

Outline of the second stabilization paper

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1 Introduction

- Nonpremixed lifted flame stabilization at nonautoignitive conditions.
- In engineering applications, power engines run at elevated temperature and pressure conditions. Autoignition and NTC phenomenon are present.
- Review Krisman and the first paper.
- Objectives of the present paper.
 - Residence time effects.
 - Detailed analysis of the multibrachial structure. Demonstrate the coupling between autoignition and flame propagation.

2 Computational Details

3 Residence Time Effects

Case description. 900 K, 2.4, 3.2, and 8.0 m/s. (Table with computational specifications?)

3.1 Thermal and Chemical Structure

- HRR profiles. Fig. 1
- CEMA results showing the dominant reactions and combustion mode.

3.2 Stabilization Mechanism

- LFA-CFD comparison to demonstrate the system response and the stabilization mechanism. Fig. 2

3.3 Stabilization Regime Diagram

With dimensions. T and V .

4 Autoignition-Flame-Coupling

Case description. 800 K, with and without dilution. (Table with computational specifications?)

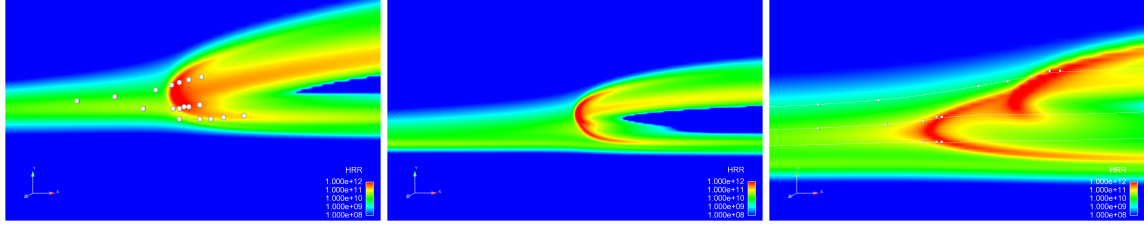


Figure 1: 2.4, 3.2, and 8.0 m/s.

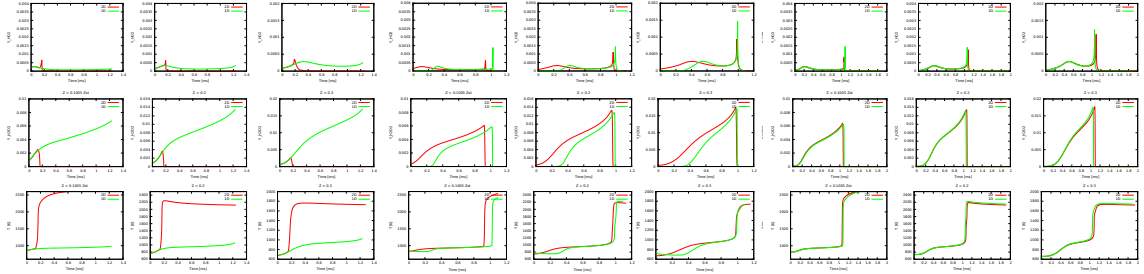


Figure 2: 2.4, 3.2, and 8.0 m/s.

4.1 Thermal and Chemical Structure

- HRR profiles. Fig. 3
- CEMA results showing the dominant reactions and combustion mode.

4.2 Stabilization Mechanism

- 0-1-2D comparison to demonstrate the system response and the stabilization mechanism. Fig. 4 and Fig. [?].

