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The Fast TracKer Upgrade to the ATLAS Detector

Friday, 16 August 2013 13:00 (1h 30m)

When the LHC reaches beyond its current design luminosity, the load on the Level-2 trigger system will increase significantly due to both the need for more sophisticated
algorithms to suppress backgrounds and the larger event sizes. The Fast TracKer
(FTK) is a custom electronics system that will operate at the full Level-1
accepted rate of 100 KHz and provide high quality tracks at the beginning of
processing in the Level-2 trigger, by performing track reconstruction in hardware
with massive parallelism of associative memories (AM) and FPGAs.

The latest performance results in important physics for high luminosity LHC running
areas will be presented using data from the ATLAS
Monte Carlo simulation at different LHC luminosities. An overview of the system design and the status
of R&D of individual components will be presented. Related technologies, such as AM chip and Advanced
Telecommunications Computing Architecture (ATCA), will be discussed.

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