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【713】 Towards higher brilliant beam for neutron scattering under very high pulsed magnetic fields

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Neutron scattering experiments under high pulsed magnetic fields offer valuable insights into magnetic structures of materials. However, these experiments are challenging and time-consuming due to low neutron count. To address this, we proposed the idea of a specialized source, designed to increase neutron count and improve brilliance serving only one single instrument. The main features of this source are: an spallation target station fed by an existing high-energy proton accelerator every 5-10 minutes, synchronized with magnetic pulses, which drastically decreases the average heat and radiation load. We investigated different target-moderator-reflector geometries and materials to achieve maximum brilliance. By an ideal neutron transfer, we can gain higher count on the sample.

Theoretical Work

Theory

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