

ep/eA collisions at the HL-LHC: synergies and complementarities between the LHeC and the LHC

Friday 15 December 2023 17:30 (30 minutes)

The LHeC is the proposal of an energy recovery linac built at CERN to provide 30-50 GeV electrons to collide with the HL-LHC beams beyond LS5. It would study DIS in the TeV regime, with instantaneous luminosities around 10^{34} (10^{33}) in electron-proton (electron-nucleus) mode. The corresponding detector could be designed solely for the ep/eA modes or being able to study also pp/pA/AA collisions. In this talk, after introducing the new structure and activities triggered by the renewal of the CERN mandate in November 2022, we present the studies on the synergies and complementarities that an ep/eA machine at the TeV scale offers with the studies at the HL-LHC, on precision QCD and small-x physics in ep and eA, EW, Higgs, top and BSM physics.

References:

- LHeC Collaboration and FCC-he Study Group: P. Agostini et al., J. Phys. G 48 (2021) 11, 110501, e-Print: 2007.14491 [hep-ex].
- K. D. J. André et al., Eur. Phys. J. C 82 (2022) 1, 40, e-Print: 2201.02436 [hep-ex].

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