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S E M I N A R
aus
Halbleiterphysik und Nanotechnologie

Di, 31.10.2017, 11:00 Uhr, Hörsaal für Physik

"Energy storage beyond the horizon: Materials and mechanism"

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Energy storage will become far more important in the future than in any time in the past and is one of today's foremost societal challenges. Going beyond the limitations of current battery technology in terms of energy, power, sustainability and cost requires new, potentially game-changing, approaches 'beyond intercalation chemistries'. This is where my research interests are focussed with the development of new concepts, new materials and the fundamental scientific understanding. This involves synthesis and characterization of redox active and charge transport materials with new sets of properties and the in-depth investigation of their mutual behaviour in the working environment of the battery. Particular chemistries involve metal-O_2, metal-S and alloying as well as pseudocapacitive materials. To understand the processes we develop and employ (in situ) spectroscopic and diffractive methods. Here I will discuss recent advances with these materials and reaction mechanisms.