

# XXVIII International Workshop on Deep Inelastic Scattering and Related Subjects



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## Nucleon valence quark distributions from Lattice QCD using distillation

*Tuesday, 24 March 2020 11:15 (15 minutes)*

We present results on the nucleon valence quark distribution extracted from Lattice QCD simulations, using a gauge ensemble of  $N_f = 2 + 1$  Wilson-Clover fermions with a pion mass of  $m_\pi = 350$  MeV and lattice spacing of about  $a = 0.093$  fm. We obtain reduced Ioffe Time Distributions (rITDs) by computing appropriate matrix elements on the lattice, and elaborate on the extraction of the desired quark distributions from the rITDs following the pseudo-PDF approach. In our evaluation, the so-called “distillation” smearing method is employed, which allows for improved statistical precision over other methods, among other benefits. A number of techniques in order to ensure ground state dominance are further considered. Theoretical and experimental implications of our calculation are discussed.

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