

SEMINAR SERIES

HIGHLIGHTS IN ENERGY RESEARCH

13.12.2018, 16:00 - 17:00, EPFL Valais, 4th floor, ZEUZIER room

Efficient and cost-effective water splitting electrocatalysts based on transition metal phosphides

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Host : Prof. Hubert Girault

Splitting water into hydrogen and oxygen is an ecofriendly way to produce high-purity hydrogen fuels and has shown substantial promise as a means for renewable energy storage. To enable widespread deployment of water electrolyzers, it is of paramount importance to develop efficient, durable and inexpensive water splitting catalysts so that the electrolyzed hydrogen fuels can become economically competitive and viable. In this presentation, I will show our recent effort towards developing transition metal phosphide (TMP) based electrocatalysts for the hydrogen evolution reaction (HER) and the oxygen evolution reaction (OER). Specifically, I will showcase, primarily from catalytic materials point of view, the preparation of self-supported TMP electrodes [1-3] as well as microstructural and compositional engineering of TMP catalysts to achieve good electrocatalytic performance [4-6]. Besides, I will mention our recent work on the development of acid/alkaline hybrid water electrolysis taking advantage of self-supported TMP electrodes we developed [7].

References:

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Lifeng Liu (*Researcher ID*: A-2522-2012, *Orcid ID*: 0000-0003-2732-7399) is now a Staff Researcher and Research Group Leader at the International Iberian Nanotechnology Laboratory (INL). He obtained his PhD degree in Condensed Matter Physics from Chinese Academy of Sciences in 2007. Afterwards, he joined the Max-Planck Institute of Microstructure Physics in Halle, Germany, first working as a postdoc researcher and then as a staff scientist and Group Head. In 2011, he moved to INL and set up a group where his research primarily focuses on the development of inorganic nanomaterials for use in electrochemical energy storage and conversion.

