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## **Deuteration Service for Users of the MLZ Neutron Scattering Instruments**

*Thursday 5 December 2024 16:15 (25 minutes)*

In order to provide users of the neutron scattering instruments at the MLZ with the appropriate partially or fully deuterated materials the JCNS built up a deuteration service, primarily from our core competence areas of polymers and ethoxylation. Similar services exist at other neutron sources, such as the ILL, ISIS or ANSTO. However, we are the first dedicated deuteration laboratory for neutron users in Germany.

During the MLZ User Meeting we want to present our services and capabilities to the MLZ user community. We will also detail how people can access our services and present the plans to incorporate our service into future neutron proposal calls at the MLZ.

We offer the deuteration of various soft matter systems, including polymers, surfactants and a variety of small molecules. We are capable of conducting different methods of controlled polymerizations, such as anionic or RAFT polymerizations, to generate polymers with narrow polydispersities and precise molecular weights. In addition, we are equipped to work with deuterated ethylene oxide in order to synthesize PEO and perform ethoxylation. Our catalogue of small molecules includes various deuterated monomers, surfactants as well as deuterated phase transfer catalysts.

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