(Photo) electrocatalysis at Work

Carbon neutral energy sources that are scalable, deployable, and cost effective will be required at an unprecedented scale to halt irreversible climate change. To positively affect the status quo, polycrystalline, yet defective and heterogeneous, semiconductor materials are excellent candidates for targeting high efficiency, as well as low production cost, and long lifetimes of the device. However, understanding and controlling how defects, chemical heterogeneity, and microenvironments affect the efficiency and durability of integrated systems for real applications is still challenging. Yet is a necessary task to address mankind's energy needs. This seminar will focus on the opportunities offered by the utilization of sunlight for solar fuel production. We will discuss the synthesis and the advanced characterization of integrated semiconductors and catalysts for (photo)electrocatalytic systems as they can be used under realistic operating conditions for solar fuel production.