UniSysCat - Colloquium

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Start Time: Thursday, June 3, 2021 05:00 pm

End Time: Thursday, June 3, 2021 06:15 pm

Online Colloquium

Design, synthesis, and catalytic performance regulation of novel hybrid materials

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Hybrid materials, which consist of two or more metal and organic components at the nanometer level or molecular level, are promising candidates for the construction of electrocatalysts with different active sites. Our research focuses on the designing of different nanostructured metal-organic hybrid materials for high-performance carbon-based hybrid electrocatalysis (including HER, OER, and ORR). We are not only realized the construction of multilevel structures, such as layered, 2D mesoporous, 2D/3D hierarchically porous structure, micro-spherical structures, but also regulating the structure of the metal active center at the atomic scale.

In this talk, I will present the controllable synthesize of different metal-organic precursors, their derived carbon-based hybrid catalysts, and the corresponding application in electrocatalytic reactions, such as oxygen reduction reaction, oxygen evolution reaction, and hydrogen evolution reaction. We will also discuss the effects of metal coordination environments, nanostructures, and porosities on the kinetics of catalytic reactions. Furthermore, how to regulate the multiple metal active centers at the atomic scale, and support effects on the catalytic atoms will also be discussed.

Prof. Dr. Matthias Drieß

Organizer