



Contribution ID: 197

Type: **Poster**

## **SANS-LLB, the new small-angle instrument at SINQ, PSI**

*Tuesday, 21 March 2023 16:00 (2 hours)*

In 2023, the user program at SINQ, Paul Scherrer Institut (PSI), will again offer two small-angle instruments, the new SANS-LLB and as before SANS-I. SANS-LLB is the adapted and optimised PA20 SANS instrument from the Laboratoire Léon-Brillouin (LLB) that was transferred to PSI after the shutdown of the Orphée reactor in 2019 and will be operated by LLB and PSI. SANS-LLB is a general-purpose SANS instrument with a flight path of up to 18 meters, a wavelength range from 3 to 20 Angstroms, with option for polarized neutrons, a versatile collimation section, and two  $^3\text{He}$  detectors - the central main detector and an L-shaped detector at a lower distance to increase the q-range covered with a single setting of the instrument. As SINQ obtained a neutron-guide upgrade in 2019-2020, SANS-LLB will become available with a new 45 mm x 45 mm guide system that is optimized from the SINQ source to the sample position. Various sample environments covering soft and hard matter research are available and are mostly shared with SANS-I. A novel semi-transparent beamstop will allow to take transmission data continuously without dedicated transmission measurements, thus shortening measurement times and increasing sample throughput. A new detector electronics developed at PSI will be installed in 2023 and will allow for time-resolved measurements. The neutron flux on SANS-LLB is expected to be comparable although somewhat lower than on SANS-I due to the smaller cross section of the guide and the larger distance from the source. With SANS-LLB, the number of SANS beam days offered at SINQ will be doubled.

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**Session Classification:** Poster session TUESDAY

**Track Classification:** Neutron Instrumentation, Optics, Sample Environment, Detectors, and Software