

Abstract Submitted
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Gluon distribution functions in the nucleon from lattice QCD¹

RAZA SUFIAN, William Mary, HADSTRUCT COLLABORATION COLLABORATION — We report on our calculation of the unpolarized and polarized gluon parton distribution functions (PDFs) in the nucleon using short-distance QCD factorization of lattice QCD matrix elements. The computation is performed on a $32^3 \times 64$ isotropic lattice with a pion mass of 360 MeV and lattice spacing, $a = 0.094$ fm using 2+1 flavor of Clover-Wilson fermion. In order to reduce the statistical fluctuations, the gluonic operators are smeared using gradient flow and the renormalized matrix elements are extracted by taking the small flow-time limit. Finally the lattice QCD matrix elements are factorized to the \overline{MS} scheme PDFs in the light-cone $z^2 \rightarrow 0$ limit, using next-to-leading order perturbative matching formula.

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