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The TOTEM Experiment at the LHC

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The forward physics experiment TOTEM at LHC (Interaction Point 5) is dedicated to measure the total and elastic p-p cross-section and to study diffractive processes. The TOTEM detector system is composed of 2 telescopes (T1, T2), and the Roman Pots, installed symmetrically on both sides of the IP 5. To cover the pseudo rapidity range from 3.1 to 4.7, the T1 detector is integrated in the CMS End Caps and centered at a distance of $z=9$ m with respect to the interaction point. Each side of the T1 telescope is partitioned in 5 planes, each consisting of 6 trapezoidal Cathode Strip Chambers (CSC). The T2 detector is made of 20 half circular sectors of Gas Electron Multipliers (GEM), which are installed at an average distance of $z=13.5$ m from the interaction point, between the vacuum chamber and the inner shielding of the CMS HF calorimeter, covering the rapidity range from 5.3 to 6.5. At distances of ± 147 m and ± 220 m with respect to the IP5 interaction point, the Roman Pot detectors are integrated in the LHC as movable beam insertions, approaching the LHC beam centre to an ultra close distance of less than 7 sigma. Protons, scattered at the interaction point under smallest angles down to 200 microradians, are registered with the 24 RPs, each equipped with 10 planes of edgeless Si strip detectors. The edgeless detectors are characterized by an active area close to 50 um from the Si cutting edge. The contribution describes the status of the TOTEM experiment and its performance.

for the collaboration

TOTEM

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