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Partons, QCD and Low x Physics at the Large Hadron electron Collider (LHeC Study Group)

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The Large Hadron electron Collider (LHeC) is a proposed facility which will exploit the new world of energy and intensity offered by the LHC through collisions with a new 60 GeV electron beam. This contribution summarises the detailed simulation studies on QCD-related topics included in the recently released Conceptual Design Report. Highlights include a new level of precision and flavour decomposition for the extraction of parton densities and a much extended kinematic range towards low Bjorken- x in which novel saturation effects are expected.

In addition to inclusive neutral and charged current cross sections, more exclusive processes such as jet and heavy flavour production are included, as well as diffractive observables.

Author: Prof. GLASMAN KUGUEL, Claudia Beatriz (Universidad Autonoma de Madrid (ES))

Presenter: Prof. GLASMAN KUGUEL, Claudia Beatriz (Universidad Autonoma de Madrid (ES))

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