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BSM Physics at the LHeC and the FCC-eh

Tuesday, 13 April 2021 11:09 (18 minutes)

The LHeC and the FCC-eh offer fascinating, unique possibilities for discovering BSM physics in DIS, both due to their large centre-of-mass energies and high luminosities. In this talk we will review most recent studies as presented in the 2020 LHeC Conceptual Design Report update [1]. We will show the prospects for observing extensions of the Higgs sectors both with charged and neutral scalars, anomalous Higgs couplings and exotic decays. Then we will discuss searches for R-parity conserving and violating supersymmetry both with prompt and long-lived particles, and of feeble interacting particles like sterile neutrinos, fermion triplets, dark photons and axion-like particles. Finally we will address anomalous couplings and searches for heavy resonances like leptoquarks and vector-like quarks, excited fermions and colour-octet leptons.

[1] LHeC Collaboration and FCC-he Study Group, P. Agostini et al., e-Print: 2007.14491 [hep-ex].

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