 2007

Combustion Diagnostics Laboratory, Case Western Reserve University, Cleveland, OH

Catalytic Hydrogen Ignition Project

- Designed, constructed, and calibrated a flow control system for gaseous hydrogen, nitrogen, and oxygen
- Designed and constructed a customized translation stage for hydrogen-air burner
- Constructed a customized exhaust hood for hydrogen-air burner

Awards

- The Fred H. Vose Prize, awarded to the senior in Mechanical and Aerospace Engineering at Case Western Reserve University showing the most promise for future leadership, 2009
- The Summer Undergraduate Research in Energy Sciences grant for \$3,500 from Case Western Reserve University, 2008
- The Case Alumni Association Junior/Senior Scholarship for \$2,100 per year, 2008-2009
- The Provost's Scholarship for \$14,400 per year for 4 years to attend Case Western Reserve University, 2005-2009
- A Graduate Assistantship in Areas of National Need Fellowship for \$7,600 for Spring 2010 semester, with the possibility of continuing support for Ph.D. dissertation

Presentations

- Hands-on demonstration of the rapid compression machine to senior faculty in the Mechanical Engineering Department at the University of Connecticut, senior engineers at Pratt & Whitney, and senior research fellows at United Technologies Research Center; October 2009
- An Investigation of Hydrocarbon Flames using Probe Sampling and Gas Chromatography/Mass Spectrometry; 2009 Symposium and Poster Session, sponsored by the Support of Undergraduate Research and Creative Endeavors Office at Case Western Reserve University; April 2009
- Analysis of Hydrocarbon Fuels using Gas Chromatography/Mass Spectrometry; 2008 Summer Undergraduate Research in Energy Sciences program, sponsored by the Dominion Energy East Ohio Branch; August 2008

Leadership Experience

Combustion Diagnostics Lab, Case Western Reserve University, Cleveland, OH

Mentored an undergraduate student in the Summer Research in Energy Studies program, 2009

Ultimate Frisbee Club, Case Western Reserve University, Cleveland, OH

President, 2008; **Treasurer**, 2007-2008; **Secretary and Webmaster**, 2006-2007;
Member, 2005-2009

Computer Skills

Windows XP, SolidWorks, Microsoft Word, Excel, and PowerPoint, MatLab, LabView, CHEMKIN III, 4.1.1 and PRO