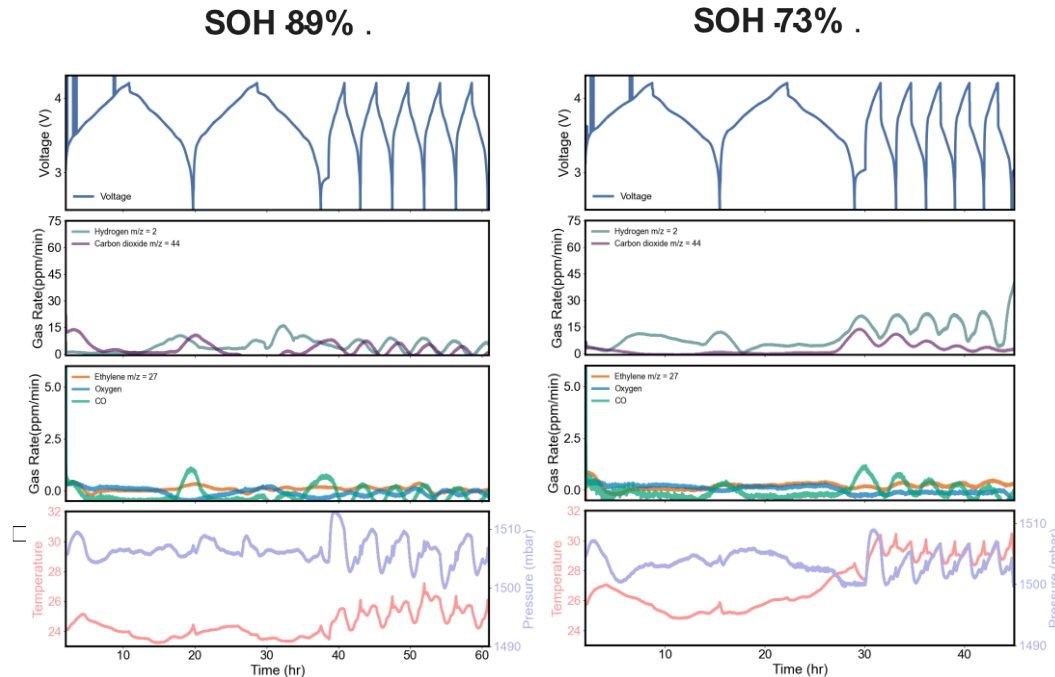
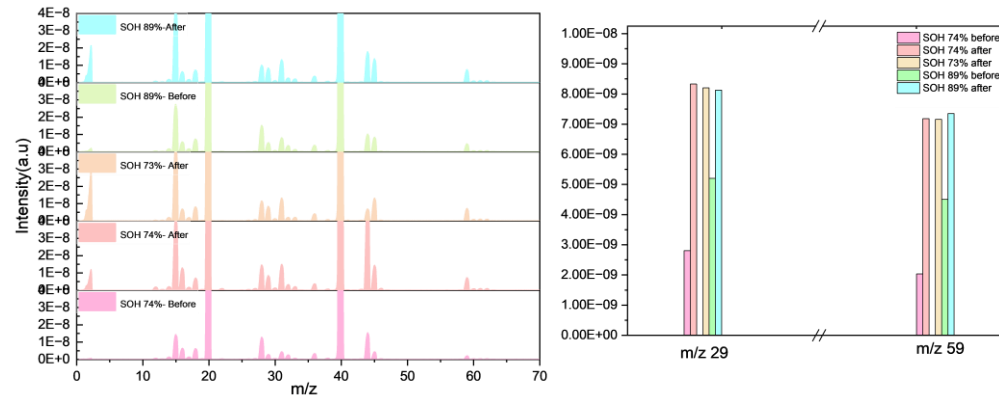


Operando Gas Evolution Dynamics in High-Temperature Aged Commercial Tesla 21700 Lithium-ion Cells

The Goal of the Project: To investigate gas evolution using OEMS in commercial cylindrical LIBs across various SOH to bridge the gap between fundamental research and safety, reliability, and performance.

Expected Result: This study analyzes cells at two SOH ranges: 90–95% and 70–75%. Gas quantity can be different with different SOH and also with differently aged cells. Cell specifications: NCA||Gr-Si, 21700 format, Tesla Model 3

CT scan of Tesla cells Punctured cell Electrolyte solvents peaks obtained from the OEMS Gas evolution dynamics in different cells



Gas evolution seems to connect to higher impedance. For example the aged cell with 73% SOH, evolve more H_2 , CO_2 , ethylene and CO than others. More gas peaks were observed during discharge; additionally, gas evolution quantity increased at higher C-rates in accordance with previous results.¹

Project Leader: Prof. Rakel Wreland Lindström

E-mail: raket2@kth.se