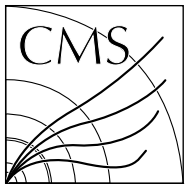
Available on CMS information server

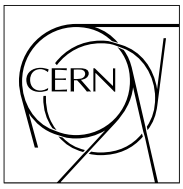
CMS DP -2015/024



The Compact Muon Solenoid Experiment

CMS Performance Note

Mailing address: CMS CERN, CH-1211 GENEVA 23, Switzerland



25 July 2015 (v2, 28 July 2015)

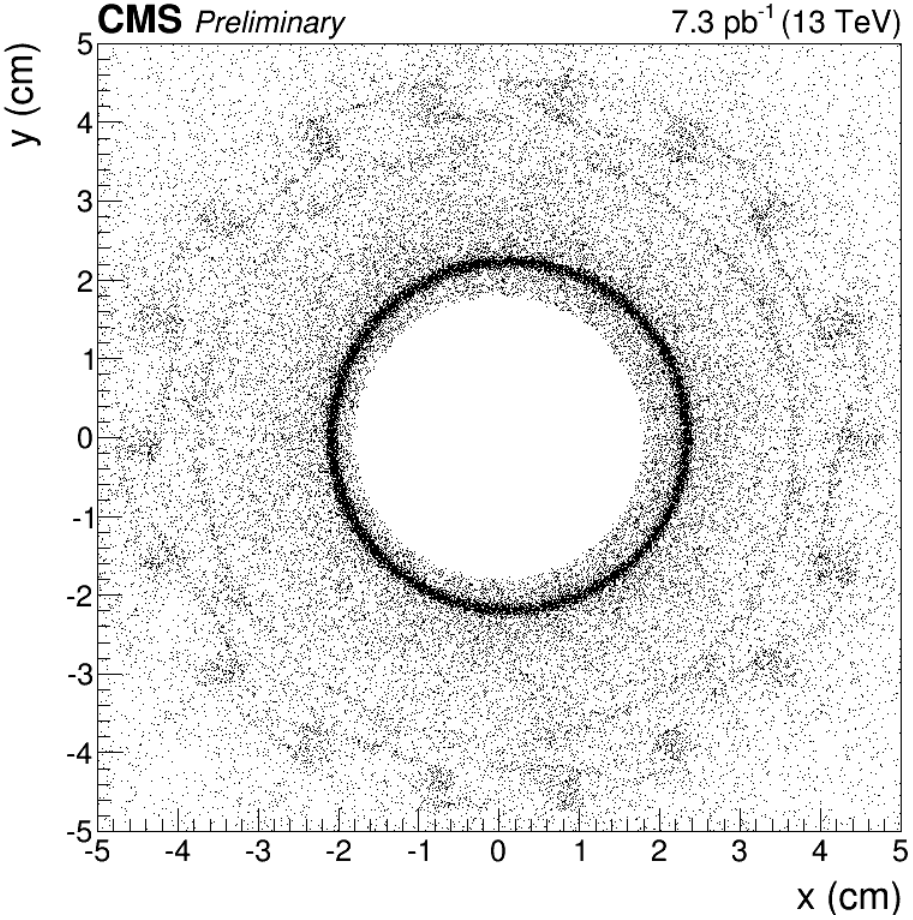
Nuclear interaction study around beam pipe region in the Tracker system at CMS with 13 TeV data

CMS Collaboration

Abstract

Analysis is presented to study the material in the Tracker system with nuclear interactions from proton-proton collisions recorded by the CMS experiment at the CERN LHC. The data correspond to an integrated luminosity of 7.3 pb^{-1} at a centre-of-mass energy of 13 TeV collected at 3.8 Tesla magnetic field. With reconstructed nuclear interactions we observe the structure of the material, including beam pipe, in the Tracker system.

Nuclear Interaction with 13 TeV Data



Nuclear Interaction for Run2015B data at 13 TeV, (x,y) plane, zoomed in the beam pipe region, for the barrel part (|z| < 20 cm). Black circle with radius around 2.25 cm corresponds to the beam pipe. It is shifted from the central value of the detector.
Grey circle with radius around 3.7 cm corresponds to the Pixel Shield.
Structure with radius around 4.2-4.7 cm corresponds to the 1st layer of the Pixel.
White circle with radius 1.8 cm corresponds to the reconstruction cut for the nuclear interaction.