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Consideration for improving the longitudinal beam matching between RCS and MR at the J-PARC

Tuesday 3 June 2025 16:00 (2 hours)

The J-PARC 3 GeV Rapid-Cycling Synchrotron (RCS) delivers the high-intensity proton beam to the 30 GeV Main Ring (MR). The improvement of longitudinal beam matching between RCS and MR is desired to suppress the beam loss in the MR. A scenario to improve the longitudinal beam matching between RCS and MR is designed. For the RCS, the bunch lengthening scheme using the unstable fixed point generated by the second harmonic is considered. For the MR, the RF voltage pattern is adjusted to match the longitudinal beam emittance of the RCS. The details of the scenario for improving the longitudinal beam matching between RCS and MR and the results of beam simulation studies are reported.

Footnotes

Paper preparation format

LaTeX

Region represented

Asia

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