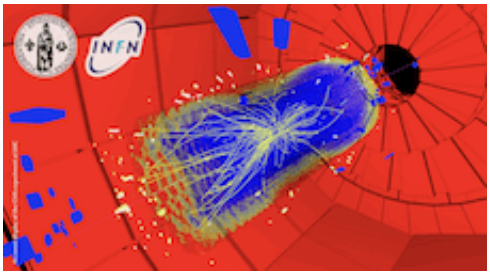

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CMS Tracker alignment and material budget measurement

Wednesday, 6 July 2011 12:20 (20 minutes)

The CMS Silicon Tracker consists of 16'588 modules covering an area of more than 200m2. To achieve an optimal track-parameter resolution, the position and orientation of the modules must be determined with a precision of a few microns and an accurate representation of the distribution of material in the tracker is needed. Results of the alignment of the tracker are presented, based on the analysis of data from cosmic ray muons and proton-proton collisions. The alignment is validated by data-driven studies and compared with predictions from a detailed detector simulation. Reconstructed photon conversions and nuclear interactions are used to evaluate the material in the tracker while reconstruction of decays such as Kshort and J/psi are used to understand the magnetic field and momentum measurements.

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