KEMIJSKI INŠTITUT

Vabilo na Forum40 / Invitation to the Forum40

Matej Gabrijelčič

Department of Inorganic Chemistry and Technology
Department of Materials Chemistry

Četrtek / Thursday, 3. 12. 2026 ob / at 13:00
Velika predavalnica Kemijskega inštituta / Great Lecture Hall

WEBEX
https://ki-ljubljana.webex.com/ki-ljubljana/j.php?MTID=me59d87369a7e148dbddfe9fdb2c36dbd
Meeting number: 2782 836 4309
Meeting password: EcwXQTfu263

From Ex-Situ to Operando Solid-State NMR

Solid-state NMR offers a unique window into local structure, chemistry, and dynamics of battery materials. At the National Institute of Chemistry, we develop operando, in-situ, and ex-situ multinuclear ssNMR for Na- and Li-ion batteries. This lecture highlights ^{23}Na ssNMR of hard-carbon anodes, tracking sodium from ionic intercalation to quasi-metallic clusters and structural evolution during cycling. We also study hybrid anodes, degradation, and self-healing via lithium supplementation to reduce capacity loss. Complementary NMR probes bulk and interfacial environments, including SEI. By correlating spectra with electrochemistry, we connect atomic-scale changes to overall performance, providing key insights for next-generation batteries.

Vljudno vabljeni / Kindly invited