Autumn Institute: Precision physics to achieve the LHC accuracy goals

Contribution ID: 2

Type: not specified

Small-x resummation in PDF fits

Tuesday, 17 October 2017 16:00 (1 hour)

I present a new determination of parton distribution functions (PDFs) which includes the resummation of large logarithms at small momentum fraction x, relevant at high energies. The description of the HERA data at small x, small Q improves considerably. The new PDFs, obtained from a global fit, exhibit smaller uncertainty at small x, and differ significantly to their fixed-order counterparts in this region. These results demonstrate how the exploration of novel dynamical regimes of QCD, in this case the BFKL regime, represents a fundamental ingredient of the physics program of future high-luminosity and high-energy colliders.

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