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SKADI: Small-Angle Neutron Scattering at ESS

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The Small-K Advanced Diffractometer (SKADI) is a joint in-kind project of French and German partners to deliver a SANS instrument to the ESS. [1,2] This contribution details the current construction status of SKADI. Further practical requirements on components such as the sample area will also be considered. SKADI is designed to deliver

- Flexibility (sample area is approx. $3 \times 3 \text{ m}^2$, and versatile collimation)
- Very small Q accessible through VSANS
- Polarization for magnetic samples and incoherent background subtraction
- Good wavelength resolution, being the longest SANS instrument at ESS
- High dynamic Q-range over three orders of magnitude.

This will be combined with a neutron flux of $8 \times 10^8 \text{ n/s cm}^2$ at sample position, which will make it the world's brightest SANS instrument.

In addition to complex sample environments SKADI will also feature a newly developed detector system, SoNDe, developed within the EU Horizon2020 framework. [3]

SKADI caters for a wide range of scientific areas, such as smart materials, biological and medical research, magnetic materials, as well as experiments on nanomaterials and nanocomposites or colloidal systems. Finally, SKADI is designed to accommodate custom made sample environments to provide "real-world" conditions.

[1] JAKSCH, S., et al. NIMA, 2014, 762, p. 22-30.

[2] JAKSCH, S., et al. Appl. Sci., 2021, 11, , p. 3620.

[3] JAKSCH, S., et al. Proceedings of the International Conference on Neutron Optics (NOP2017). 2018. p. 011019.

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