

 List of Publications

Journal	total	since 2019
<i>Journal of Fluid Mechanics</i>	16	11
<i>Combustion and Flame</i>	8	5
<i>Journal of Sound and Vibration</i>	1	1
<i>Physics of Fluids</i>	3	1
<i>European Journal of Mechanics B Fluids</i>	2	–
<i>Journal of Engineering for Gas Turbine and Power</i>	16	7
<i>Experiments in Fluids</i>	2	–
<i>AIAA Journal</i>	4	3
<i>Int. J. of Spray and Combustion Dynamics</i>	3	3
<i>Proceedings of the Combustion Institute</i>	1	–
<i>Theoretical and Computational Fluid Dynamics</i>	1	1
<i>Combustion Science and Technology</i>	1	–
<i>Journal of Propulsion and Power</i>	1	–
<i>Physical Review Fluids</i>	2	1
<i>Pflugers Archiv European Journal of Physiology</i>	1	–
<i>Journal Flow Measurement and Instrumentation</i>	1	1
<i>International Journal of Multiphase Flows</i>	2	2
<i>International Journal of Hydrogen Energy</i>	1	1
<i>Wind Energy Science</i>	1	1
<i>Wind Energy</i>	2	2
<i>International Journal of Heat and Fluid Flow</i>	1	1
<i>Journal of Fluids</i>	1	1
<i>Shock Waves</i>	1	1
<i>Measurement: Sensor</i>	1	1
<i>Journal of Applied Science</i>	1	1
<i>OpenFOAM Journal</i>	1	1
<b>Total</b>	<b>75</b>	<b>46</b>

Talks and keynotes	total
National	>20
International	>30
Invited	>15

## – Journal Articles –

- Ann-Kathrin Ekat, Andreas Weissenbrunner, Martin Straka, Thomas Eichler, and **K. Oberleithner**. Hybrid LES/RANS simulations of a 90 pipe bend using different CFD solvers. *OpenFOAM® Journal*, 3:49–65, may 2023.
- S. Weiss, Polansky J., M. Baer, **K. Oberleithner**, and S. Schmelter. Derivation and validation of a reference data-based real gas model for hydrogen. *International Journal of Hydrogen Energy*, mar 2023.
- S. Bartholomay, S. Krumbein, S. Perez-Becker, R. Soto-Valle, C. N. Nayeri, C. O. Paschereit, and **K. Oberleithner**. Experimental assessment of a blended fatigue-extreme controller employing trailing edge flaps. *Wind Energy*, 26(2):201–227, 2023.
- E. Farzamnik, A. Ianiro, S. Discetti, N. Deng, **K. Oberleithner**, B.R. Noack, and V. Guerrero. From snapshots to manifolds – a tale of shear flows. *Journal of Fluid Mechanics*, 955(A34), 2023.
- Thomas L. Kaiser, Gregoire Varillon, Wolfgang Polifke, Feichi Zhang, Thorsten Zirwes, Henning Bockhorn, and **K. Oberleithner**. Modelling the response of a turbulent jet flame to acoustic forcing in a linearized framework using an active flame approach. *Combustion and Flame*, 253:112778, 2023.
- S. Schmidt and K. Oberleithner. Global modes of variable-viscosity two-phase swirling flows and their triadic resonance. *Journal of Fluid Mechanics*, 955(A24), 2023.
- Bhavraj Thethy, Mohammad Rezay Haghdoost, Rhiannon Kirby, Bonggyun Seo, Maikel Nadolski, Christian Zenker, Michael Oevermann, Rupert Klein, **K. Oberleithner**, and Daniel Edgington-Mitchell. Diffraction of shock waves through a non-quiescent medium. *Journal of Fluid Mechanics*, 944(A39), June 2022.
- D. Litvinov, I. Sharaborin, E. Gorelikov, V. Dulin, S. Shtork, S. Alekseenko, and **K. Oberleithner**. Modal Decomposition of the Precessing Vortex Core in a Hydro Turbine Model. *Applied Sciences*, 12(10):5127, may 2022.
- S. Bartholomay, S. Krumbein, V. Deichmann, M. Gentsch, S. Perez-Becker, D. Soto-Valle, R. and Holst, C. N. Nayeri, C. O. Paschereit, and **K. Oberleithner**. Repetitive model predictive control for load alleviation on a research wind turbine using trailing edge flaps. *Wind Energy*, 25(7):1290–1308, 2022.
- M. Rezay Haghdoost, B. S. Thethy, M. Nadolski, B. Seo, C. O. Paschereit, R. Klein, D. Edgington-Mitchell, and **K. Oberleithner**. Numerical and experimental evaluation of shock dividers. *Shock Waves*, 2022.
- M. Olbrich, L. Riazyc, T. Kretza, T. Leonardd, D. S. van Puttene, M. Bär, **K. Oberleithner**, and S. Schmelter. Deep Learning Based Liquid Level Extraction from Video Observations of Gas-Liquid Flows. *International Journal of Multiphase Flows*, 157:104247, 2022.
- Y. Schubert, M. Sieber, **K. Oberleithner**, and R. Martinuzzi. Towards robust data-driven reduced-order modeling for turbulent flows: Application to vortex-induced vibrations. *Theoretical and Computational Fluid Dynamics*, 36:517–543, 2022.
- J. von Saldern, M. Eck, J. Beuth, B. Cosic, and **K. Oberleithner**. Acoustic characteristics of impingement cooling sheets; effect of bias-grazing flow interaction on the liner impedance in a thin annulus. *Journal of Sound and Vibrations*, 527:116818, 2022.

