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High-precision PDFs and DIS experiments for electroweak observables

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In preparation for the era of the High-Luminosity LHC, it will be crucial to enhance the precision of theoretical predictions for BSM-sensitive observables in the electroweak and Higgs sectors. In many cases, such as the extraction of the W -boson mass, contemporary PDF uncertainties are a dominant limitation in the quest to achieve the necessary precision. In this talk, I will review this problem and deploy several novel analysis techniques to parse PDF uncertainties relevant for electroweak precision observables at the LHC. I will also highlight the important role to be played by next-generation measurements from DIS colliders like the Electron-Ion Collider (EIC).

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