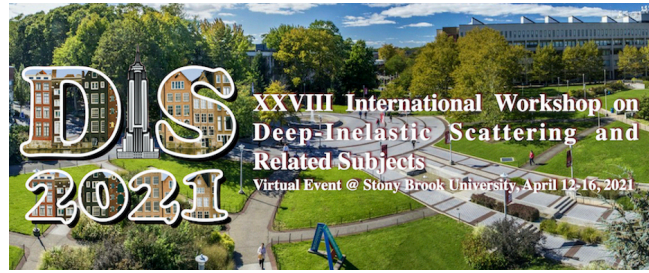


XXVIII International Workshop on Deep-Inelastic Scattering and Related Subjects



Contribution ID: 596

Type: **Contributed Talk**

Confronting lattice parton distributions with global QCD analysis

Thursday, 15 April 2021 14:03 (18 minutes)

We present the first Monte Carlo based global QCD analysis of spin-averaged and spin-dependent parton distribution functions (PDFs) that includes nucleon isovector matrix elements in coordinate space from lattice QCD. We investigate the degree of universality of the extracted PDFs when the lattice and experimental data are treated under the same conditions within the Bayesian likelihood analysis. For the unpolarized sector, we find rather weak constraints from the current lattice data on the phenomenological PDFs, and difficulties in describing the lattice matrix elements at large spatial distances. In contrast, for the polarized PDFs we find good agreement between experiment and lattice data, with the latter providing significant constraints on the spin-dependent isovector quark and antiquark distributions.

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Session Classification: Spin Physics

Track Classification: Spin Physics