



Contribution ID: 977

Type: **Oral Presentation**

Advancing modeling and simulation of batteries at different scales

The goal of this presentation is to highlight some of the recent developments of the Dept. Of Flows and Material Simulation from the Fraunhofer Institute for Industrial Mathematics in the area of modeling and simulation of batteries. The Department has a long history of academic research and industrial projects on modeling, simulation and development of customized soft-ware of processes in batteries at different scales and complexity. Modern energy storage plays a key role in the course of rapid development in renewable energy. Especially in the field of electromobility high demands like capacity, efficiency, endurance and security are made on the storage device, which are currently mostly Lithium-Ion-Batteries. The development of new materials for such improved energy storages is time- and money-consuming though. Hereby computer simulations can not only help to judge the performance of potential new battery cells, but to better understand the microscopical reasons. The latter leads to a more purposive and thus more efficient approach in the development of batteries. In this way, in particular, the for-mation of solid electrolyte interphase layer can be better understand, as well as the coupled electro-chemo-mechanical simulation processes.

Participation

In-Person

References

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Energy Transition Focused Abstracts

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