- J. von Saldern, M. Reumschüssel, T. Kaiser, M. Sieber, and **K. Oberleithner**. Mean flow data assimilation based on physics-informed neural networks. *Physics of Fluids*, (34):115129, 2022.
- J. von Saldern, M. Reumschüssel, J. Beuth, O. Paschereit, and **K. Oberleithner**. Robust combustor design based on flame transfer function modification. *Journal of Spray and Combustion Dynamics*, 14:186–196, 2022.
- C. Wang, T. Kaiser, **K. Oberleithner**, M. Meindl, W. Polifke, and L. Lesshafft. Linear instability of a premixed slot flame: flame transfer function and resolvent analysis. *Combustion and Flame*, 240:112016, 2022.
- C. Wang, L. Lesshafft, and **K. Oberleithner**. Global linear stability analysis of a flame anchored to a cylinder. *Journal of Fluid Mechanics*, 951(A27), 2022.
- Olbrich Marc, Hunt Andrew, Terri Leonard, Dennis S. van Putten, Markus Bär, **K. Oberleithner**, and Sonja Schmelter. Comparing temporal characteristics of slug flow from tomography measurements and video observations. *Measurement: Sensors*, 18:100222, dec 2021.
- F. Habicht, F. C. Yöcel, M. Rezay Haghdoost, **K. Oberleithner**, and C. O. Paschereit. Acoustic modes in a plenum downstream of a multi-tube pulsedetonation combustor. *AIAA Journal*, 59(11):4569–4580, nov 2021.
- M. Casel, **K. Oberleithner**, F. Zhang, T. Zirwes, D. Trimis, H. Bockhorn, and T. Kaiser. Resolvent-based modelling of coherent structures in a turbulent jet flame using a passive flame approach. *Combustion and Flame*, 90:111695, feb 2021.
- F. Lückoff, T. L. Kaiser, C. O. Paschereit, and **K. Oberleithner**. Mean field coupling mechanisms explaining the impact of the precessing vortex core on the flame transfer function. *Combustion and Flame*, 223:254–266, jan 2021.
- M. Olbrich, M. Baer, **K. Oberleithner**, and S. Schmelter. Statistical characterization of horizontal slug flow using snapshot proper orthogonal decomposition. *International Journal of Multiphase Flow*, 134:103453, jan 2021.
- Amrit Adhikari, Thorge Schweitzer, Finn Lückoff, and **K. Oberleithner**. Design of a fluidic actuator with independent frequency and amplitude modulation for control of swirl flame dynamics. *Fluids*, 6(3), 2021.
- S. Bartholomay, T. T. B. Wester, S. Perez-Becker, S. Konze, C. Menzel, M. Hölling, A. Spickenheuer, J. Peinke, C. N. Nayeri, C. O. Paschereit, and **K. Oberleithner**. Pressure based lift estimation and its application to feedforward load control employing trailing edge flaps. *Wind Energy Science*, 6(1):221–245, 2021.
- T. Kaiser and **K. Oberleithner**. A global linearized framework for modelling shear dispersion and turbulent diffusion of passive scalar fluctuations. *Journal of Fluid Mechanics*, (A111), 2021.
- V. Kather, F. Lückoff, and C. O. **K. Oberleithner** Paschereit. Interaction of equivalence ratio fluctuations and flow fluctuations in acoustically forced swirl flames. *International Journal of Spray and Combustion Dynamics*, (13(1-2):72-95), 2021.
- P. Kuhn, J. Soria, and **K. Oberleithner**. Linear modeling of self-similar jet turbulence. *Journal of Fluid Mechanics*, (A7), 2021.

