

## Probing the Electrode-Electrolyte Interface with In-Operando Neutron Scattering

### **Abstract:**

Reactions to form a passivation layer on battery electrode surfaces depend upon the nature of the solvent, salt, temperature, and the presence of impurities such as water. We have developed an approach to investigate the formation of this solid-electrolyte interphase (SEI) layer using in-operando small angle neutron scattering. We recently developed a new in-operando scattering cell which enables us to investigate a wider scattering region quantitatively. We have used this to investigate the impact of different ionic liquid anions on SEI formation through neutron scattering on the EQ-SANS beamline at the SNS. This talk will present the effects of salt anion selection on the interphase formation and microstructure evolution in hard carbon anodes during in-operando cycling.

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