

Beam diffusers for beam loss reduction

The current beam power for the user operation in J-PARC MR's slow extraction beam is 64 kW. After the beam operation at this beam intensity, the on-contact residual radiation dose rate with a cooling time of 6.5 h exceeded 10 mSv/h around the ESS. To further increase the beam intensity while keeping the maintainability of the devices, further reduction of the beam loss is essential. Thus we are planning to reduce the beam loss using beam diffusers which are placed upstream of ESS. In this talk, we will discuss the configuration of beam diffusers, simulation studies using FLUKA code, the beam test results conducted in 2021, and plans.

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Session Classification: Managing Extraction Efficiency