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## Performance and track-based alignment of the upgraded CMS pixel detector

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The Compact Muon Solenoid (CMS) is a multi-purpose detector constructed in order to study high-energy particle collisions in the Large Hadron Collider (LHC) at CERN. The all-silicon design of the tracking system of the CMS experiment provided excellent resolution for charged tracks and an efficient tagging of jets during Run1 and Run2 of LHC.

As CMS upgraded and installed the pixel detector during the shutdown in the beginning of 2017, the position and orientation of tracker needed to be determined with a precision of several micrometers. The alignment also needs to be quickly recalculated each time the state of the CMS magnet is changed between 0T and 3.8T. We present latest results of the CMS tracker performance in the 2017 run, with a special focus on alignment and resolution performance using several million reconstructed tracks from collisions and cosmic rays data.

### Experimental Collaboration

CMS

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**Session Classification:** Detectors and data handling

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