



Neutrons - A Swedish Strategy for 2015 to 2025 and Beyond

Swedish Neutron Scattering Society, June 2015

The new European Spallation Source (ESS) plans to produce its first neutrons at the end of 2019 and to begin user operations in 2023. The Government has asked the funding agencies VR and VINNOVA to help Swedish academia and industry to take full advantage of the largest investment in research infrastructure in Sweden ever. The goal is to achieve active participation in research and education in neutron scattering as well as involvement in construction and technical development of the facility.

The Swedish Neutron Scattering Society (SNSS) identifies the following actions to achieve such goals:

- Funding agencies and universities need to enthusiastically exploit novel scientific opportunities that arise from new powerful facilities. Information about the emerging scientific possibilities should be disseminated in a timely manner so as to inspire new activities and to strengthen and expand the Swedish neutron science community. This will require Ph.D. students, post-doctoral workers and junior faculty to be appointed.
- A number of major science areas currently show high potential to develop a strong user community in Sweden, *e.g.* nanomaterials, environmental science, energy materials, biomaterials and interfaces. Funding schemes to support new users in such emerging areas, with help from experienced national and international user groups, need to be developed.
- Funding for access to existing neutron facilities needs to reflect the goal for a growing Swedish neutron community and should concentrate on broad access to a wide range of instruments at multiple facilities. Extended visits and experiments at neutron facilities should also be endorsed through effective co-funding schemes.
- Swedish universities and industry should be involved in the development and construction of neutron scattering instruments and sample environment (hardware and software) at ESS. Better information and direct contacts between ESS, funding agencies and Swedish institutions needs to be established on a regular basis, including effective and transparent funding mechanisms.
- In the longer term, with existing reactor sources of neutrons likely to close, it *will be necessary* for the Swedish community to participate in further new facilities beyond ESS. Discussions for optimised sources and time structures for a wider range of experiments should be initiated soon.

The long term visions and outline of required actions for growth of neutron scattering should build on the on-going support for graduate schools, focussed research grants and reinforced collaborations with the photon/X-ray community, particularly in connection to the MAX IV synchrotron facility.