

CELEST Member Short Profile



Rolf Schuster

Since 2006 Rolf Schuster leads a research group at the Institute of Physical Chemistry at KIT. His original background stems from UHV surface science, where he performed e.g., STM and X-ray diffraction studies on adsorption of molecules on model surfaces, structure formation, diffusion and ordering processes, when he worked at the Fritz-Haber-Institute in Berlin and the Brookhaven National Lab in New York. After a short stay at the TU Darmstadt, the group moved to Karlsruhe. Meanwhile the research activities changed towards electrochemical systems, where the detailed characterization of the atomic and electronic structure of the interfaces and the identification of elementary reaction steps at the electrode surfaces are within the main focus.

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Research areas

Our group focusses on the investigation of solid-liquid interfaces in electrochemical environment. We are particularly interested in the detailed characterization of the atomic and electronic structure of the interface and the identification of elementary steps of electrochemical reactions. For this purpose, beside standard electrochemical methods we use fast electrochemical pulse techniques, electrochemical STM and our home-built microcalorimeter in order to identify reaction steps like coadsorption, solvation or double layer charging, which are often disguised by the main charge transfer step. We apply these methods to aqueous systems, e.g., to investigate ion adsorption, metal deposition and electrocatalytic reactions, as well as to nonaqueous systems, e.g., interface formation in ionic liquids and charging and discharging processes in battery systems.

Lab equipment

<https://www.ipc.kit.edu/kom/>

Rolf Schuster @ IPC	Link IPC	Link lab equipment
https://www.ipc.kit.edu/kom/14_305.php	https://www.ipc.kit.edu/	

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