

Calibration of the CMS magnetic field using cosmic muon tracks

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During the Cosmic Run At Four Tesla (CRAFT) in 2008 many millions of cosmic muons were recorded in CMS with nominal magnetic field and the CMS detector closed in the final underground configuration. By analyzing in detail the local curvature of muon tracks crossing the detector, it was possible to probe the magnetic field locally in the iron elements of the barrel return yoke. The excellent precision of the measurements allowed a significant improvement in the magnetic field map used for simulation and track reconstruction. The model for the magnetic field simulation as well as the measurement of the magnetic field from cosmic data is described and the final calibration results before pp collisions are reported.

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