

IPID4all Senior Research Exchange with Carl von Ossietzky University Oldenburg

Feedback report

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28.09.2017 – 05.10.2017

Exchange topic: Electronic and Atomic Structure of Electrocatalysts probed by XAS

The focus of our joint project is to better understand the mechanism of electrochemical reactions on nano-structured multi-metallic materials. Therefore, my visit enabled us to discuss the different possibilities for a fruitful cooperation and to further exchange our ideas. The scientific discussion on site about the latest development of in situ/operando techniques combined with electrochemical application was extremely helpful to identify the critical scientific questions and to design new experiments for this purpose. In addition, we used our meeting to talk about our latest manuscript draft. We compared our XAS data for various reference materials measured at large facilities over the entire world. This approach is required to point out the data quality and reproducibility of the different beam lines located in US and Europe. We presented our latest projects each other and discussed very critical the results and conclusions. We also postulated different mechanisms and structures for the nano-structured materials based on the XAS analysis. Definitely, our meeting on site served as an excellent platform and promote the activities in both groups in the field of synchrotron-based in-situ and operando XAS on electrocatalyst materials for renewable energy systems.

Future/collaborations and outlook

It is certain that we want to continue with our regular exchange. Therefore, we are planning a second visit in February/March 2018 to continue with our fruitful collaboration. We are also looking for possible bilateral funding opportunities to support our joint project.

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