Contribution ID: **532** Type: **Poster**

CMS automated alignment calibration in Run 3

The LHC physics program requires a robust and efficient reconstruction of the trajectories of charged particles, as well as precise measurement of primary and secondary vertices and impact parameters. The radiation damage introduced by high particle fluxes at the interaction region is also to be considered, given its influence on the particle position measurements. In order to exploit the physics potential of the Compact Muon Solenoid (CMS) detector, the calibration challenge consists of providing calibration constants with a fast turnaround addressing the changes in the running conditions, thereby ensuring an efficient online event selection, under control acquisition rates, and good quality first reconstruction of physics objects. To achieve this, several automated workflows have been developed. The update of the detector geometry is performed by one such automated workflow, running on the most recent data and regularly updating the so-called alignment parameters within 48 hours. Therefore, the tracker modules' position and orientation are periodically corrected. This talk reviews the design and operational experience of the automated alignment calibration in place for the alignment of the CMS tracker detector, with an emphasis on the recent developments for the Run 3 data-taking period.

Collaboration / Activity

CMS

Primary author: PRAMOD, Lakshmi (CMS (CMS Fachgruppe HIGGS))

Presenter: PRAMOD, Lakshmi (CMS (CMS Fachgruppe HIGGS))

Session Classification: Poster session

Track Classification: Detector R&D and Data Handling