Contribution ID: **61**   Type: **not specified**

Measuring Proton Structure Functions with xFitter

The structure of the proton is governed by quantum chromodynamics (QCD), a non-Abelian gauge theory that exhibits striking variations across different momentum scales. Understanding this structure requires precise measurements and theoretical modeling. In this project, a summer student will use xFitter, a tool for performing QCD fits to experimental data, to analyze the proton's parton distribution functions (PDFs). The study will focus on recently introduced theoretical models and their impact on PDF extraction. Fits will be performed using deep inelastic scattering (DIS) data from HERA electron-proton collider, with a particular emphasis on their implications for precision measurements at the Large Hadron Collider (LHC) and studies of ultra-high-energy cosmic neutrino interactions.

Group

FH-Belle II

Project Category

B1. Physics data analysis and performance (software-oriented)

Special Qualifications

Basic programming and familiarity with statistical analysis techniques

DESY Site

Hamburg

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