

Subtopic 1.5: PV: Simulations, Theory, Optics and Analytics (STOA)

Prof. Dr. Thomas Kirchartz

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Current positions

Head of Division “Analytics and Simulation” at Institute of Energy and Climate Research 5 - Photovoltaics, FZJ (since 2017)

Head of Group “Organic and Hybrid Photovoltaics” at IEK-5 Photovoltaics (since 2013)

Professor, University of Duisburg-Essen (since 2013)

Previous position

Junior Research Fellow at Imperial College London (2010 – 2013)

Scientific degree

Dr.-Ing. (PhD) in Electrical Engineering and Information Technology, RWTH Aachen (2009)

Recent research topics

Perovskite solar cells, organic solar cells, device simulations, luminescence based methods, transient methods

Publications (5 most important)

- **Z. Liu, L. Krückemeier, B. Krogmeier, B. Klingebiel, J. A Márquez**, et al., Open-circuit voltages exceeding 1.26 V in planar methylammonium lead iodide perovskite solar cells, *ACS Energy Lett.* 4, 110 (2019) [doi:10.1021/acseenergylett.8b01906](https://doi.org/10.1021/acseenergylett.8b01906)
- **T. Kirchartz, U. Rau**, What makes a good solar cell, *Adv. Energy Mat.* 8, 1703385 (2018), [doi:10.1002/aenm.201703385](https://doi.org/10.1002/aenm.201703385)
- D. A. Egger, A. Bera, D. Cahen, G. Hodes, **T. Kirchartz**, et al., What remains unexplained about the properties of halide perovskites, *Adv. Mater.* 30, 1800691 (2018) [doi:10.1002/adma.201800691](https://doi.org/10.1002/adma.201800691)
- **T. Kirchartz**, T. Markvart, **U. Rau**, D. A. Egger, Impact of small phonon energies on the charge-carrier lifetimes in metal-halide perovskites, *J. Phys. Chem. Lett.* 9, 939 (2018) [doi:10.1021/acs.jpcclett.7b03414](https://doi.org/10.1021/acs.jpcclett.7b03414)
- **D. Baran**, R. S. Ashraf, D. A. Hanifi, M. Abdelsamie, N. Gasparini et al., Reducing the efficiency–stability–cost gap of organic photovoltaics with highly efficient and stable small molecule acceptor ternary solar cells, *Nature Materials* 16, 363 (2017) [doi:10.1038/nmat4797](https://doi.org/10.1038/nmat4797)