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## **DEMAX: the DEuteration and MACromolecular Xtallization platform of the ESS.**

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Neutron techniques, incl. small angle neutron scattering (SANS), reflectometry (NR), protein crystallography (NPX), benefit from the usage of deuterated molecules. Many neutron facilities provide deuteration support to users to facilitate better measurements and enable research not possible without deuterated materials. NPX requires large protein crystals of partially or fully deuterium-labeled proteins. The high neutron flux that ESS will deliver when fully operational will enable high throughput experiments with shorter measuring times and make it possible to study smaller and difficult-to-prepare (precious) samples. To support the community, the Deuteration and Macromolecular Crystallization Platform (DEMAX) is establishing methods for deuteration and crystallization in order to meet this need. DEMAX has chemistry, biology, and crystallization laboratories for producing deuterated molecules, incl. lipids, surfactants, proteins, monomers etc. The group also offers crystallization optimization and scale-up for proteins. Through regular beamtime access at MAX IV we collect room temperature X-ray data on protein crystals for users that do joint refinement. The DEMAX platform strives to increase the range of deuterated molecules available for neutron scattering. DEMAX is currently working on accepted proposals from the second pilot call for proposals and aims to publish a third call later this year.

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