Contribution ID: **288** Type: **Keynote - Plenary (only invited!)**

Operando XAS Investigations on multi-metallic Nanomaterials for electrocatalytic Applications

Monday, 17 September 2018 10:00 (30 minutes)

Improvements in activity, selectivity and durability of catalytically active electrode materials are of large interest to boost the application of renewable and clean energy conversion and storage systems like polymer electrolyte fuel cells and electrolyzers. Generally, electrochemical reactions like oxygen reduction/evolution reaction or electrochemical CO2 reduction reaction can be seen as complex multiple proton-electron reactions. In most cases, the relationship between structure and activity as well as the electrochemical processes of these electrocatalysts are poorly understood to date. Therefore, operando studies are needed to design efficient and robust electrocatalysts under realistic operating conditions.
In this talk, I will give several examples to uncover the electrochemical processes on multi-metallic nanomaterials for the oxygen reduction reaction and CO2 reduction reaction probed by in-situ and operando XAS technique. In combination of unique and advanced characterization techniques, we will provide fundamental insights into the reaction mechanisms and kinetics of electrochemical processes on multi-metallic nanomaterials. This knowledge helps to improve the design of efficient and robust electrocatalyst materials for the applications of fuel cells and electrolysis.

Primary author: ÖZASLAN, Mehtap (Carl von Ossietzky University, Oldenburg)

Presenter: ÖZASLAN, Mehtap (Carl von Ossietzky University, Oldenburg)

Session Classification: Keynote

Track Classification: Keynote/ Plenary/ Public lecture