

Publications Thermo-Fluid Dynamics Group

August 12, 2024

Reviewed journal articles or conference proceedings

1. 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.
2. J. Yao and C. F. Silva. Comparison of Standard Bayesian Methods and PINNs for the Reconstruction of Acoustic Fields under External Broadband Forcing. *INTER-NOISE and NOISE-CON Congress and Conference Proceedings*, 2024.
3. 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.
4. 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.
5. 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.
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. L. Kaiser, B. Philipp, K. Oberleithner, and W. Polifke. Linear analysis of a swirling jet with a realistic swirler model. *Int. J. Spray Comb. Dynamics*, 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. 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*, 2024.
10. M. Désor, M. Haeringer, 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*, GT2024-125057, London, UK, 2024.
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. *ASME Turbo Expo 2024: Turbomachinery Technical Conference and Exposition*, GT2024-124263, London, UK, 2024. American Society of Mechanical Engineers.
12. G. Doehner, A. J. Eder, and C. F. Silva. A parsimonious system of ordinary differential equations for the response modeling of turbulent swirled flames. *Combustion and Flame*, 266:113408, Aug. 2024.
13. 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.

14. 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(6):061009, 2024.
15. 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.
16. M. Merk, A. J. Eder, and W. Polifke. An Arbitrary Lagrangian-Eulerian framework for the consistent analysis of entropy wave generation. *Combustion and Flame*, 262:113334, Apr. 2024.
17. N. N. Tathawadekar, N. A. K. Doan, C. F. Silva, and N. Thuerey. Incomplete to complete multiphysics forecasting: A hybrid approach for learning unknown phenomena. *Data-Centric Engineering*, 4:e27, 2023.
18. M. Hiestermann, M. Haeringer, M. Désor, and W. Polifke. Comparison of non-premixed and premixed flamelets for ultra WET Aero Engine Combustion Conditions. *GPPS23*, (GPPS-TC-2023-0277):18, 2023.
19. C. M. Douglas, W. Polifke, and L. Lesshafft. Flash-back, blow-off, and symmetry breaking of premixed conical flames. *Comb. & Flame*, 2023.
20. 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.
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31. G. J. J. Fournier, F. Schaefer, M. Haeringer, C. F. Silva, and W. Polifke. Interplay of Clusters of Acoustic and Intrinsic Thermoacoustic Modes in Can-Annular Combustors. *Journal of Engineering for Gas Turbines and Power*, 144(12):121015, Dec. 2022.
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330. W. Polifke. Intrinsic thermoacoustic feedback and its consequences for combustion noise and combustion dynamics. *The Combustion Webinar*, Online, 2022. Combustion Institute.
331. W. Polifke. Thermoacoustic stability of hydrogen flames - same same, but different? *ASME Turbo Expo 2021: Turbomachinery Technical Conference and Exposition*, Online, 2021. ASME.
332. W. Polifke. Thermoacoustic Instabilities — a Fascinating Phenomenon with Important Consequences for Low-Emission Combustion Technology. *11th International Conference of Thermofluids 2020*, Yogyakarta, Indonesia, 2020.
333. W. Polifke. (Towards) Modelling and Simulation of Thermoacoustic Instabilities of Spray Flames. *GE Thermoacoustic Summit*, GE Baden, Feb. 2017.
334. W. Polifke. Consequences of Intrinsic Thermoacoustic Feedback for Combustion Dynamics and Combustion Noise. *CDCN2 - 2nd Colloquium on Combustion Dynamics and Combustion Noise*, Menaggio, Italy, 2016.
335. W. Polifke. Thermoacoustic instability - a major challenge for gas turbine combustion technology. *German-China Workshop on Gas Turbine Technology*, Stuttgart, Germany, July 2016.
336. W. Polifke. Distributed delay and state space models in acoustics and combustion dynamics. *Annual Meeting of the Linné FLOW Centre*, Skytteholm, Ekerö, Sweden, 2016-01-14/2016-01-15. Linné FLOW Centre.

337. C. Sovardi and W. Polifke. CFD-Based Modelling of Sound Generation in Ducted Discontinuities. *Progress in Simulation, Control and Reduction of Ventilation Noise*, VKI Lecture Series 2015, Rhode-St-Genèse, BE, Nov. 2015. VKI.
338. W. Polifke. Six Lectures on Thermoacoustic Combustion Instability. *21st CISM-IUTAM Int'l Summer School on Measurement, Analysis and Passive Control of Thermoacoustic Oscillations*, Udine, Italy, 2015.
339. A. Albayrak and W. Polifke. On the Propagation Velocity of Swirl Waves in Annular Flows. *22nd Int. Congress on Sound and Vibration (ICSV22)*, Florence, Italy, 2015. IIAV.
340. L. Strobio Chen, A. Witte, and W. Polifke. Thermo-acoustic characterization of a heat exchanger in cross flow using compressible and weakly compressible numerical simulation. *The 22nd International Congress of Sound and Vibration*, Florence, Italy, 2015-07-12/2015-07-16.
341. C. F. Silva, S. Jaensch, T. Emmert, and W. Polifke. On the autoregressive behavior of the intrinsic thermoacoustic feedback loop observed in premixed flames. *22nd International Congress on Sound and Vibration (ICSV22)*, Florence, Italy, 2015.
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343. W. Polifke. Applications of System Identification in Aero- and Thermoacoustics. *FlowAirs Workshop "System Identification"*, TU München, Garching, Germany, 0012-05/2014.
344. T. Emmert, S. Jaensch, C. Sovardi, and W. Polifke. taX - a flexible tool for Low-Order duct acoustic simulation in time and frequency domain. *7th Forum Acusticum*, Krakow, 7-12 September 2014 2014.
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346. A. Albayrak, A. Ulhaq, R. S. Blumenthal, and W. Polifke. Analytical derivation of laminar premixed flame impulse response to equivalence ratio perturbations. *21st International Congress on Sound and Vibration (ICSV21)*, Beijing, China, 13 – 17 July 2014.
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