



Contribution ID: 53

Type: Poster

GERSEMI – Gaining Enhanced Resolution with Spin Echo for Multiscale Investigations. A high resolution Neutron Spin Echo instrument for the ESS

Neutron spin echo (NSE) spectroscopy is an essential quasi-elastic neutron scattering (QENS) method to probe dynamics in condensed matter. It gains access to a region of time and length scales which is complementary to other QENS techniques and high-resolution methods (e.g. PFG-NMR, photon correlation spectroscopy), and allows to cover unique science cases in various fields, including protein domain motions and biomembrane fluctuations, polymer chain dynamics, magnetic relaxations, and many more.

Here we present the conceptual design of GERSEMI, a high-resolution NSE spectrometer for the European Spallation Source (ESS). The instrument design suitably exploits the long and strong pulse of ESS and feature unique characteristics including: strong flux at long wavelengths, allowing to reach high resolution even on weakly-scattering samples; flexibility induced by the time-of-flight structure, including the possibility to access a wide Q -range with tunable resolution dQ/Q ; broad and intense band of simultaneously available wavelengths, boosting capabilities which are currently prevented or limited on other NSE instruments (e.g. kinetic measurements, surface and interface dynamics, and more).

Along with the conceptual idea, we will present diversified scientific cases from a wide community, which will demonstrate the strong benefit from the realization of GERSEMI at ESS.

Session

Instrumentation

Primary authors: NOFERINI, Daria (ESS); ROOSEN-RUNGE, Felix (Division of Physical Chemistry, Lund University); HOFFMANN, Ingo (ILL); BERTELSEN, Mads (ESS); ROSI, Benedetta (European Spallation Source)

Presenter: NOFERINI, Daria (ESS)

Session Classification: Instrumentation