

11th Annual General Meeting

Wednesday, November 29th, 2017

TU Berlin, Straße des 17. Juni 115, 10623 Berlin
C Building, Lecture Hall C 264

Program

4:30 pm Registration and come together

5:15 pm Annual General Meeting

Prof. Matthias Driess, Chair of UniCat

- Welcome and annual report
- Announcement of the Clara-Immerwahr-Awardee 2018
- Presentation of the UniSysCat cluster concept

Election of the Executive Board

Prof. Roel van de Krol, TU Berlin

Metal oxide-based light absorbers for photoelectrochemical water splitting

The direct photo-electrochemical conversion of water and CO₂ into chemical fuels represents an exciting new pathway for the combined conversion *and* storage of solar energy. One of the main challenges in this field is to find semiconducting light absorbers that are efficient, chemically stable, and easy to synthesize. Efforts in my group are focused on complex oxide semiconductors, such as BiVO₄ and CuBi₂O₄. I will discuss how novel doping strategies can be used to enhance the charge separation in these materials, and show how ultrafast time-resolved spectroscopy can help to improve our understanding of the carrier dynamics. To enhance the reaction kinetics, the surfaces of these semiconductors are typically modified with electrocatalysts. Our understanding of the semiconductor/electrocatalyst is, however, still far from complete. I will discuss some recent surprising observations, and show how ambient pressure photoemission techniques can help us to get better insights in how the solid/liquid interface behaves under illumination. Scale-up is the next step, and I will show recent results on 50 cm² complete water splitting devices based on BiVO₄ photoelectrodes that we developed within the EU project PECDEMO.

Election results