



Swedish Neutron Scattering Society - Annual Report 2019

It is our pleasure to present the 2019 Swedish Neutron Scattering Society (SNSS) Annual Report. 2019 has been an exciting year for the SNSS. The construction of the European Spallation Source (ESS) has moved forward in a rapid pace, and at the end of the year approximately 65% of the ESS was completed. In addition, the Swedish and Nordic graduate schools (SwedNess and NNSP, respectively) have established themselves as a success, and recently additional funding of 100 MSEK was granted for the recruitment of 20 new SwedNess students. RÅC launched a new call for neutron related projects, VINNOVA launched calls for industrial pilot projects and PhD projects related to neutron scattering, and a new collaboration agreement between J-PARC and VR (SAKURA Mobility Programme) was established. Furthermore, the SNSS has funded several MSc students in neutron scattering experiments or advanced courses in neutron scattering. These activities have educated many new scientists in neutron scattering techniques, and funded several new projects related to neutron scattering, all of which are crucially important for sustaining and developing further the Swedish neutron community. Furthermore, the SNSS Strategy document has been updated and this has been distributed to SNSS members through our News Letter and can as well be found on our home page <http://www.snss.se/>. SNSS has also contributed to the promotion of Swedish research within Neutron Scattering with the publication at our website and distribution through our monthly *News Letter* of 12 research highlights (see below).

In May, the Swedish Neutron Week -- including the SNSS and SwedNess Annual Meetings, a "Nature Writing Class", as well as a memorial session for previous SNSS chairman Professor Sten Eriksson --- was held at the Yasuragi hotel in Stockholm. In 2020, the Swedish Neutron Week will be held at Vildmarkshotellet at Kolmården, May 11-14, and will include, amongst other things, a thematic industrial session as well as a neutron career day. Additionally, a new SNSS board will be elected during the SNSS Annual Business Meeting on May 12.

On a European level, the SNSS, through its association and involvement in the European Neutron Scattering Association (ENSA), continued contributing to the development of a long-term strategy for neutron scattering in the European landscape. Additionally, Professor Henrik Rønnow, École polytechnique fédérale de Lausanne, has replaced Professor Christiane Alba-Simionesco as the new ENSA chair, after a tough competition with SNSS member Professor Adrien Rennie, Uppsala University.

Finally, we notice that several of the board members have represented SNSS at various meetings and workshops, arranged by *e.g.* ENSA, VR, VINNOVA, and ESS. The board has also participated in discussions about national initiatives to design an instrument at the ESS, and in discussions about compact sources for neutrons. The support from VR for SNSS activities in 2019 has been 250 000 SEK. These activities include, *e.g.*, the co-funding of the SNSS Annual Meeting as well as support to enable young MSc and PhD students to take part in neutron scattering experiments.



SNSS Research Highlights

1. [Swelling of Thin Graphene Oxide Films Studied by in Situ Neutron Reflectivity](#) by Dr. A. Talyzin at Umeå University.
2. [Neutrons used to probe magnetism in three dimensional magnetic data storage elements](#) by Prof. B. Hjörvarsson at Uppsala University.
3. [How AstraZeneca can improve lipid nanoparticle formulations for gene delivery using neutron scattering](#) by Dr. M. Arteta-Yanez at AstraZeneca.
4. [Interactions between Model Cell Membranes and the Neuroactive Drug Propofol](#) by Dr. P. Niga at RISE.
5. [Using inelastic neutron scattering to understand the local structure and vibrational dynamics in proton conducting oxides for sustainable energy technologies](#) by Assoc. Prof. M. Karlsson at Chalmers Technical University.
6. [Neutrons used to locate hydrogen in high entropy alloys](#) by Assoc. Prof. M. H. Salhberg at Uppsala University.
7. An update on the instrument [Polaris](#), which was upgraded in part thanks to funding by the Swedish Research Council at ISIS Neutron and Muon Source by Dr. P. Henry.
8. [GISANS revealed water influence on biobased thin films](#) by Dr D. Söderberg at KTH.
9. [Towards measuring surface dynamics with neutrons](#) by Dr. M. Wolff at Uppsala University.
10. [Tuning the alignment of nanocellulose using a magnetic field](#) by Assoc. Prof. G. Salazar-Alvarez.
11. [Understanding the structure of lipid sponge phase nanoparticle \(L3-NPs\) using small angle neutron scattering](#) by Dr. Maria Valldeperas Badell at Lund University.
12. [Producing matchout cholesterol for neutron scattering](#) by Prof. Marité Cárdenas at Malmö University.