5 Conclusions

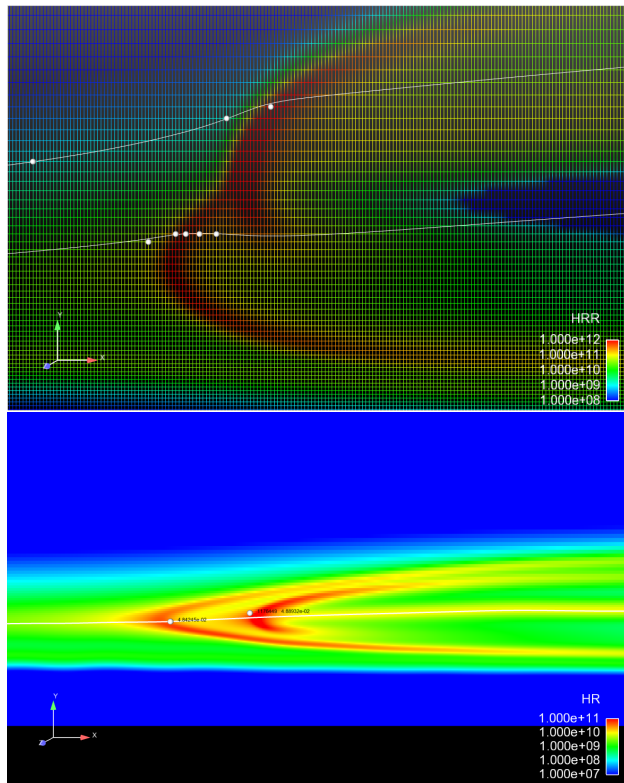


Figure 3: With and without dilution.

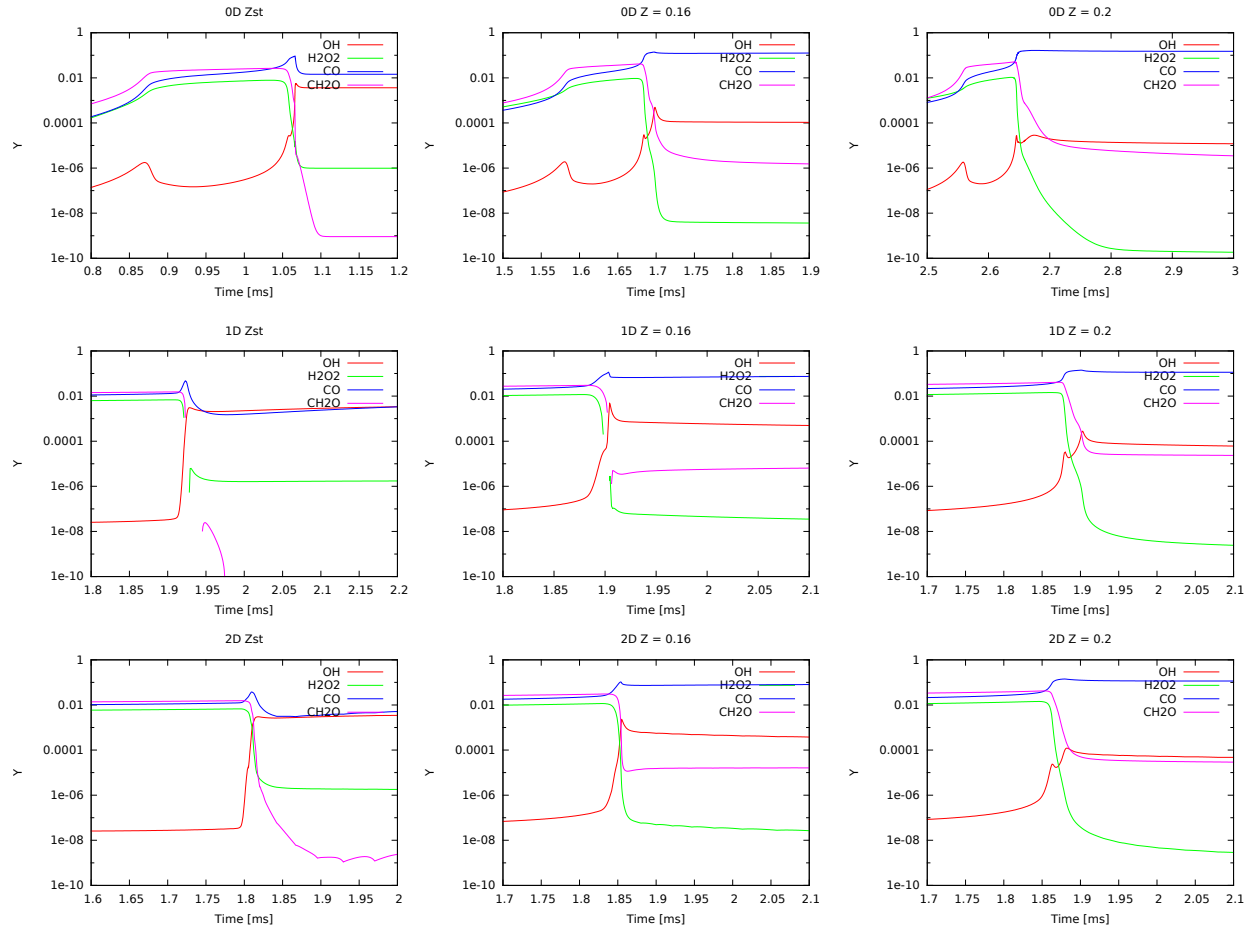


Figure 4: Without dilution.

