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Gain and time resolution of thin Low Gain Avalanche Detectors.

The CMS MIP Timing Detector, proposed for the HL-LHC upgrade, will be instrumented with $O(10)$ square meters of ultra-fast Silicon detectors (UFSD) in the forward region. These UFSDs are aimed at measuring the time of passage of each track with a precision of about 30 ps. The sensor that will be used for this task is the low gain avalanche detectors (LGAD). In this contribution, we will present the latest results from laboratory measurements on 50 and 35 μm thick LGADs fabricated by CNM. We will concentrate on the timing performance of the sensors. Additionally the electric characterisation of the sensor will be discussed.

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