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Top and EW studies at the LHeC and FCC-he

Thursday 30 March 2023 11:10 (20 minutes)

The Large Hadron-electron Collider and the Future Circular Collider in electron-hadron mode [1] will make possible the study of DIS in the TeV regime providing electron-proton collisions with per nucleon instantaneous luminosities around 10^{34} cm^{-2}s^{-1}. In this talk we will review the opportunities for measuring standard and anomalous top couplings, both to lighter quarks and to gauge bosons through $t\bar{t}$ production. We will discuss the studies in inclusive DIS of different EW parameters like the effective mixing angle and the gauge boson masses, and weak neutral and charged current couplings of the gauge bosons. We will also review the possibilities in direct W and Z production, and analyse the implications of a precise determination of parton densities at the LHeC or FCC-he on EW measurements at hadronic colliders.

[1] LHeC Collaboration and FCC-he Study Group: P. Agostini et al., J. Phys. G 48 (2021) 11, 110501, e-Print: 2007.14491 [hep-ex].

Submitted on behalf of a Collaboration?

Yes

Participate in poster competition?

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