



Contribution ID: 32

Type: **not specified**

Beam tests of the ATLAS Forward Proton (AFP) Detector

Friday 5 February 2016 11:50 (20 minutes)

The ATLAS Forward Proton (AFP) project intends to measure protons scattered under a small angle from the ATLAS proton-proton interaction point.

To this end, it is planned to install 3D Silicon pixel and Quartz-Cherenkov time-of-flight detectors 210 m away from the interaction point.

Beam tests with a first unified AFP prototype detector combining tracking and timing sub-detectors and a common readout have been performed at the CERN-SPS in November 2014 and September 2015 to complete the system integration and study the detector performance. The successful tracking-timing integration was demonstrated by the spatial correlation of recorded tracking and timing data. Good pixel hit efficiencies above 99% were observed. Spatial resolutions in the short pixel direction of 6 μm per pixel plane and of 3–4 μm for the full 4-plane tracker were found, surpassing the AFP target of 10 μm . The timing detector showed also good hit efficiencies above 99%, and a full-system time resolution of 35 ps was found for a train of two Quartz bars without dedicated optimizations, fulfilling the requirements for the initial low-luminosity AFP runs.

Primary author: Mr LANGE, Joern (IFAE Barcelona)

Presenter: Mr LANGE, Joern (IFAE Barcelona)

Session Classification: Data analysis