Contribution ID: **318** Type: **Poster**

The GISANS instrument at the HBS

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

We present a concept of a GISANS instrument for the High Brilliance Source (HBS), a High Current Accelerator-based Neutron Source (HiCANS) using a moderate energy proton accelerator which allows very compact moderators and shielding, and flexible pulse repetition rates. The general layout resembles a classical SANS instrument with 10 m collimation and 10 m detector distance. In the beam preparation, there is a deflector, two choppers and a changeable polarizer. For reflectivity measurements, enlarged vertical divergence is transported to the entrance aperture at 4m. Then 2(3) mirrors and the direct beam transport 3(4) beams of different incident angles to the sample in order to have a simultaneous wider Q_z range. In the GISANS mode, the vertical divergence is reduced and only one direct beam is used to hit a horizontal sample. Two detectors collect the scattered intensity simultaneously in order to have a large range of scattering angles. The simulated intensities at the sample are highly promising and are comparable to reactor-based instruments such as those at the FRM-2.

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Session Classification: Poster session TUESDAY

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