

Unraveling non-linear parton dynamics at small x through high energy ep and eA scattering

Thursday 5 May 2022 09:40 (20 minutes)

The LHeC and the FCC-he will measure DIS cross sections in an unprecedented range of small x where the non-linear dynamics expected in the high energy regime of QCD should be relevant in a region of small coupling. In this talk we will demonstrate the unique capability of these high-energy colliders for unravelling dynamics beyond fixed-order perturbation theory, proving the non-linear regime of QCD, saturation, to exist (or to disprove). This is enabled through the simultaneous measurements, of similar high precision and range, of ep and eA collisions which will eventually disentangle nonlinear parton-parton interactions from nuclear environment effects.

Reference: P. Agostini et al. (LHeC Study Group), The Large Hadron-Electron Collider at the HL-LHC, J. Phys. G 48 (2021) 11, 110501, e-Print: 2007.14491 [hep-ex].

Submitted on behalf of a Collaboration?

Yes

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Session Classification: WG6: Future Experiments

Track Classification: WG6: Future Experiments