



MEETING OF THE AMERICAN PHYSICAL SOCIETY DIVISION OF PARTICLES AND FIELDS

Contribution ID: 444

Type: **Presentation**

## **Towards a high precision calculation for the longitudinal spin asymmetry in deep inelastic scattering**

The precision of perturbative QCD calculations has been reached an impressive level to test the standard model in modern hadron colliders. However, high precision computations (such as NNLO) for polarized collisions are still very limited to determine accurately the fundamental spin structure of the proton. In this talk, we present the first NNLO calculation for single-inclusive jet production in polarized lepton-proton collisions. In particular, we show the application of N-jettiness subtraction scheme in performing higher-order computations for polarized scattering processes. This method allows for a completely differential description of the cross section to match the desired experimental measurements. We further show our predictions for double longitudinal spin asymmetry up to NNLO, and demonstrate that our calculation is of particular interest to the physics program of a future Electron Ion Collider.

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**Track Classification:** QCD