

## Battery Test Bench

For model parametrization and validation, but also for empiric diagnostics of batteries, the research group operates an experimental battery test bench. It is equipped for the electrical and thermal characterization of lithium-ion and lead-acid batteries. The setup enables power, cycling and aging test series under defined thermal conditions as well as the characterization of capacity, internal resistance and impedance. The equipment consists of:

- Battery cyclers for different cell types (BaSyTec XCTS with 50-300 A; BaSyTec GSM with 20-50 A for fast dynamics; BaSyTec CPU with 2A)
- Temperature chamber for lithium-ion and lead-acid batteries (-40°C to +180°C)
- Electrochemical impedance spectrometer EIS (Gamry Instruments Reference 3000 with multiplexer)
- Cell holders (made in-house) for different cell types and sizes