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Status of LGAD R&D for the CMS MIP Timing Detector

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The MIP Timing Detector (MTD) of the Compact Muon Solenoid (CMS) is designed to provide precision timing information (with resolution of ˜40 ps) for charged particles as part of the Phase II upgrade program to prepare for the HL-LHC. The endcap region of MTD, called the Endcap Timing Layer (ETL), will cover the high radiation pseudo-rapidity region between $|\eta|$=1.6 and 3.0. The ETL will be instrumented with silicon low gain avalanche detectors (LGADs), which will receive fluences up to approximately 10^{15} neq/cm^2 We present an overview on the status of the LGAD R&D for the MTD ETL. In particular, we highlight recent results from the Fermilab Test Beam Facility focusing on characterization of the timing performance and uniformity of irradiated LGAD sensors produced by Hamamatsu (HPK) and Fondazione Bruno Kessler (FBK).

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