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Precision Timing Calorimetry with the upgraded CMS Crystal ECAL

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Particle detectors with a timing resolution of order 10 ps can improve event reconstruction at high luminosity hadron colliders tremendously. The upgrade of the Compact Muon Solenoid (CMS) crystal electromagnetic calorimeter (ECAL), which will operate at the High Luminosity Large Hadron Collider (HL-LHC), will achieve a timing resolution of around 30 ps for high energy photons and electrons. In this talk we will discuss the benefits of precision timing for the ECAL event reconstruction at HL-LHC. Simulation and test beam studies carried out for the timing upgrade of the CMS ECAL will be presented and the prospects for a full implementation of this option will be discussed.

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