

## Alignment of CMS silicon pixel detector

*Friday, 16 August 2013 10:55 (25 minutes)*

The silicon tracking system of CMS consists of 16588 modules, designed to precisely measure the trajectories of charged particles resulting from collisions at the LHC. The performance of the CMS tracker is dependent on the positional resolution of the modules with an accuracy on the order of microns, and thus requires that the alignment of the detector components be well measured. This is achieved through a track based alignment using the Millepede II program. In 2012, this included the measurement of alignment constants for large scale structures of the pixel detector on a run by run basis, to correct for large movements associated with magnet rampings and cooling failures.

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**Session Classification:** Accelerators, Detectors, and Computing

**Track Classification:** Accelerators, Detectors, and Computing