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Establishing a new class of High-Current Accelerator-driven Neutron Sources (HiCANS) with the HBS project

Accelerator-driven high brilliance neutron sources are an attractive alternative to the classical neutron sources of fission reactors and spallation sources to provide scientists with neutrons to study and analyze the structure and dynamics of matter. With the advent of high-current proton accelerator systems, a new class of such neutron facilities can be established referred to as High-Current Accelerator-driven Neutron Sources (HiCANS). The basic features of HiCANS are a medium-energy proton accelerator with of tens of MeV and up to 100 mA beam current, a compact neutron production and moderator unit and an optimized neutron transport system to provide a full suite of high performance, fast, epithermal, thermal and cold neutron instruments.

The Jülich Centre for Neutron Science (JCNS) has established a project to develop, design and demonstrate such a novel accelerator-driven facility termed High Brilliance neutron Sources (HBS). The aim of the project is to build a versatile neutron source as a user facility with open access and service according to the diverse and changing demands of its communities. Embedded in an international collaboration with partners from Germany, Europe and Japan, the Jülich HBS project offers the best flexible solutions for scientific and industrial users. The overall conceptual and technical design of the HBS as a blueprint for the HiCANS facility has been published in a series of recent reports.

The status, progress and next steps of the project will be presented, focusing on the high-current linear accelerator and the proton beam transport system, including a novel multiplexer to distribute the proton beam to three different neutron target stations while adapting a flexible pulse structure.

Speed talk:

Normal speed talk selection

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