



Impact of high frequency current pulses on battery ageing

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Abstract:

In almost all applications, lithium-ion batteries are used in combination with power electronics. The occurring high frequency ripple currents are typically reduced by using DC link capacitors. On the other hand, it is assumed that frequencies in the kHz range do not affect ageing of batteries because it is outside the frequency range of electrochemical processes, which would mean that the capacitor could possibly also be reduced. However, still the number of investigations, especially based on automotive batteries, is quite limited.

This presentation will give an overview of published ageing tests that investigate the influence of ripple currents on battery ageing. Additionally, our own results from 18650 cells and automotive cells from the project SiCWell are presented, which show an impact of different ripple parameters on the lifetime of the cell.

Curriculum Vitae:



Julia Kowal has been professor for Electrical Energy Storage Technology at the Institute for Energy and Automation Technology at TU Berlin since 2014. Her research focus is testing, characterization, ageing, modeling, diagnostics and lifetime prediction of different battery technologies. She is managing director of the Institute for Energy and Automation Technology.

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