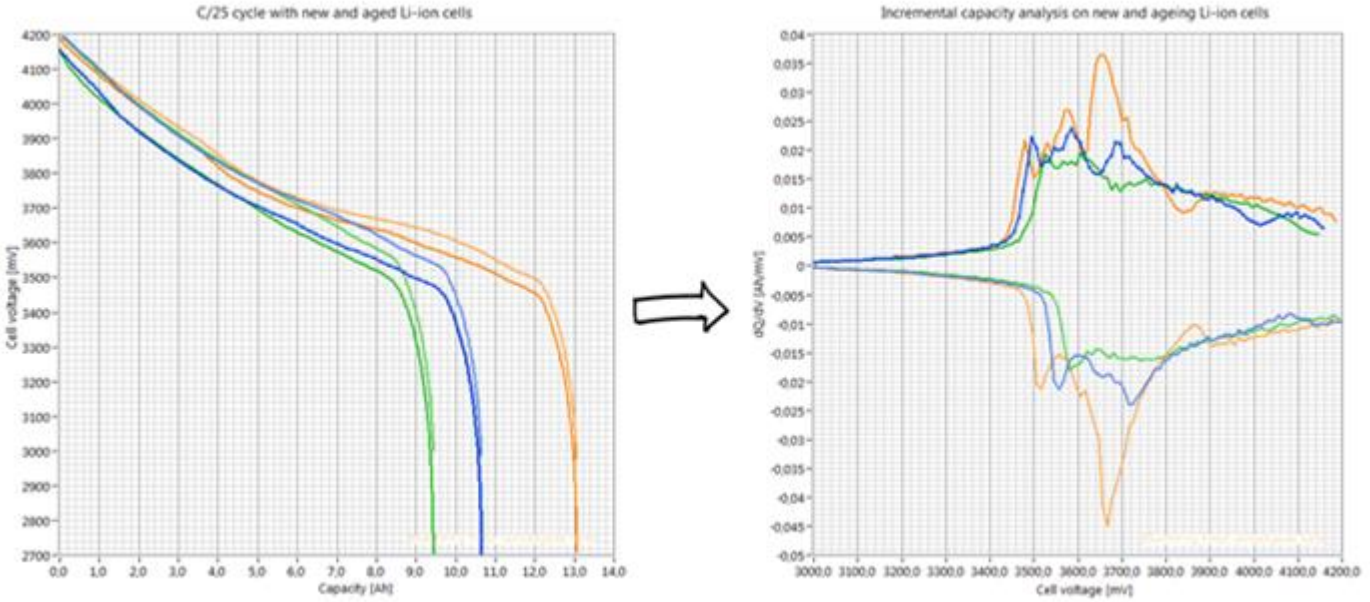
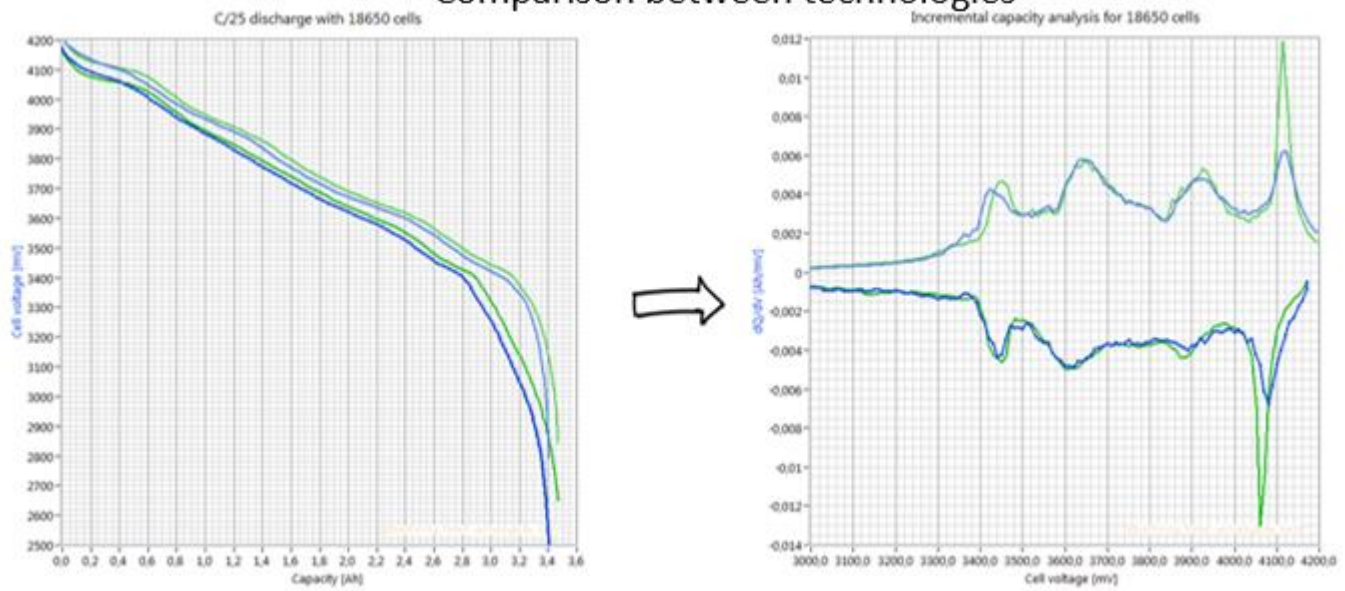
Incremental capacity (T17)

