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Searches for new physics at the LHeC and FCC-eh

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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 of $10^{34} \text{ cm}^{-2} \text{ s}^{-1}$. We review the possibilities for detection of physics beyond the SM in these experiments, focusing on feebly interacting particles like heavy neutrinos or dark photons, on anomalous gauge couplings, and on theories with heavy resonances like leptoquarks, or with contact interactions. We will emphasise the complementarity of searches at the LHeC (FCC-eh), and the respective hadronic colliders, the HL-LHC and the FCC-hh, and e^+e^- Higgs factories.

[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].

Collaboration / Activity

LHeC/FCC-he Study Group

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