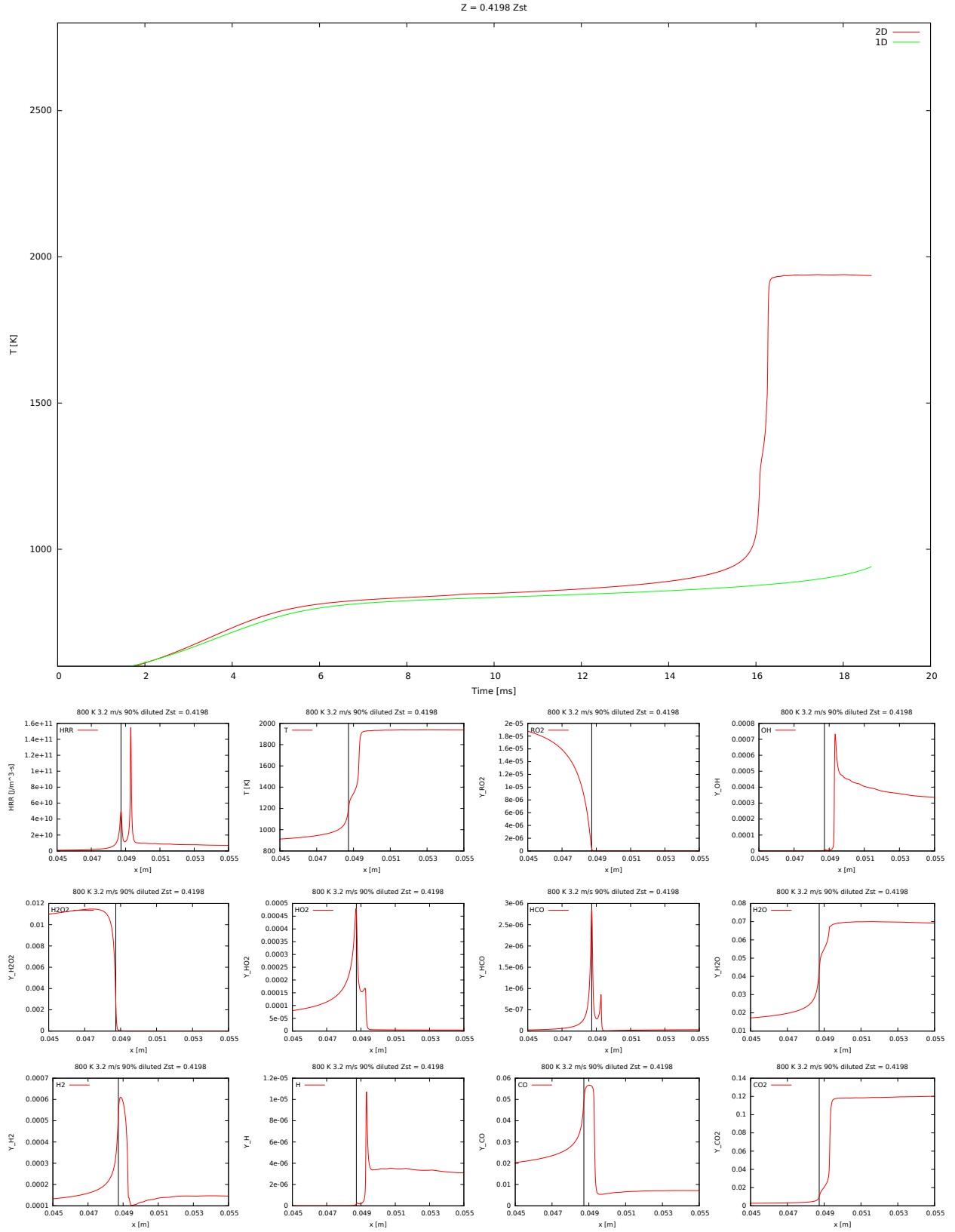


Figure 5: With dilution