

SKADI – Small-K Advanced Diffractometer

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The Small-K Advanced Diffractometer SKADI is a versatile SANS instrument, proposed for the European Spallation Source, which enables scientists to perform a wide range of investigations on topics requiring small Q-values to access long length scales [1]. The scientific areas targeted by SKADI include investigations of smart materials, biological and medical research, magnetic materials and materials for energy storage, as well as experiments on nanomaterials and nanocomposites or colloidal systems. To maximize the applicability of these studies SKADI is designed to accommodate in-situ measurements with custom made sample environments to provide "real-world" conditions.

To achieve all these goals SKADI will feature the following general design properties:

- Flexibility (sample area is approx. 3x3 m², and versatile collimation)
- Very small Q accessible through VSANS (using focusing collimation elements)
- Polarization for magnetic samples and incoherent background subtraction
- Good wavelength resolution, being the longest SANS instrument
- High dynamic Q-range (using two detectors)

With a flux about 25 times higher than D22 from ILL, an accessible size regime between the Angström and micrometer scale and the high dynamic Q range for fast data acquisition with high resolution both in Q and time, this instrument will open the ESS for a wide scientific community.

[1] S. Jaksch, H. Frielinghaus et al., arXiv:1403.2534 [physics.ins-det], (2014).

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