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The Large Hadron-electron Collider at CERN

Friday 22 September 2017 12:00 (30 minutes)

In this talk I will review the existing proposal of energy-frontier deep-inelastic scattering at CERN, the Large Hadron-electron Collider LHeC. I will present the proposal, consisting in colliding 60 GeV electrons from an energy recovery linac with the LHC beams or, in the further future, with the HE-LHC or FCC proton and nuclear beams. Then I will discuss the physics case, focusing on the possibilities for QCD: parton densities in proton and nuclei, imaging of hadrons and nuclei through diffraction, investigations of the non-linear saturation regime, and studies of nuclear modifications of parton branching and hadronisation. I will emphasise those aspects of these studies of relevance for the understanding of the initial stages of high-energy heavy-ion collisions.

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