

Abstract Submitted
for the APR21 Meeting of
The American Physical Society

Calculations of Parton Distribution Functions with An Extension of the Standard Model RICHARD HOLMES, Nutronics — Calculations are performed for Parton Distribution Functions (PDFs) with an extension of the Standard Model that invokes permutational symmetry of the mass matrices. The resulting PDFs for valence quarks in baryons have a peak at a value of $x \sim 0.2$, in improved agreement with measured data over the conventional model which peaks at $1/3$. Physically, this lower value is obtained because of the implied presence of trace probabilities of the higher-mass quark flavors in the extended theory, effectively creating 5 rather than 3 constituent quarks.

Richard Holmes
Boeing

Date submitted: 07 Jan 2021

Electronic form version 1.4