



Università degli Studi di Pavia

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Avviso di Seminario

Dr. Klaus Jäger

Department Optics for Solar Energy, Helmholtz Zentrum Berlin

**OPTICAL IMPROVEMENTS AND ENERGY-
YIELD CALCULATIONS OF SOLAR CELLS**

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Abstract: Photovoltaic solar energy is one of the most important technologies to decarbonize the energy sector. In many regions of the planet, solar energy is the cheapest way to generate electricity.

In this talk, I will first introduce perovskite/silicon tandem solar cells, which allow to overcome the efficiency limit of market-dominant silicon cells with a theoretical limit of 29.4% power conversion efficiency (PCE). Then, I will discuss how photonic concepts were implemented to reach 29.8% PCE at Helmholtz-Zentrum Berlin.

In the second part of my talk, I will discuss why energy yield calculations are important and how modelling can be used for accurate energy-yield modelling.

Bio: Klaus Jäger has been working at Helmholtz-Zentrum Berlin, Germany, since 2015, where he is deputy head of the department Optics for Solar Energy and director of the Joint Lab “BerOSE” between HZB, Zuse Institute Berlin and Freie Universität Berlin. In 2012, he completed his PhD at Delft University of Technology in the Netherlands. After that, he spent one year at the Dutch firm HyET Solar, working on flexible solar cells and one year as a post doc at Delft TU. Klaus main research interest are optical simulations for solar cells, for which he uses various approaches, such as the finite element method, the net radiation method, and advanced concepts such as Bayesian optimization algorithms. Besides that, he is interested in science communication and regularly engages with the general public to discuss the climate crisis and the role of renewable energy.