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The instrumentation of the planned HiCANS at Forschungszentrum Jülich

High-Current Accelerator-driven Neutron Sources (HiCANS) are a promising new type of neutron sources, which have the potential to serve as national neutron sources and thus as an alternative to research reactors. Several countries are currently developing HiCANS facilities. In Germany, the High Brilliance neutron Source (HBS) is described in a Technical Design Report (TDR) [1].
The Forschungszentrum Jülich (FZJ) plans to realize a first HiCANS featuring a proton beam energy of 20 MeV, a peak current of 100 mA and a flexible frequency and duty cycle scheme within the next decade. This will allow to exploit the potential of these innovative neutron sources for a broad application range. The target station will be installed in an existing experimental hall on the FZJ campus and host a suite of 5 instruments. A diffractometer, a small angle scattering machine and a neutron reflectometer address the most demanded scattering applications, while neutron imaging and prompt gamma neutron activation analysis cover the need of user communities such as engineering or cultural heritage research.
References:
[1] T. Brückel, T. Gutberlet (Ser. Ed.), Technical Design Report for the High Brilliance Neutron Source, Vol. 1-5, https://doi.org/10.34734/FZJ-2023-03722

Email Address

Email Address

Presenter if not the submitter of this abstract

Klaus Lieutenant

Funding Agency

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Future of CANS

Primary authors: VOIGT, Jörg (Forschungszentrum Jülich GmbH); Dr LIEUTENANT, Klaus (Forschungszentrum Jülich GmbH)

Co-authors: Dr MAUERHOFER, Eric (Forschungszentrum Jülich GmbH); Dr ZAKALEK, Paul (Forschungszentrum Jülich GmbH); Dr RUECKER, Ullrich (Forschungszentrum Jülich GmbH)

Presenter: Dr LIEUTENANT, Klaus (Forschungszentrum Jülich GmbH)