Publications Thermo-Fluid Dynamics Group

January 7, 2024

Reviewed journal articles or conference proceedings

1. M. Désor, M. Häringer, M. Hiestermann, K. Niebler, C. F. Silva, and W. Polifke. Application of an improved workflow for the identification of flame dynamics to swirl stabilized WET combustion. *ASME Turbo Expo 2024 Turbomachinery Technical Conference & Exposition*, London, UK, 2024.

2. A. J. Eder, M. Merk, T. Hollweck, A. Fischer, C. Lahiri, C. F. Silva, and W. Polifke. Model-based inference of flame transfer matrices from acoustic measurements in an aero-engine test rig. *ASME Turbo Expo 2024 Turbomachinery Technical Conference & Exposition*, London, UK, 2024. American Society of Mechanical Engineers.

3. P. Brokof, C. M. Douglas, and W. Polifke. Influence of non-normality on flame-flow interaction. *Proceedings of the Combustion Institute*, 2024.

4. A. J. Eder, B. Dharmaputra, A. M. Garcia, S. F. Camilo, and W. Polifke. Identification of entropy waves in a partially premixed combustor. *Proceedings of the Combustion Institute*, 2024.

5. A. M. Garcia, S. Le Bras, J. Prager, I. Boxx, and W. Polifke. Impact of H2-enrichment on the response of a partially premixed CH4-air flame to velocity and equivalence ratio fluctuations. *Combustion and Flame*, 2024.

6. P. Brokof, G. Varillon, V. Inoue, and Polifke, Wolfgang. Towards a Momentum Potential Theory for Reacting Flows. *submitted to Int. J. Spray Comb. Dynamics*, 2024.

7. G. Varillon, T. Kaiser, K. Oberleithner, and W. Polifke. Dynamic of swirl stabilized flames through resolvent analysis. *40th International Symposium on Combustion*, Milan (IT), 2024.

8. T. L. Kaiser, J. G. von Saldern, M. Goldack, W. Polifke, G. Varillon, F. Zhang, T. Zirwes, H. Bockhorn, and K. Oberleithner. On the significance of modeling turbulent transport when linearizing the governing equations of a turbulent Bunsen flame. *submitted to Int. J. Spray Comb. Dynamics*, 2024.

9. P. Bonnaire and W. Polifke. Analysis of High-Frequency Dynamics of a Reacting Jet in Crossflow Based on Large Eddy Simulation. *Journal of Engineering for Gas Turbines and Power*, pages 1–29, Sept. 2023.

10. M. Rywik, A. Zimmermann, A. J. Eder, E. Scoletta, and W. Polifke. Spatially resolved modeling of the nonlinear dynamics of a laminar premixed flame with a multilayer perceptron - convolution autoencoder network. *Journal of Engineering for Gas Turbines and Power*, 146:061009–1,10, 2024.

11. A. J. Eder, B. Dharmaputra, M. Désor, C. F. Silva, A. M. Garcia, B. Schuermans, N. Noiray, and W. Polifke. Generation of Entropy Waves by Fully Premixed Flames in a Non-Adiabatic Combustor with Hydrogen Enrichment. *Journal of Engineering for Gas Turbines and Power*, 145(11):111001, 2023.

12. M. Hiestermann, M. Haeringer, M. Dèsor, and W. Polifke. Comparison of non-premixed and premixed flamelets for ultra WET Aero Engine Combustion Conditions. *GPPS23*, (GPPS-TC-2023-0277):18, 2023.

13. C. M. Douglas, W. Polifke, and L. Lesshafft. Flash-back, blow-off, and symmetry breaking of premixed conical flames. *Comb. & Flame*, 2023.

14. T. L. Kaiser, G. Varillon, W. Polifke, F. Zhang, T. Zirwes, H. Bockhorn, and K. Oberleithner. Modelling the response of a turbulent jet flame to acoustic forcing in a linearized framework using an active flame approach. *Combust. Flame*, 253(7):112778, 2023.

15. G. Varillon, P. Brokof, and W. Polifke. Global Linear Stability Analysis of a Slit Flame Subject to Intrinsic Thermoacoustic Instability. *Proceedings of the International Congress on Sound and Vibration*, Prague, CZ, Sept. 2023. Society of Acoustics.

16. N. Purwar and W. Polifke. Preserving Transfer-behavior in Model Order Reduction for Thermoacoustic Stability Analysis. *J. Sound and Vibration*, 565(2):117862, 2023.

17. P. Bonnaire and W. Polifke. Analysis of High-Frequency Dynamics of a Reacting Jet in Crossflow Based on Large Eddy Simulation. *Volume 3B: Combustion, Fuels, and Emissions*, page V03BT04A010, Boston, Massachusetts, USA, June 2023. American Society of Mechanical Engineers.

18. M. Rywik, A. Zimmermann, A. J. Eder, E. Scoletta, and W. Polifke. Spatially resolved modeling of the nonlinear dynamics of a laminar premixed flame with a multilayer perceptron - convolution autoencoder network. *ASME Turbo Expo 2023 Turbomachinery Technical Conference & Exposition*, GT2023-102543, Boston, MA, USA, 2023.

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34. G. Doehner, M. Haeringer, and C. F. Silva. Nonlinear flame response modelling by a parsimonious set of ordinary differential equations. *International Journal of Spray and Combustion Dynamics*, 14(1-2):17–29, May 2022.

35. C. Wang, T. L. Kaiser, M. Meindl, K. Oberleithner, W. Polifke, and L. Lesshafft. Linear instability of a premixed slot flame: Flame transfer function and resolvent analysis. *Comb. & Flame*, 240:112016, 2022.

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