

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

Universität Freiburg

Fakultät für Chemie und Pharmazie

Institut für Anorganische und Analytische Chemie

Freiburg

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.

26.05.2024