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Beam Loss Monitors for Elettra 2.0

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The upcoming upgrade of the Elettra synchrotron to Elettra 2.0 demands a new generation of beam diagnostics capable of supporting its enhanced performance and stability requirements. In this context a novel Beam Loss Monitor (BLM) system has been developed integrating fast scintillating fiber detectors coupled to silicon photomultipliers (SiPMs) for precise and distributed loss detection along the storage ring. The system offers improved spatial resolution nanosecond scale time response and a compact non invasive design tailored to the ultra low emittance regime of Elettra 2.0. This presentation outlines the system architecture simulation benchmarks and preliminary experimental results highlighting the BLM's capabilities in detecting fast loss events supporting machine protection and enabling advanced tuning of beam dynamics.

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