Neutron battery hub

Towards the next generation of batteries,
bridging neutron experts and battery scientists
into a centre of excellence

Goals

Fundamental understanding of reaction and degradation processes to accelerate the discovery of better / new materials and technologies.

Develop tools and techniques for the benefit of both neutron scientists and neutrons users.

Attract new partners and foster collaboration with industry.

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Different types of battery materials

Lithium-ion and beyond

Solid-state Li-ion batteries

HIGH POWER

Na-ion batteries

RENEWABLE

Liquid-type Li-ion batteries

HIGH ENERGY

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Different neutron scattering strategies

Connecting materials properties with electrochemical performances

Observing batteries during operation at all scales using a combination of neutron scattering techniques

Unraveling the relationship between structure and transport mechanisms

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Four core neutron scattering techniques

QENS/INS

Quasi-elastic and inelastic neutron scattering

» ions, molécules, polymer & lattice dynamics

SANS

Small angle neutron scattering

» nanostructured material & solid electrolyte interphase

NI

Neutron imaging

» *in operando* tracking of lithium

NPD

Neutron powder diffraction

» local structure & environnement

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