

Swedish Neutron Scattering Society - Annual Report 2022

It is our pleasure to present the 2022 Swedish Neutron Scattering Society (SNSS) Annual Report. 2022 has been an exciting year for the SNSS, which as of today counts to about 230 members. In the beginning of the year, we published our bibliometric study on Swedish neutron users for the period 2006-2020. It shows that the Swedish community published in total 1194 neutron-related articles during 2006-2020 and, most importantly, that the publication rate increased strongly during with time. The latter is a direct effect of the increase in research funding available in Sweden, especially since 2013. It is particularly positive that the Swedish user community has expanded and nowadays uses all the available neutron techniques covering a wider range of scientific topics. To showcase some of the excellent research done within our community, the publication of research highlights in the SNSS Monthly News Letter has been a natural and continually highly appreciated part (see next page for a list of all research highlights in 2022). Furthermore, the SNSS home page <http://www.snss.se> has been improved and we have just appointed a new webmaster (Tim Günter, PhD student at Uppsala University).

However, our bibliometric study also shows that the number of groups with a particularly strong focus on neutron science has decreased during the same time-period (2006-2020). This calls for the need for new funding initiatives and targeted strategies, to ensure that the broadened user community can be consolidated and will not be lost to other geographical regions. Several of the board members have represented SNSS at various meetings and workshops, arranged by *e.g.* ENSA, VR, VINNOVA, and ESS, to discuss this and other issues. In particular, representatives at VR and VINNOVA have been invited to discuss possibilities and users need at some of our board meetings and seminars.

In May 16-19, the Swedish Neutron Week was held at Vildmarkshotellet at Kolmården, just outside Norrköping, organized jointly by SNSS, the Swedish Graduate School on Neutron Scattering (SwedNess), and Linköping University. Apart from many excellent science presentations on neutron scattering, the conference included a special “industry day”, with representatives from, *e.g.*, ESS, VINNOVA, and RISE to discuss opportunities for neutron scattering in Swedish Industry. Additionally, ESS and VR presented the plans for Swedish ESS in-kind projects and a call for such projects was opened in the summer. At the time of writing, the selection of the first in-kind projects is being done.

In 2023, the Swedish Neutron Week will be held at the Aronsborg Conference Hotel, May 29 – June 2, and is organized by SNSS, SwedNess, and the University Alliance Stockholm Trio (Karolinska Institutet, KTH, and Stockholm University). Finally, an application for continuing funding for the SNSS has been submitted to the Swedish Research Council (VR). Support from VR is highly appreciated and means that we can continue with our activities to meet the objectives of the society.

With best wishes for the New Year,

SNSS Board



2022 SNSS Research Highlights

1. Design of Lipid-Based Nanocarriers via Cation Modulation of Ethanol-Interdigitated Lipid Membranes
2. GISANS studies using fan shaped beams
3. SARS-CoV-2 spike protein removes lipids from model membranes and interferes with the capacity of high-density lipoprotein to exchange lipids
4. Probing the solution structure of the pentameric ligand-gated ion channel GLIC by small-angle neutron scattering
5. Correlations between Precipitation Reactions and Electrochemical Performance of Lithium–Sulfur Batteries Studied by Operando Scattering Techniques
6. New study indicates limited water circulation late in the history of Mars
7. Chiral spin liquid ground state in YBaCo₃FeO₇ observed by polarised diffuse neutron scattering
8. Neutron reflection and deuteration reveal new insights about the interaction of DHODH enzymes with ubiquinone in mitochondrial model membranes
9. Coupling lipid nanoparticle structure and automated single particle composition analysis to design phospholipase responsive nanocarriers
10. Method to simultaneously probe the bulk modulus and structure of soft compressible objects using small-angle neutron scattering with contrast variation
11. In situ neutron powder diffraction investigation of the cycling behaviour of confined hydride on a mesoporous carbon scaffold