

THERMAL MODELING OF LI-ION CELLS IN FREQUENCY AND TIME DOMAINS

Master Thesis / Internship (m/w/d)

Your profile

- Good understanding of functional principles of Lithium-ion cells and degradation processes
- Experience with standard testing techniques (dQ/dV, check-ups, cycling, etc.)
- Experience with Python and data analysis is a plus
- Responsible and team-oriented way of working
- Enrolment in Electrical/Mechanical/Chemical Engineering or similar

Who we are

We are a deep-tech startup specializing in advanced thermal testing solutions. Our expertise lies in the application of micro and macro calorimetry in cell design and manufacturing processes. Our products leverage simulation-aided mechanical design, the Industrial Internet of Things (IIoT), and Data Science. We organize our work into short, improvement-driven development sprints.

You are passionate about technology and eager to solve relevant problems? We too!

Your tasks

The subject of this study is a commercial 18650 NMC811 lithium-ion cell. Initially, experiments will be conducted to determine the open-circuit voltage (OCV), impedance, and entropic coefficients using a cyler and calorimeter. Subsequently, an equivalent circuit model will be developed using Python to accommodate frequency- and domain-based excitation signals. Finally, the models will be validated using the Worldwide Harmonized Light Vehicle Test Procedure (WLTP) and several fast-charging protocols.

Interested?

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