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Operation and performance of the CMS Tracker detector during early Run II

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The CMS tracker consists of two tracking devices utilizing semiconductor technology. The pixel detector comprises 66 million pixels in about 1 m2 total area. It is surrounded by the strip tracker with 10 million read-out channels in 200 m2 total area. The tracker detectors occupy the region around the center of CMS, where the LHC beams are crossed, between 4 cm and 110 cm in radius and up to 280 cms along the beam axis. They are operated in a high-occupancy and high-radiation environment created by particle collisions in the LHC. The LHC restarted in 2015 after a long shut-down period. In this talk, the challenges encountered during the recommissioning of the tracker detectors will be described, along with the operational experience during the 2015 and 2016 data taking. Details will be given on the active fraction and read-out efficiency of the detectors, as well as, its performance at high occupancy with respect to local observables, such as signal to noise ratio, resolution, and hit reconstruction efficiency. The presentation will include studies of radiation effects on the detectors' calibration and performance.

Primary author: BENELLI, Gabriele (Brown University (US))

Presenter: BENELLI, Gabriele (Brown University (US))

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