

Software management for the alignment system of the ATLAS Muon Spectrometer

Monday, 13 February 2006 11:00 (20 minutes)

The muon spectrometer of the ATLAS experiment aims at reconstructing very high energy muon tracks (up to 1 TeV) with a transverse momentum resolution better than 10 %. For this purpose a resolution of 50 micrometer on the sagitta of tracks has to be achieved. Each muon track is measured with three wire chambers stations placed inside an air core toroid magnet (the chambers seat around the interaction point in three layers and 16 sectors). In particular, the contribution to the sagitta due to the limited knowledge of the chamber positions and deformations should not exceed 30 micrometer. Therefore a network of optical survey monitors, called alignment system is being installed.

This network is made up of six different alignment types: i) the IN-PLANE alignment measures chamber internal deformation; the PRAXIAL system is composed of two parts: ii) the PROXIMITY part which gives the position of one chamber with respect to the neighbouring one and iii) the AXIAL part controls the “saloon door” effect of chambers relative position within a layer, iv) the PROJECTIVE system gives the chamber position within a triplet; v) the REFERENCE system is used to link a sector of chambers to the neighbouring sector; vi) the CCC system connects large chambers to small chambers since the lasts are not individually aligned.

In this paper we will describe the software managing the complete system from calibration of individual sensors to implementation of the whole system including some test beam results.

Primary author: Dr GAUTARD, Valerie (CEA-SACLAY)

Presenter: Dr GAUTARD, Valerie (CEA-SACLAY)

Session Classification: Poster

Track Classification: Event processing applications