

Bachelor/Master thesis

Issue date: 22.02.2022
 Expiry date: 31.05.2022
 Status: vacant
 Research Group: Drive Systems

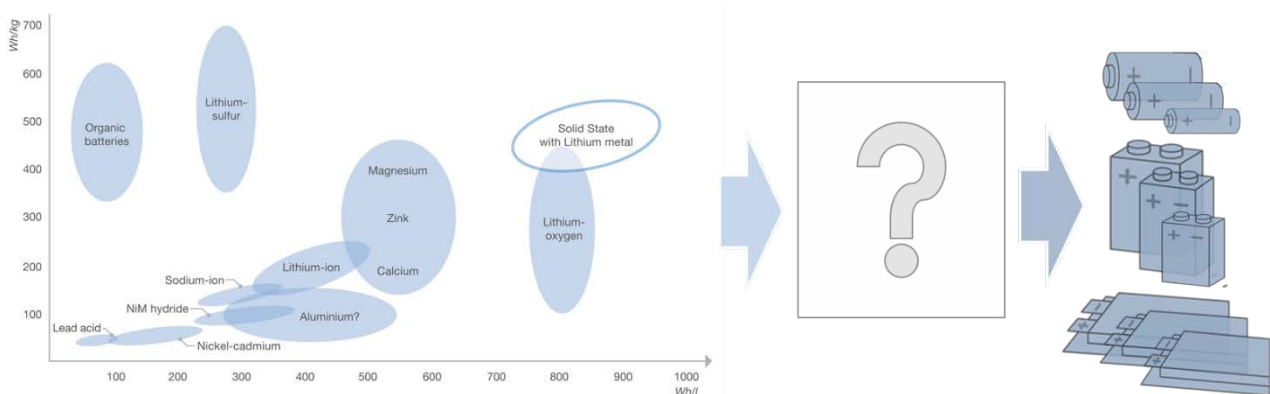
Contact

M.Sc. Yuning Zeng
 Building 50.33, room 109
 Tel.: 0721 - 608 47200
 yuning.zeng@kit.edu

Analysis of the development process of current and next generation batteries to determine the cell properties relevant for the battery system design

Traction battery systems in mobility applications today are built almost exclusively from lithium-ion battery cells. Driven by the expected growth of the electrified vehicle market and the requirements for better performance, especially higher energy density and lower costs, numerous next-generation battery technologies are being intensively researched.

Each of these potential cell chemistries requires a new cell design and thus influencing the integration of the cells into the higher levels. From the perspective of future-oriented product development, it is important to understand and clarify the progress of battery technologies as well as the associated development opportunities and risks in the context of mobility systems at an early stage. For this purpose, a holistic method is to be developed for recording the cell properties that are influenced by different cell chemistries and are relevant for the design of battery systems.



Bildquelle: VDE

Tasks:

- You will conduct research of the current status or trends of the development process of batteries, especially with regard to the cell chemistry used and the associated cell design;
- You will elaborate an overview of the current state of research and/or technology regarding next-generation cell chemistry technologies and the realised battery cells with them;
- You will analyse the development processes and the solution variants for similarities and differences and, based on this, derive relevant cell properties for the characterisation of battery cells and the design of battery systems.

Profile:

- Study of mechanical engineering / materials science / mechatronics / electrical engineering
- Interest in battery system technology, previous knowledge in the field of battery (cells) helpful
- Independent, structured way of working and analytical thinking

If you are interested, please submit a sound application with a current transcript of grades and curriculum vitae to: yuning.zeng@kit.edu