

# ATLAS detector Upgrade Prospects

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After the successful operation at the center-of-mass energies of 7 and 8 TeV in 2010 - 2012, the LHC is ramped up and successfully took data at the center-of-mass energies of 13 TeV in 2015. Meanwhile, plans are actively advancing for a series of upgrades of the accelerator, culminating roughly ten years from now in the high-luminosity LHC (HL-LHC) project, delivering of the order of five times the LHC nominal instantaneous luminosity along with luminosity leveling. The ultimate goal is to extend the dataset from about few hundred fb<sup>-1</sup> expected for LHC running to 3000 fb<sup>-1</sup> by around 2035 for ATLAS and CMS.

The challenge of coping with the HL-LHC instantaneous and integrated luminosity, along with the associated radiation levels, requires further major changes to the ATLAS detector. The designs are developing rapidly for a new all-silicon tracker, significant upgrades of the calorimeter and muon systems, as well as improved triggers and data acquisition. ATLAS is also examining potential benefits of extensions to larger pseudorapidity, particularly in tracking and muon systems. This report summarizes various improvements to the ATLAS detector required to cope with the anticipated evolution of the LHC luminosity during this decade and the next. A brief overview is also given on physics prospects with a pp centre-of-mass energy of 14 TeV.

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