- J. S. Müller, F. Lueckoff, L. T. Kaiser, C. O. Paschereit, and **K. Oberleithner**. Modal decomposition and linear modeling of swirl fluctuations in the mixing section of a model combustor based on piv data. *Journal of Engineering for Gas Turbines and Powers*, 144, 2021.
- M. Reza Haghdoust, B. Thethy, D. Edgington-Mitchell, F. Habicht, J. Vinkeloe, N. Djordjevic, C. O. Paschereit, and **K. Oberleithner**. Mitigation of pressure fluctuations from an array of pulse detonation combustors. *Journal of Engineering for Gas Turbines and Powers*, (7), 2021.
- S. Schmidt, L. Tammisola, O. Lesshafft, and **K. Oberleithner**. Global stability and nonlinear dynamics of wake flows with a two-fluid interface. *Journal of Fluid Mechanics*, (A96), 2021.
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- D. Marten, C. O. Paschereit, X. Huang, M. Meinke, W. Schröder, J. Müller, and **K. Oberleithner**. Predicting wind turbine wake breakdown using a free vortex wake code. *AIAA Journal*, 58(11):4672–4685, nov 2020.
- F. Lückoff, M. Sieber, C. O. Paschereit, and **K. Oberleithner**. Impact of the precessing vortex core on NO<sub>x</sub> emissions in premixed swirl-stabilized flames—an experimental study. *Journal of Engineering for Gas Turbines and Power*, 142(11), oct 2020.
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- J. Mueller, F. Lueckoff, P. Paredes, V. Theofilis, and **K. Oberleithner**. Receptivity of the turbulent precessing vortex core: synchronization experiments and global adjoint linear stability analysis. *J. Fluid. Mech.*, 888(A3), jan 2020.
- M. Vanierschot, J. Müller, M. Sieber, M. Percin, Oudheusen B. W., and **K. Oberleithner**. Single and double helix vortex breakdown as two dominant global modes in turbulent swirling jet flow. *J. Fluid. Mech.*, nov 2019.

- T. Kaiser, L. Lesshafft, and **K. Oberleithner**. Prediction of the flow response of a turbulent flame to acoustic perturbations based on mean flow resolvent analysis. *J. Eng. Gas Turbines Power*, 141(11), oct 2019.
- F. Lückoff, M. Sieber, C. O. Paschereit, and **K. Oberleithner**. Phase-opposition control of the precessing vortex core in turbulent swirl flames for investigation of mixing and flame stability. *J. Eng. Gas Turbines Power*, 141(11), sep 2019.
- Kaiser T., **K. Oberleithner**, L. Selle, and T. Poinso. Examining the effect of geometry changes in industrial fuel injection systems on hydrodynamic structures with biglobal linear stability analysis. *J. Eng. Gas Turbines Power*, sep 2019.
- R. Bluemner, C. O. Paschereit, and **K. Oberleithner**. Generation and transport of equivalence ratio fluctuations in an acoustically forced swirl burner. *Combust. Flame*, 209:99–116, aug 2019.
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- T. Kaiser, T. Poinso, and **K. Oberleithner**. Stability and sensitivity analysis of hydrodynamic instabilities in industrial swirled injection systems. *J. Eng. Gas Turbines Power*, 140(5), jan 2018.
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- L. Rukes, M. Sieber, C. O. Paschereit, and **K. Oberleithner**. Methods for the extraction and analysis of the global mode in swirling jets undergoing vortex breakdown. *J. Eng. Gas Turbines Power*, 139(2):022604, 2016.

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- C. Petz, H. C. Hege, **K. Oberleithner**, M. Sieber, C. N. Nayeri, C. O. Paschereit, I. Wygnanski, and B. R. Noack. Global modes in a swirling jet undergoing vortex breakdown. *Phys. Fluids*, 23(9):091102, 2011.

## – Peer-Reviewed Conference Proceedings –

- T. Kaiser, M. Casel, F. Zhang, T. Zirwes, D. Trimis, H. Bockhorn, and **K. Oberleithner**. Resolvent-based analysis of helical modes in a turbulent bunsen flame. In *SoTiC 2021 - Symposium on Thermoacoustics in Combustion*, year = 2021,.
- J. von Saldern, M. Reumschüssel, J. Beuth, O. Paschereit, and **K. Oberleithner**. Robust combustor design based on flame transfer function modification. In *SoTiC 2021 - Symposium on Thermoacoustics in Combustion*, year = 2021,.
- J. P. Beuth, J. G. R. Von Saldern, L. T. Kaiser, T. G. Reichel, C. O. Paschereit, B. Ćosić, and **K. Oberleithner**. Flow response of an industrial gas turbine combustor to acoustic forcing extracted from unforced data. In *Volume 4B: Combustion, Fuels and Emissions*, number GT2021-59718. *Proc. ASME Turbo Expo*, 2021.
- J. S. Müller, F. Lueckhoff, L. T. Kaiser, C. O. Paschereit, and **K. Oberleithner**. Modal decomposition and linear modeling of swirl fluctuations in the mixing section of a model combustor based on pIV data. Number GT2021-58832. *Proc. ASME Turbo Expo*, 2021.
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- Mullyadzhyanov R., Yavorsky N., and **K. Oberleithner**. Linear stability of landau jet: non-parallel effects. *Journal of Physics: Conference Series*, 1268:012050, jul 2019.
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- P. Kuhn, T. L. Kaiser, J. Soria, and **K. Oberleithner**. Spectral decomposition of the turbulent self-similar jet and recombination using linear dynamics. In *11th International Symposium on Turbulence and Shear Flow Phenomena (TSFP11)*, Southampton, UK, 2019.
- F. Lückoff, M. Sieber, Paschereit C.O., and **K. Oberleithner**. Phase-opposition control of the precessing vortex core in turbulent swirl flames for investigation of mixing and flame stability. In *Volume 4B: Combustion, Fuels and Emissions*, number GT2019-90924. [Proc. ASME Turbo Expo](#), 2019.
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