Technische Universität Braunschweig

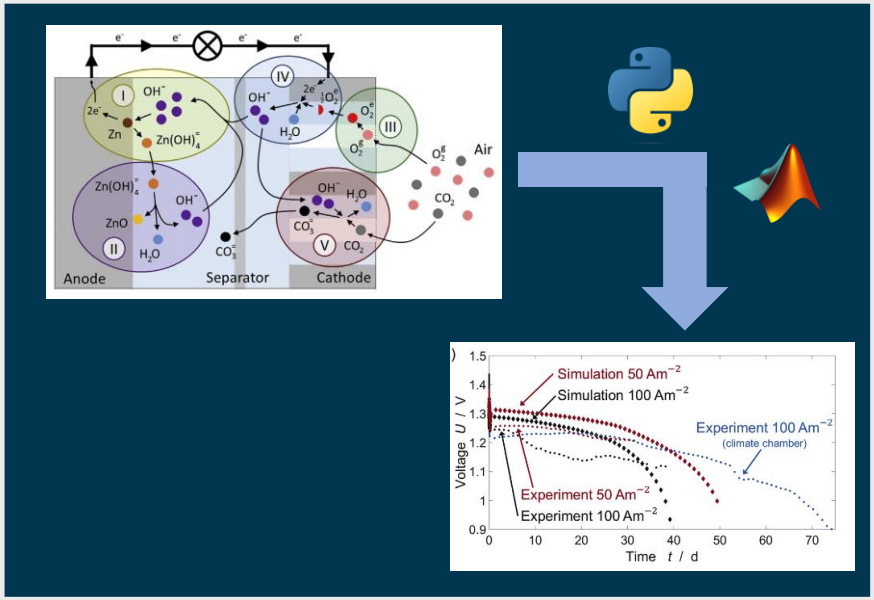
Institute of Energy and Process Systems Engineering

Modelling and Simulation of Zinc-Manganese-Oxide Batteries

Zinc-Manganese-Oxide batteries are considered as a highly attractive alternative to Lithium-Ion-Batteries due to their relatively higher safety, materials abundance, and environmental friendliness. Nonetheless, their performance is heavily influenced by cell design aspects, such as the thickness and porosity of the electrode.

Simulation models are a useful and inexpensive way of analyzing physiochemical processes. They bring insight, which is otherwise experimnetally unobtainable and can assist with cell design.

In this work, an electrochemical model of a Zn/MnO_2 battery is to be implemented in Python or Matlab with a subsequent analysis.



Requirements

- Good programming skills in Matlab/Python
- Desirable: experience with simulation of diffusion processes

Interested in:

- Model based analysis
- Mathematical methods
- Energy storage technology

Please send your transcript and CV to:

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Offer student work: Master thesis / Studienarbeit