

High Pressure Ignition Chemistry of Alternative Fuels

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University of Connecticut, 2014

Abstract

High Pressure Ignition Chemistry of Alternative Fuels

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A Dissertation

Submitted in Partial Fulfillment of the

Requirements for the Degree of Doctor of Philosophy

at the

University of Connecticut

2014

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APPROVAL PAGE

Doctor of Philosophy Dissertation

High Pressure Ignition Chemistry of Alternative Fuels

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2014

# Acknowledgements

So long, and thanks for all the fish.

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# Chapter 1

## Introduction

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# **Chapter 2**

## **Experimental Facilities**

This is the introduction. [[1](#), [2](#)]



# Chapter 3

## Butanol

This is the introduction. [[1](#), [2](#)]

# Chapter 4

## Pentanol

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# Chapter 5

## MCH

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# Chapter 6

## Conclusions

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# Bibliography

- [1] Weber, B. W., Kumar, K., Zhang, Y., and Sung, C.-J. *Combust. Flame*, vol. 158, no. 5 (Mar. 2011), pp. 809–819. DOI: [10.1016/j.combustflame.2011.02.005](https://doi.org/10.1016/j.combustflame.2011.02.005).
- [2] Sarathy, S. M., Park, S., Weber, B. W., Wang, W., Veloo, P. S., Davis, A. C., et al. *Combust. Flame*, vol. 160, no. 12 (Dec. 2013), pp. 2712–2728. DOI: [10.1016/j.combustflame.2013.06.022](https://doi.org/10.1016/j.combustflame.2013.06.022).