New formulation of target mass corrections in deep-inelastic lepton-nucleon scattering MATTHEW D. BROWN, Arizona State University, WALLY MELNITCHOUK, Jefferson Lab, FERNANDA STEFFENS, Cidade Universitaria São Paulo — The description of deep-inelastic lepton-nucleon scattering at finite values of Q^2 requires subleading corrections such as those arising from target mass corrections (TMCs) to be accounted for, particularly at large values of the parton momentum fraction x. The standard method of incorporating TMCs via Nachtmann moments of structure functions, constructed from local operators within the operator product expansion, is known to have practical difficulties reproducing the corresponding Cornwall-Norton moments of the structure functions without TMCs. We consider several potential resolutions of this paradox, and discuss consequences for the interpretation of parton distributions at finite values of Q^2.

Matthew D. Brown
Arizona State University