



CSC Seminar

SPEAKER

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U Bayreuth

TITLE

Modeling and simulation of batteries – Novel methods, applications, and challenges

ABSTRACT

The design and operation of batteries must be tailored to meet safety and lifetime requirements and to enable new materials. In this context, mathematical models can play a crucial role. However, a key challenge is to balance the accuracy and computational cost of such models. This presentation will discuss novel modeling techniques that aim to provide the level of detail necessary to simulate various complex phenomena in batteries without compromising their applicability for optimization purposes. Techniques presented include probability distributed models that account for heterogeneity, multiscale methods that bridge atomistic and continuum scales, and data-driven methods that promise faster model development. Methods are presented with relevant examples and remaining challenges are outlined.

Tuesday, January 30, 2024 at 2 pm
seminar room Prigogine