



**Current positions**

Full professor at RWTH Aachen - Faculty Electrical Engineering and Computer Science, chair of photovoltaics (since 2007)

Director at Institute of Energy and Climate Research 5 - Photovoltaics, FZJ (since 2007)

**Previous positions**

Head of group, Institute of Physical Electronics (Prof. Werner), University Stuttgart (1997 - 2007)

**Scientific degree**

Dr. rer. nat. (PhD) in Physics, RWTH Aachen (1991)

**Recent research topics**

Fundamentals of photovoltaics and physics of photovoltaic materials, Silicon Heterojunction solar cells, Thin-film solar cells (thin-film silicon, Cu(In,Ga)Se<sub>2</sub>, organic, perovskites), Analysis of PV module outdoor data

**Publications (5 most important)**

- **F. Staub, T. Kirchartz, K. Bittkau, U. Rau**, Manipulating the Net Radiative Recombination Rate in Lead Halide Perovskite Films by Modification of Light Outcoupling, *J. Phys. Chem. Lett.* 5084-5090 (2017) [doi:10.1021/acs.jpcllett.7b02224](https://doi.org/10.1021/acs.jpcllett.7b02224)
- **B. Blank, T. Kirchartz, S. Lany, U. Rau**, Selection Metric for Photovoltaic Materials Screening Based on Detailed-Balance Analysis, *Phys. Rev. Appl.* 8 (2), 024032 (2017) [doi:10.1103/PhysRevApplied.8.024032](https://doi.org/10.1103/PhysRevApplied.8.024032)
- **U. Rau, B. Blank, T. C. M. Müller, T. Kirchartz**, Efficiency Potential of Photovoltaic Materials and Devices Unveiled by Detailed-Balance Analysis. *Phys. Rev. Appl.* 7 (4), 044016 (2017) [doi:10.1103/PhysRevApplied.7.044016](https://doi.org/10.1103/PhysRevApplied.7.044016)
- **U. Rau, T. Kirchartz**, On the thermodynamics of light trapping in solar cells, *Nat. Mater.* 13 (2), 103 (2014) [doi:10.1038/nmat3837](https://doi.org/10.1038/nmat3837)
- **U. Aeberhard, U. Rau**, Microscopic perspective on photovoltaic reciprocity in ultrathin solar cells, *Phys. review letters* 118 (24), 247702 (2017) [doi:10.1103/PhysRevLett.118.247702](https://doi.org/10.1103/PhysRevLett.118.247702)