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Nucleon structure from lattice QCD with domain wall fermions quarks SHIGEMI OHTA, IPNS/KEK and RBRC/BNL, RBC COLLABORATION
— We review RBC lattice numerical calculations of nucleon structure with domain wall fermions (DWF) quarks. DWFs allow arbitrarily accurate and continuum-like chiral and flavor symmetries at finite lattice spacing. This allows fully non-perturbative renormalization of relevant currents. Helped also by rectangular improved DBW2 gauge action that facilitates the use of DWF at relatively coarser lattice spacings, the RBC Collaboration have successfully reproduced such quantities as the ratio of isovector vector and axial charges, (g_A/g_V) , and the ratio of the first moments of structure functions $(\langle x \rangle_{u-d}/\langle x \rangle_{\Delta u-\Delta d})$. First moments of some other structure functions are calculated as well. And 2-flavor dynamical domain wall results exist for many of these quantities, though some of them are yet to be renormalized.

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