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## Development of a new SiPM-based Beam Loss Monitor for the J-PARC Neutrino Beamline

*Monday, August 31, 2026 6:00 PM (2 hours)*

A new Beam Loss Monitor (BLM) is being developed for the J-PARC neutrino beamline. Several detectors will be installed in and immediately downstream of the Main Ring (MR) fast-extraction region, where the 30 GeV proton beam is extracted toward the neutrino production target. Designed for operation in a high-radiation environment and to remain compatible with the planned J-PARC neutrino beamline upgrades for the Hyper-Kamiokande era, including proton beam powers up to 1.3 MW, the BLM will provide bunch-by-bunch beam loss measurements. The detector is based on a new type of Silicon PhotoMultipliers (SiPMs) with higher resistance to radiation than normal, coupled to a radiation-hard active material. Candidate materials currently under evaluation include scintillators, scintillating fibers, and fused silica. The beam-loss signals will be used to assess the beam characteristics at the fast-extraction region - and in particular to infer the beam halo transported from the Main Ring - and to provide information relevant to beam-induced material activation for radiation safety. The new monitors are under development and will be tested during the upcoming T2K beam operation.

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