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Present status of RF system upgrade in the J-PARC MR

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J-PARC MR delivers 30 GeV proton beams to the neutrino facility and the hadron experimental facility, and an upgrade plan is underway to increase beam power by shortening the MR cycle time and increasing the number of particles per bunch. As a result, the beam power for neutrino experiments has achieved its original design value of 750 kW in 2023 and reached 800 kW in 2024. The target beam power of this upgrade plan is 1.3 MW for the Hyper-Kamiokande experiment. The current RF system consists of 9 fundamental cavities and 2 second harmonic cavities for a total of 11 RF systems, but it is necessary to add two more fundamental cavities to further shorten the MR cycle time. Preparations are underway to begin operation of the 10th RF system in 2025 and the 11th in 2027. In addition, as the number of particles increases, further beam loading compensation will be required, so we are also working on upgrading the RF source. We present the progress of the MR RF system upgrade.

Footnotes

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LaTeX

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Asia

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