

Future scientific possibilities at the European Spallation Source

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The ESS science drivers include soft condensed matter research, life science, studies of magnetic and electronic phenomena, chemistry of materials, energy research, engineering materials and geosciences, archaeology and heritage conservation, as well as fundamental and particle physics. ESS's high brightness allows to probe weak signals, study phase transitions and systems that change over time, or to measure within a small volume. This last ability is particularly useful for real-world heterogeneous samples or for materials for which only small sample quantities are available or can be used. Starting from the Technical Design Report [1] with a reference instrument suite and following a rigorous selection process, today the suite of the first 16 instruments is taking shape [2]. Nevertheless, instruments will not be sufficient by themselves to fully exploit the scientific potential of ESS. Additional 'Science Support Systems' are required to deliver the scientific and technical environment supporting the needs of the user programme to enable research using neutrons from scientific idea to publication from both academia and industry. In this presentation I will illustrate scientific possibilities by some recent neutron scattering investigations performed at several existing neutron sources.

References

[1] ESS Technical Design Report; esss.se/documents/tdr/TDR_final.pdf

[2] ESS instrument suite; europeanspallationsource.se/feature-series-ess-instrument-suite