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## Concentration profiles in thin films obtained from Neutron Depth Profiling at the PGAA facility

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Neutron Depth Profiling (NDP) is a non-destructive, high-resolution, near-surface analytical technique, which measures concentration profiles of a set of light nuclides like He-3, B-10, Li-6, N-14, O-17 [1]. The high neutron capture-flux density of  $3E10$  s<sup>-1</sup>cm<sup>-2</sup> at the PGAA beamline enables good measurement statistics on reasonable time scales and opens the possibility towards tracking changing concentration profiles with a high time resolution [2]. We present the method, show the application in several different materials branches and discuss results from an ex situ study of new electrode coating materials for lithium-ion batteries. Special interest here is the incorporation of passivated lithium in solid-electrolyte-interfaces (SEI), where NDP offers the opportunity to monitor the depth dependent SEI evolution. This project is supported by BMBF 05K16WO1.

[1] R. G. Downing et al., J. Res. Natl. Inst. Stand. Technol. 1993, 98, 109.

[2] Zs. Revay et al., Nucl. Instr. Meth. A 2015, 799, 114-123.

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