High Pressure Ignition Chemistry of Alternative Fuels

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## Abstract

# High Pressure Ignition Chemistry of Alternative Fuels

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High Pressure Ignition Chemistry of Alternative Fuels

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# Acknowledgements

So long, and thanks for all the fish.

# Contents

# Chapter 1

# Introduction

This is the introduction. [1, 2]

# Chapter 2

# Experimental Facilities

This is the introduction. [1, 2]

# Chapter 3

# Butanol

This is the introduction. [1, 2]

# Chapter 4

# Pentanol

This is the introduction. [1, 2]

# Chapter 5

# MCH

This is the introduction. [1, 2]

# Chapter 6

# Conclusions

This is the introduction. [1, 2]

# 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.

[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.