Seminar announcement

Tuesday, June 13, 2023
1:30 pm
WSI, Seminar room S 101

“Materials and interfaces in electrochemical energy conversion: From understanding to control?”

Sustainable energy storage and conversion is key for transition to a CO2 neutral energy system. In this framework, solar energy conversion to and storage of the intermittently available electricity in chemical bonds, i.e. solar fuels, will play a major role in those transition technologies. To achieve the targeted terawatt scale, abundant, efficient/active and stable converter materials, i.e., photoabsorbers and electrocatalysts are needed.

In my talk, I will focus on characterization and control of bulk and interfacial processes governing the functioning of solar energy materials. For FeS2 photoabsorbers, bulk electronic structure and carrier dynamics will be discussed in the light of controlled phase preparation of the system. For CuBi2O4 as a promising oxide photoabsorber, interfacial energetics and chemistry govern the performance, i.e. stability and activity in photoelectrochemical reactions. And for oxide-based O2 evolution reaction catalysts, the role of electronic structure and its modification by doping will be discussed towards active surface phase evolution and control.

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