



Contribution ID: 185

Type: **Poster**

Monte Carlo simulation and optimization for the micro-channel target of the HBS project

Wednesday, 9 December 2020 17:40 (20 minutes)

The High Brilliance Neutron Source (HBS) project was initiated at the Jülich Centre for Neutron Science of the Forschungszentrum Jülich (JCNS). It aims to develop a medium neutron source facility based on a linear accelerator, scalable up to 70 MeV proton energy and optimized to deliver high brilliance neutron beams to a variety of neutron instruments. In the framework of this project a compact micro channel target was proposed for the powerful high-flux and compact, accelerator-driven neutron sources (CANS). Based on earlier simulations concerning fluid dynamics and structural mechanics, a preliminary design was developed. Due to the required compactness, heat dissipation and mechanical stability are the factors limiting the total neutron yield of the target. In order to find a compromise solution between high neutron yield and mechanical stability, the energy desposition as well as neutron and proton spectrum in different geometric parameters of the micro-channel target were performed with the Monte Carlo simulation code FLUKA. The details of the simulation and optimization will be presented at the workshop.

Primary author: Ms DING, Qi

Co-authors: Dr LI, Jingjing; Dr BAGGEMANN, Johannes; Dr ZAKALEK, Paul; Prof. BRÜCKEL, Thomas; Dr GUTBERLET, Thomas; Dr RÜCKER, Ulrich

Presenter: Ms DING, Qi

Session Classification: Joint poster session of MLZ User Meeting and DN2020

Track Classification: DN: Instrumentation