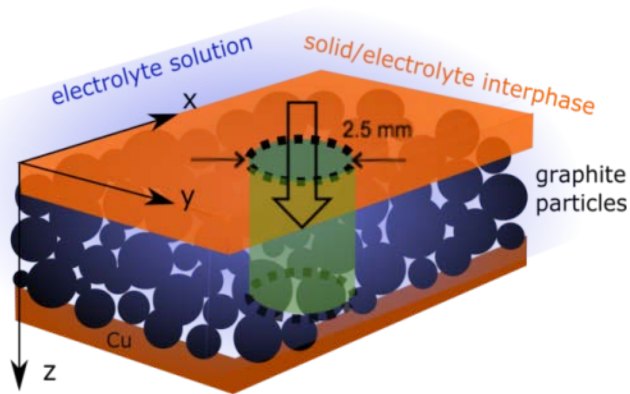
T02 GD-OES depth profiling

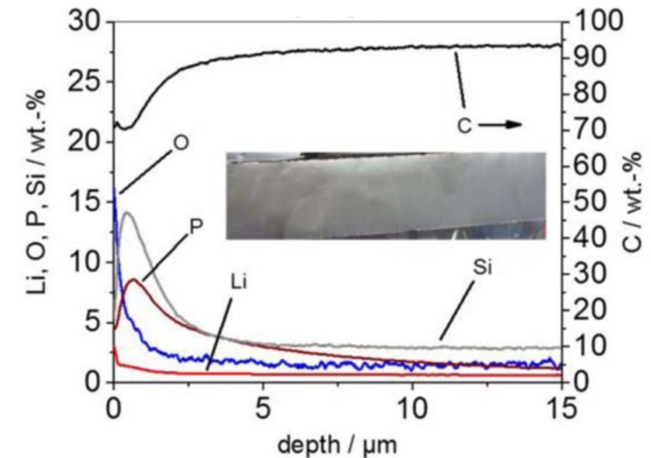
TEESMAT

Principle

- Ar sputtering of negative electrode surface to current collector
- Detection of sputtered elements by optical emission spectroscopy (incl. Li, Si)
- Measurements at different parts of a sample due to small measuring spot (Ø 2.5mm)



Example: Depth profile of a Si/C electrode from a commercial 18650 cell



Information from this method

- Fast depth profile of elements from anode surface to current collector for elements included in the calibration
- Information on aging mechanisms from Post-Mortem analysis
- More possibilities currently under development

References for this method

1) SEI growth: T. Waldmann et al., Journal Electrochem. Soc. 162 (**2015**) A1500.
2) Li deposition: N. Ghanbari et al., J. Phys. Chem. C 120 (**2016**) 22225.
3) Si content of negative electrodes: K. Richter et al., Journal Electrochem. Soc. 165 (**2018**) A3602.

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