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First experiences with focusing reflectometry using a full-scale Selene guide

The polarised neutron reflectometer Amor at PSI was equipped in 2020 with a *Selene* optics, replacing the old curved straight guide. This exchange took 3 months. It took another 3 years to complete the secondary instrument (electronics, drives, detector, control software) and we started user operation in December 2023 - just before the accelerator maintenance shut-down.

We will present the technical implementation of the *Selene* optics, the polariser and the detector; discuss the performance of the instrument and present selected first experiments:

- In-situ battery (dis-)charging: Lithium distribution in and swelling of germanium isotope multilayer electrodes, observed over several charging cycles.
- Investigation of catalysts for photo-induced hydrolysis: Influence of a NiO protective layer on the degradation of the catalyst CaTaO_2N .
- Magnetic properties of high-entropy materials: Influence of cooling and field history on the magnetic properties of $\text{Nd}_5\text{FeMnCoCrNiO}_{15}$.

Please select the related topic from the list below

Instrumentation and methods

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