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Track reconstruction of real cosmic muon events with CMS tracker detector

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The first application of one of the official CMS tracking algorithm, known as Combinatorial Track Finder, on cosmic muon real data is described.

The CMS tracking system consists of a silicon pixel vertex detector and a surrounding silicon microstrip detector.

The silicon strip tracker consists of 10 barrel layers and 12 endcap disks on each side. The system is currently going through final assembly stage.

As the construction goes on, big parts of the detector are being powered, controlled and readout as a whole.

A cosmic ray trigger has been setup, thus providing the first real events recorded in the CMS tracker.

Reconstruction was performed with the combinatorial track finder algorithm, based on the Kalman filter technique for trajectory building and track fitting.

A dedicated algorithm for cosmic ray track's seeding has been developed, together with useful tools for the tracking performance analysis; the exercise has been very useful for the understanding and the improvement of the tracking algorithm.

We present the results concerning the tracking performances and the possible applications of cosmic ray tracking for the full CMS tracker commissioning and alignment.

Submitted on behalf of Collaboration (ex, BaBar, ATLAS)

CMS Tracker group

Summary

The first application of one of the official CMS tracking algorithm, known as Combinatorial Track Finder, on cosmic muon real data is described.

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