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BSM physics in energy-frontier DIS with the LHeC and the FCC-eh

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Energy-frontier DIS can be realised at CERN through an energy recovery linac that would produce 60 GeV electrons to collide with the HL-LHC or later HE-LHC (LHeC) or eventually the FCC hadron beams (FCC-eh). It would deliver electron-proton collisions with centre-of-mass energies in the range 1.2-3.5 TeV, and luminosities exceeding 10^{34} cm^{-2}s^{-1}. In this talk we present new studies on the possibilities that the LHeC and FCC-eh offer for BSM physics. Among other aspects, we will discuss anomalous top couplings, searches for heavy and sterile neutrinos, contact interactions, FCNC and EWK SUSY particles. We will also demonstrate how the precision PDF and QCD information from ep will empower the search potential of the associated pp facilities, LHC and FCC-hh.

Authors: ARMESTO PEREZ, Nestor (Universidade de Santiago de Compostela (ES)); BRITZGER, Daniel (Ruprecht Karls Universitaet Heidelberg (DE))

Presenter: BRITZGER, Daniel (Ruprecht Karls Universitaet Heidelberg (DE))

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