

Publications Thermo-Fluid Dynamics Group

November 21, 2025

Reviewed journal articles or conference proceedings

1. M. Hiestermann, M. Haeringer, M. Désor, K. K. Niebler, and L. Berger. Numerical demonstration of no emissions reduction by steam injection in the aero engine combustor iae v2500. *Journal of Engineering for Gas Turbines and Power*, pages 1–28, Sept. 2025.
2. P. Bonnaire, S. Romeikat, L. Panek, O. Lammel, J. Eigemann, A. Kempf, and W. Polifke. Thermoacoustic feedback mechanisms for premixed burners with a reacting hydrogen-methane jet in cross-flow. *Combustion and Flame*, 283:114549, Jan. 2026.
3. J. Eigemann, P. Bonnaire, L. Panek, C. Beck, W. Polifke, and A. Kempf. Amplification of thermoacoustic flame response to investigate high frequency combustion instabilities with les. *Combustion and Flame*, 280:114317, Oct. 2025.
4. M. Hiestermann, M. Haeringer, M. Désor, K. Niebler, and L. Berger. Numerical demonstration of no emissions reduction by steam injection in the aero engine combustor iae v2500. *ASME Turbo Expo 2025: Turbomachinery Technical Conference and Exposition*, page 10, TN,Memphis, Aug. 2025. ASME.
5. T. A. Do, Á. Brito Gadeschi, G. Varillon, and A. Jocher. On the generation of entropy waves in the dilution zone of a rich-quench-lean combustion chamber. *Proceedings of ASME Turbo Expo 2025*, Memphis, USA, June 2025.
6. F. C. Uetrecht, H. Reinhardt, C. Mocquard, C. O. Alanyalioglu, H. Nicolai, and C. Hassa. Assessment of a hybrid les-caa method for predicting flame responses in swirl-stabilized combustion under various acoustic excitations. *Proceedings of ASME Turbo Expo 2025*, GT2025-153278, Memphis, USA, June 2025.
7. S. M. Gopinathan, A. Surendran, and M. A. Heckl. Hydrogen-blended fuels: Nonlinear flame dynamics and safe operation limits. *International Journal of Hydrogen Energy*, 111:371–384, Mar. 2025.
8. M. Merk, F. Schily, and W. Polifke. A jacobian-based framework for the derivation of comprehensive thermoacoustic jump conditions. *Combustion and Flame*, 274:113958, 2025.
9. 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*, 268:113595, 2024.
10. M. Désor, M. Haeringer, M. Hiestermann, K. K. Niebler, C. F. Silva, and W. Polifke. Application of an improved workflow for the identification of flame dynamics to swirl stabilized wet combustion. *Journal of Engineering for Gas Turbines and Power*, 147(3):031003, 2025.
11. 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. *J. of Eng. for Gas Turbines and Power*, 147(3):031022, 2025.
12. M. Hiestermann, M. Haeringer, M. Dèsor, and W. Polifke. Comparison of non-premixed and premixed flamelets for ultra wet aero engine combustion conditions. *Journal of the Global Power and Propulsion Society*, 8:370–389, 2024.

13. P. Brokof, C. M. Douglas, and W. Polifke. The role of hydrodynamic shear in the thermoacoustic response of slit flames. *Proceedings of the Combustion Institute*, 40(1-4), 2024.
14. A. J. Eder, B. Dharmaputra, A. M. Garcia, C. F. Silva, and W. Polifke. Identification of entropy waves in a partially premixed combustor. *Proceedings of the Combustion Institute*, 40(1-4):105609, 2024.
15. C. F. Silva and W. Polifke. A new class of galerkin expansion models for the study of thermoacoustic instabilities. *Proceedings of the Combustion Institute*, 40(1-4):105242, 2024.
16. P. Brokof, G. Varillon, and W. Polifke, Wolfgang. Structural sensitivity analysis to identify driving flow regions of intrinsic thermoacoustic instabilities. *ICNC 2024, 19th International Conference on Numerical Combustion*, Kyoto, 2024.
17. G. Varillon, T.-L. Kaiser, P. Brokof, K. Oberleithner, and W. Polifke. Linear analysis of a swirling jet with a realistic swirler model. *International Journal of Spray and Combustion Dynamics*, 16(3):186–199, Aug. 2024.
18. N. Tathawadekar, A. Ösün, A. J. Eder, C. F. Silva, and N. Thuerey. Linear and nonlinear flame response prediction of turbulent flames using neural network models. *International Journal of Spray and Combustion Dynamics*, 16(3):93–103, 2024.
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23. 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*, 146(3):031002, 2024.
24. 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. *J. Eng. for Gas Turbines and Power*, 146(6):061009, 2024.
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