Contribution ID: **1106** Contribution code: **WEPB025** Type: **Poster Presentation**

The study of the eddy current-type septum magnet for fast extraction in J-PARC MR

Wednesday 4 June 2025 16:00 (2 hours)

The eddy current type septum magnets (Eddy-septa) are used for fast extraction in J-PARC MR from 2022. Currently, the operation of the Eddy-septa is very stable. However, we have some still technical issue. One is an output pulsed current measurement by current transfers. The peak value of the output pulsed current is measured pulse by pulse and the measured value is used for a feedback system using by PXI system for long-term stability. The output current is also measured with different current transfer in same time for double checking. However, we don't have good reproducibility with the measurement result by the PXI feedback system yet. We have found the noise which are generated by the kicker magnets and extraction beam in 2023, thus, we started to investigate the detail of the process of generation and method of removal. Second is residual field along the circulating beam line in Eddy-septa. We had reported the leakage field by exciting current on the circulating beam line and the strength was very small. In summer of 2023, we found large residual field on the same line. In this presentation, we report the status of measurement of output current, and residual field.

Footnotes

Paper preparation format

LaTeX

Region represented

Asia

Funding Agency

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Session Classification: Wednesday Poster Session

Track Classification: MC7: Accelerator Technology and Sustainability: MC7.T09 Normal Conducting Magnets