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ATLAS upgrades for High Luminosity LHC

Thursday 18 July 2024 08:30 (18 minutes)

The LHC will undergo an upgrade program to deliver an instantaneous luminosity of 7.5×10^{34} cm^{-2} s^{-1} and collect more than 3 ab^{-1} of data at $\sqrt{s}$ =13.6 (14) TeV. To benefit from such a rich data-sample it is fundamental to upgrade the detector to cope with the challenging experimental conditions. The ATLAS upgrade comprises a new all-silicon tracker with extended rapidity coverage; a redesigned TDAQ system for the calorimeters and muon systems allowing the implementation of a free-running readout system. Finally, a new High Granularity Timing Detector will aid the track-vertex association in the forward region by incorporating timing information into the reconstructed tracks. An important ingredient is a precise determination of the delivered luminosity with systematic uncertainties below the percent level. This presentation will describe the ongoing ATLAS detector upgrade status and the main results obtained with the prototypes.

Alternate track

I read the instructions above

Yes

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Session Classification: Operation, Performance and Upgrade (incl. HL-LHC) of Present Detectors

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