

Publications

Thesis

- [1] M. Klein. *Towards LES as an Engineering Tool*, Habilitation, Technische Universität Darmstadt. 2009.
- [2] M. Klein. *Direkte Numerische Simulation des primären Strahlzerfalls in Einstoffzerstäuberdüsen*. PhD thesis, Technische Universität Darmstadt, 2002.

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- [3] U. Ahmed, N. Chakraborty, and M. Klein. On the stress-strain alignment in premixed turbulent flames. *Scientific Reports*, 2019, accepted.
- [4] U. Ahmed, N. Chakraborty, and M. Klein. Insights into the bending effect in premixed turbulent combustion using the flame surface density transport. *Combustion Science and Technology*, 2019, accepted.
- [5] G. Ozel Erol, J. Hasslberger, M. Klein, and N. Chakraborty. A direct numerical simulation investigation of spherically expanding flames propagating in fuel droplet-mists for different droplet diameters and overall equivalence ratios. *Combustion Science and Technology*, 2019, accepted.
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- [13] Vassilios Papapostolou, Nilanjan Chakraborty, Markus Klein, and Hong G. Im. Effects of reaction progress variable definition on the flame surface density transport statistics and closure for different combustion regimes. *Combustion Science and Technology*, 2018.

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- [16] M. Schoepplein, J. Weatheritt, R. Sandberg, M. Talei, and M. Klein. Application of an evolutionary algorithm to LES modeling of turbulent transport in premixed flames. *Journal of Computational Physics*, 374:1166–1179, 2018.
- [17] N. Chakraborty, D. Alwazzan, M. Klein, and R.S. Cant. On the validity of Damköhler’s first hypothesis in turbulent Bunsen burner flames: A computational analysis. *Proc. Comb. Inst.*, 37, 2019.
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Invited Talks

- [181] M. Klein. Towards les of multiphase flows with moving interfaces. In *16th Multiphase Flow Conference and Short Course*, Dresden, November 2018.
- [182] M. Klein. Mathematische und physikalische Modellierung von turbulenten Zweiphasenströmungen. ITLR, University Stuttgart, March 2018.
- [183] M. Klein. Towards LES for two phase flows. Helmholtz-Zentrum Dresden-Rossendorf, July 2017.
- [184] M. Klein. Recent experiences with modelling of turbulence chemistry interaction in the context of LES using DNS of turbulent premixed generic planar flame configurations. Annual meeting of the UK Consortium on Turbulent Reacting Flows, September 2016.
- [185] M. Klein. Analysis of the combined modelling of subgrid transport and filtered flame propagation for premixed turbulent combustion. University of Duisburg, January 2015.
- [186] M. Klein. An attempt to assess the quality of les in the context of implicit filtering. University of Newcastle, November 2013.
- [187] M. Klein. Industrial cfd: Applications and challenges. Technical University of Munich, February 2013.
- [188] M. Klein. 3D CFD base engine development. University of Applied Science, Darmstadt, December 2010.
- [189] M. Klein. 3D CFD base engine development. University of Applied Science, Darmstadt, December 2009.
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- [191] M. Klein. LES quality assessment. In *8th Workshop on Turbulent Nonpremixed Flames*, Heidelberg, August 2006.
- [192] M. Klein. Quality assessment of LES in the context of implicit filtering. In *Quality Assessment of Unsteady Methods for Turbulent Combustion Prediction and Validation*, Darmstadt, June 2005.
- [193] M. Klein. Numerical and experimental characterization of the turbulence structure in swirled flows. Cambridge University, November 2004.
- [194] M. Klein. How LES can be made an engineering tool. Cambridge University, July 2004.
- [195] M. Klein. Direkte numerische Simulation von ebenen ein- und zweiphasigen Freistrahlen. University of Zurich, Mai 2003.
- [196] M. Klein. On the artificial generation of inlet and initial data for unsteady turbulent flow simulation. In *17. TECFLAM-Seminar*, Stuttgart, Dezember 2003.