Contribution ID: **235** Contribution code: **THPD029** Type: **Poster Presentation**

Update of Linac and RCS MPS for BLM

Thursday 25 September 2025 16:15 (1h 30m)

The Machine Protection System (MPS) has been configured to inhibit the beam immediately in irregular events and to minimize the damage caused by beam loss because J-PARC Linac and 3 GeV Rapid Cycling Synchrotron (RCS) are high-intensity accelerators.
The MPS for J-PARC Linac and RCS mainly consists of standard MPS module and MPS module for beam loss monitor (BLM). However, the existing MPS modules have been used since the beginning of J-PARC operation, and there is a concern that the modules may cause malfunction due to aging. Therefore, we have developed new MPS modules and are now replacing a part of Linac and RCS MPS using new standard MPS modules.
On the other hand, the development of the MPS module for BLM has not been proceeding because of reasons both the existing MPS module for BLM has a comparator function and the beam loss detection methods for Linac and RCS are different. Therefore, it was decided to separate the comparator function from the MPS module, and to develop each hardware corresponding to the beam loss detection methods for Linac and RCS, and to implement these functions. By combining the new standard MPS module and this hardware, a new MPS for BLM will be configured.
This paper describes the current status and plan to update Linac and RCS MPS for BLM.

Footnotes

Funding Agency

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Session Classification: THPD Posters

Track Classification: MC07: Functional Safety and Protection Systems