

## Subtopic 4.5: High Temperature Heat Pumps

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### Current positions

Head of the Institute Low-Carbon Industrial Processes (acting), DLR (since 2019)

Professor, University of Stuttgart, “Chemistry of Combustion” (since 2008)

### Previous positions (two selected)

Head of Reactive Flow Simulation Group, Interdisciplinary Center for Scientific Computing, Heidelberg (1995-2008)

Visiting Researcher Sandia National Laboratories Livermore, USA (1994-1995)

### Scientific degrees

Habilitation (2<sup>nd</sup> PhD) in Physical-Chemistry, University of Heidelberg (2003)

Dr. rer. nat. (PhD) in Physics University of Heidelberg (1992)

### Recent research topics

Reaction Kinetics, Reacting Flows, Thermochemical and Thermophysical Properties of Fuels, Combustion Properties of Gaseous and Liquid Fossil and Alternative Fuels, Gasification, Pollutant Reduction, Ignition

### Awards, honors, memberships

Institute for Dynamics of Explosions and Reactive Systems–Member of the Board (since 2017); Aviation Initiative for Renewable Energy in Germany–Head of working group Fuel Use (2015-2018); Member of the Combustion Institute (since 1998)

### Publications/Patents (5 most important)

- **Q. Fradet, M. Braun-Unkhoff, U. Riedel**, A Sectional Approach for the Entrained-Flow Gasification of Slurry Fuels, *Energ. Fuels* (2018) [doi:10.1021/acs.energyfuels.8b02785](https://doi.org/10.1021/acs.energyfuels.8b02785)
- **T. Kathrotia, C. Naumann, P. Osswald, M. Köhler, U. Riedel**, Kinetics of Ethylene Glycol: The First Validated Reaction Scheme and First Measurements of Ignition Delay Times and Speciation Data, *Combust. Flame* (2018) [doi:10.1016/j.combustflame.2017.01.018](https://doi.org/10.1016/j.combustflame.2017.01.018)
- **T. Methling, M. Braun-Unkhoff, U. Riedel**, A Novel Linear Transformation Model for the Analysis and Optimisation of Chemical Kinetics, *Combust. Theor. Model.* (2017) [doi:10.1080/13647830.2016.1251616](https://doi.org/10.1080/13647830.2016.1251616)
- **A. Soria-Verdugo, E. Goos, A. Morato-Godino, N. Garcia-Hernando, U. Riedel**, Pyrolysis of Biofuels of the Future: Sewage Sludge and Microalgae – Thermogravimetric Analysis and Modelling of the Pyrolysis Under Different Temperature Conditions, *Energ. Convers. Manage.* (2017) [doi:10.1016/j.enconman.2017.01.059](https://doi.org/10.1016/j.enconman.2017.01.059)
- **V. Chernov, M. Thomson, S.B. Dworkin, N. Slavinskaya, U. Riedel**, Soot Formation with C-1 and C-2 Fuels Using an Improved Chemical Mechanism for PAH growth, *Combust. Flame* (2014) [doi:10.1016/j.combustflame.2013.09.017](https://doi.org/10.1016/j.combustflame.2013.09.017)