WIT2012 Workshop on Intelligent Trackers

Contribution ID : 49

A Level-1 Tracking Trigger for the CMS Upgrade using stacked silicon strip detectors and advanced pattern recognition technologies

Thursday 03 May 2012 at 10:00 (00h30')

Content :

Experience at high luminosity hadrons collider experiments shows that tracking information enhances the trigger rejection capabilities while retaining high efficiency for interesting physics events. The design of a tracking based trigger for the High Luminosity LHC (HL-LHC) is an extremely challenging task, and requires the identification of high-momentum particle tracks as a part of the Level 1 Trigger. Simulation studies show that this can be achieved by correlating hits on two closely spaced silicon strip sensors, and reconstructing tracks at L1 by employing an Associative Memory approach. The progresses on the design and development of this micro-strip stacked prototype modules and the performance of few prototype detectors will be presented. Preliminary results of a simulated tracker layout equipped with stacked modules are discussed in terms of pT resolution and triggering capabilities. Finally, a discussion on the L1 architecture will be given.

Primary authors : BOUDOUL, Gaelle (Universite Claude Bernard-Lyon I (FR))

Co-authors : BROCCOLO, Giuseppe (Sezione di Pisa (IT)) ; CONTARDO, Didier Claude (Universite Claude Bernard-Lyon I (FR)) ; DELL'ORSO, Roberto (Sezione di Pisa (IT)) ; MESSINEO, Alberto (Sezione di Pisa (IT)) ; PALLA, Fabrizio (Sezione di Pisa (IT)) ; VERDINI, Piero Giorgio (Sezione di Pisa (IT)) ; BERNARDINI, Jacopo (Sezione di Pisa (IT)) ; FIORI, Francesco (INFN)

Presenter : BOUDOUL, Gaelle (Universite Claude Bernard-Lyon I (FR)) ; BOUDOUL, Gaelle (Universite Claude Bernard-Lyon I (FR))

Session classification : Application of intelligent detectors / Coupled sensors and monolithic architectures

Track classification : Applications of intelligent detectors

Type : --not specified--