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Prospects for Higgs and precision SM physics with the ATLAS detector at the HL-LHC

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The Large Hadron Collider (LHC) has been successfully delivering proton-proton collision data at the unprecedented center of mass energy of 13 TeV. An upgrade is planned to increase the instantaneous luminosity delivered by LHC in what is called HL-LHC, aiming to deliver a total of about 3000/fb of data to the ATLAS detector at a center of mass energy of 14 TeV. To cope with the expected data-taking conditions ATLAS is planning major upgrades of the detector.

In this contribution we present an overview of the precision physics measurement of the Standard Model, with particular focus on the electro-weak and Higgs sectors. Prospects for precision determination of Standard Model fundamental parameters, as the weak mixing angle, the Higgs couplings, di-Higgs observation, vector boson scattering processes, as well as measurement for rare Higgs decays are presented.

Such studies formed the basis of the ATLAS Collaboration input to the recent HL/HE-LHC Yellow-Report. An executive summary of this report was then submitted as input to the European Strategy process.

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