



Contribution ID: 137

Type: **not specified**

## The High Brilliance Neutron Source (HBS-I) - A New National Research Infrastructure

Neutrons are an indispensable tool for science and industry to study the structure and dynamics of matter from the meso to the pico scale and from seconds to femtoseconds. An attractive way to provide urgently needed neutrons in the near future is to build efficient high-current, accelerator-based neutron sources (Hi-CANS) using pulsed proton beams.

A new national research infrastructure that benefits significantly from these developments will be the High Brilliance Neutron Source (HBS-I), which was recently shortlisted by the Federal Ministry of Research, Technology, and Space (BMFRT). HBS-I uses pulsed high-current proton beams to generate neutrons through a low-energy nuclear reaction in a target material, which requires less radiation shielding and moderator cooling compared to conventional neutron sources.

The facility is designed to produce small-diameter neutron beams, enabling experiments with smaller sample volumes. This will support research in materials and life sciences, including materials for energy conversion and storage, nanomaterials, quantum materials, protein structures, and biomaterials. The facility is intended for use by a multidisciplinary community of universities, research institutions, and industry. The basic concept and its realization will be presented.

### Speed talk:

Normal speed talk selection

**Primary author:** LEHRACH, Andreas (Forschungszentrum Jülich, RWTH Aachen University)

**Co-authors:** Prof. PODLECH, Holger (Goethe-Universität Frankfurt); Dr ZAKALEK, Paul (Forschungszentrum Jülich); GUTBERLET, Thomas (Forschungszentrum Jülich)

**Presenter:** LEHRACH, Andreas (Forschungszentrum Jülich, RWTH Aachen University)