Contribution ID: **1451** Type: **Parallel session talk**

Up and Down Quark Structure of the Proton

Thursday 18 July 2024 18:00 (15 minutes)

We measure proton structure parameters sensitive primarily to valence quarks using $8.6\ \mathrm{fb}^{-1}$ of data collected by the D0 detector in $\sqrt{s} = 1.96\ \mathrm{TeV}$ $\mathrm{p\bar{p}}$ collisions at the Fermilab Tevatron. We exploit the property of the forward-backward asymmetry in dilepton events to be factorized into distinct structure parameters and electroweak quark-level asymmetries. Contributions to the asymmetry from s, c and b quarks, as well as from u and d sea quarks, are suppressed allowing valence u and d quarks to be separately determined. We find a u to d quark ratio near the peak values in the quark density distributions that is smaller than predictions from modern parton distribution functions.

Alternate track

I read the instructions above

Yes

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Session Classification: Strong interactions and Hadron Physics

Track Classification: 06. Strong Interactions and Hadron Physics