Nucleon isovector momentum fraction, helicity and transversity moment using Lattice QCD

Monday 26 July 2021 14:30 (15 minutes)

In this talk, I will discuss our recent calculations (Phys. Rev. D102 (2020) no.5, 054512, JHEP 2104 (2021) 044) of the first x-moment of nucleon isovector polarized, unpolarized and transversity distributions (momentum fraction, helicity and transversity moment respectively). We use the standard method for the calculation of these moments (via matrix elements of twist two operators), we carry out a detailed analysis of the sources of systematic uncertainty, in particular of excited state contributions. Our calculations have been performed using two different lattice setups (Clover on HISQ and Clover on Clover), each with several ensembles, which give consistent results that are in agreement with global fit analyses.

Primary authors: MONDAL, Santanu; BHATTACHARYA, Tanmoy (T-2); GUPTA, Rajan (Los Alamos National Lab); JOO, Balint (Oak Ridge National Laboratory); LIN, Huey-Wen; PARK, Sungwoo (Los Alamos National Laboratory); WINTER, Frank (Jefferson Lab); Dr YOON, Boram (Los Alamos National Laboratory)

Presenter: MONDAL, Santanu

Session Classification: Hadron Structure

Track Classification: Hadron Structure