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PDF of Deuteron-like Di-baryon system on Lattice QCD

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We report a lattice QCD calculation of the parton distribution function (PDF) of a deuteron-like dibaryon system using large-momentum effective theory. The calculation is done on three Wilson Clover ensembles with a fixed lattice spacing $a=0.105$ fm and two pion masses. The lattice matrix elements are computed at proton momenta up to 2.46 GeV with the signal of high momentum modes being improved by applying the momentum smearing technique. The state-of-the-art renormalization, matching and extrapolation are then applied to obtain the final result of the light-cone PDF. A comparison between the result of the dibaryon system and the sum of the proton and neutron PDFs is also given.

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