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Higgs Physics at the LHeC and the FCC-eh

Friday, July 7, 2017 3:45 PM (15 minutes)

The Large Hadron-electron Collider LHeC and the Future Circular Collider in electron-hadron mode FCC-eh will provide electron-proton collisions with center-of-mass energies in the range 1.3-3.5 TeV and instantaneous luminosities larger than 10^{34} cm^{-2}s^{-1}. With integrated luminosities of about 1 ab^{-1}, they provide large samples of Standard Model Higgs bosons in both neutral and charged current reactions. In this talk, we present new results of both cut- and BDT-based extractions of the couplings to $b\bar{b}$ and $c\bar{c}$ based on a Delphes simulation of the detector. We will show how precisions 0.5 and 4 % respectively are possible at the LHeC, and present the corresponding projections for the FCC-eh. The status of the complete Higgs SM ep simulation program will be described, including also $\tau\tau$ and WW decays. We also comment on the impact of the reduced uncertainties in proton parton densities and α_s that can be achieved through ep for Higgs physics at the HL-LHC (pp).

Experimental Collaboration

LHeC Study Group

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