

XXVIII International Workshop on Deep Inelastic Scattering and Related Subjects



Contribution ID: 41

Type: **Contributed Talk**

Lattice QCD determination of valence PDF of pion

Tuesday, 24 March 2020 12:00 (15 minutes)

We present our high-statistics lattice QCD determination of the valence PDF of 300 MeV pion using the quasi- and pseudo-PDF (reduced Ioffe-time distribution) formalisms. For the first time in such lattice computations of PDF, we employ two different fine lattice spacings of 0.04 and 0.06 fm, which thereby enables us to use pion boosted to large spatial momenta up to 1.92 GeV that is essential for the perturbative matching framework. Through a model independent analysis of the non-singlet reduced Ioffe time distribution, we extract the second moment $\langle x^2 \rangle$ and the fourth moment $\langle x^4 \rangle$ in $\overline{\text{MS}}$ scheme. Through a model dependent analysis, we extract the pion valence PDF that best describes our lattice data, enabling us to study the behavior of the valence PDF at large- x .

Primary authors: Mr GAO, Xiang (BNL); Dr IZUBUCHI, Taku (RIKEN-BNL and BNL); Dr MUKHERJEE, Swagato (BNL); Dr PETRECKZY, Peter (BNL); Mr SHUGERT, Charles (Stony Brook University and BNL); Dr SYRITSYN, Sergey (Stony Brook University and RIKEN-BNL); KARTHIK, Nikhil (BNL)

Presenter: KARTHIK, Nikhil (BNL)

Session Classification: Structure function and parton densities

Track Classification: Structure Functions and Parton Densities