

In-Situ Electrochemical Transmission Electron Microscopy - Understanding Electrocatalysts Dynamics under Electrochemical Conditions at the Nano Scale

Initiative: Momentum - Förderung für Erstberufene

Bewilligung: 13.04.2020

Laufzeit: 5 Jahre

Projekt-Website: <https://www.nanomaterialien.uni-freiburg.de/research/Echem-STEM>

The Professorship of Inorganic Functional Materials - Nanomaterials at the University of Freiburg focuses on the synthesis, characterization and application of nanostructured inorganic functional materials for electrochemical energy conversion. Besides the development of new resource-efficient synthesis routes for complex nanostructured electrodes and electrocatalysts, in-depth structural and electrochemical characterization on all length scales play a central role in establishing structure-function correlations. As electrocatalysts and electrodes are dynamic systems under electrochemical conditions, undergoing drastic surface and/or bulk restructuring, in-situ electrochemical (scanning) transmission electron microscopy (EChem-(S)TEM) emerges as a key method to gain operando insights into the electrochemical nanodynamics of such materials systems. Within the VW Momentum concept of Prof. Dr. Anna Fischer, EChem-(S)TEM will be implemented in Freiburg to develop an understanding of the electrochemical material dynamics on the nanometer scale and enable a knowledge-based optimization of nanomaterials for electrocatalysis and electrochemical energy conversion.

Projektbeteiligte

Prof. Dr. Anna Fischer

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Open Access-Publikationen

Electrochemical Stability of Platinum Nanoparticles Supported on N Doped Hydrothermal Carbon Aerogels as Electrocatalysts for the Oxygen Reduction Reaction

Es werden die Institutionen genannt, an denen das Vorhaben durchgeführt wurde, und nicht die aktuelle Adresse.

27.07.2024