The Incremental Capacity Analysis (ICA) is based on the differentiation of the battery capacity over the battery voltage for a slow (dis)charge of the battery cell.
The peaks that are found are representative for the used active materials and their health. Some specific peaks also give insight into the cell construction, i.e. the overlap of anode and cathode.
A follow-up of the ageing can be performed by decomposing the slow cell (dis)charge curve into factors and terms representing loss of cyclable lithium, loss of active material and the current collector resistance increase.
Within TEESMAT, the focus will be on improving this technique and make it easier to use, for example, with fast cycling data.

R&D Status: Advanced



Comparison between technologies



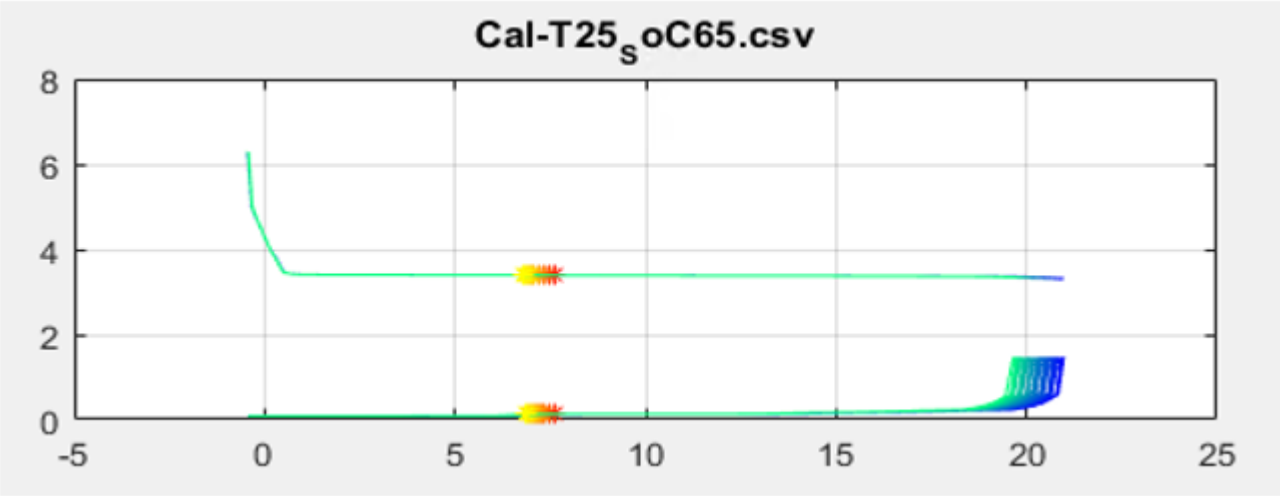
Incremental capacity

What can we characterize : cells

Experimental time: 2 days or longer

Advantage: a way to observe material properties just by the cell potential. Ageing behaviour can be derived.

Drawback: For battery measurements a slow technique, ideally the half cell curves are precisely known.



R&D Status: Advanced