

W0256

New Perspectives for Long Baseline SANS Instruments. R. Gähler, Inst. Laue Langevin, Grenoble, France.

We propose to extend the capabilities of long-baseline SANS instruments towards new areas:

The Multi-Image SANS option, MISANS, will extend the q -range to $q \approx 10^{-5} \text{ \AA}^{-1}$ in 2D. A multi pinhole aperture will be imaged by a multi lens array onto the detector. With proper corrections, images of 0.6 mm width for 10 \AA neutrons are achievable 10 m downstream of the lens. State-of-the art scintillation detectors are required.

The option Small ANgle TOMographic and Radiographic Imaging with Neutrons, SANTORIN, will explore the small angle scattering power of high strength materials in 3D. With a well collimated beam ($\Omega \approx 10^{-6}$ rad) and typical sample detector distances of 1m, the local small angle scattering of the sample will be visualized as beam attenuation, creating radiographic or tomographic images with ≈ 1 mm spatial resolution.

The option Modulation of IntEnsity with Zero field spin Echo, MIEZE, will allow quasi-elastic measurements in SANS geometry at correlation times of several 100 ns, thus competing with high resolution NSE. It requires two RF-flippers in the magnetically screened collimating section, two polarizers and a detector with high time resolution.

The option TIme dependent SANS-Experiments, TISANE, extends the time range for 'snapshot experiments' from time constants in the ms range towards the μs range. TISANE measures the time modulation transfer function of the sample.

In most cases, the interchange between options and the standard SANS configuration will be possible in short time. Some test experiments will be presented.