

# Proton and nuclear structure from EIC and HERA to LHeC and FCC-eh

Thursday 18 July 2024 17:00 (15 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 (nucleus) collisions with per nucleon instantaneous luminosities around  $10^{34}$  ( $10^{33}$ )  $\text{cm}^{-2}\text{s}^{-1}$ . Following the renewal of the CERN mandate, in this talk we present the status of the studies on proton and nuclear structure at the LHeC and FCC-eh, in light of the findings at HERA and LHC and the perspectives in future LHC runs and those at the EIC. We examine the possibilities and plans for future activities on proton and nuclear PDFs in the collinear limit and beyond, high-energy QCD and unravelling the saturation regime in QCD, diffraction and extraction of alphas, considering the synergies and complementarities with the LHC and the EIC.

[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].

## Alternate track

1. Heavy Ions

## I read the instructions above

Yes

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