Contribution ID: **321**   Type: **not specified**

Accessing the strange PDF using parity violating electron scattering

The strange-quark parton distribution function (PDF) is difficult to extract from global fits since there is little available data with good sensitivity to the strange quarks, particularly at large x. Knowledge of the strange quark PDF is an important part of a wholistic understanding of the nucleon. Assumptions about the shape of the distribution are made based on the up and down quark sea, while the momentum sum rule is often the strongest constraint. The extracted uncertainties, while relatively small, are only valid under strong assumptions.

The parity-violating asymmetry in electron deep inelastic scattering (DIS) is sensitive to the weak charge of quarks. The relative size of the quark weak charges is different from their electric charges allowing a separation of the strange quarks in a very clean way. The talk will focus on the possibility of doing a parity-violation experiment, for 0.1 < x < 0.4, using standard equipment in Hall C at Jefferson Lab. This data will test assumptions made in PDF fits and improve the knowledge of the strange contribution. The potential numerical impact of such an experiment on the strange quark PDFs will be demonstrated using a global fit.

Primary author: DALTON, Mark (JLab)

Presenter: DALTON, Mark (JLab)

Session Classification: WG1 Structure Functions and Parton Densities

Track Classification: WG1) Structure Functions and Parton Densities