

Abstract Submitted
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Nucleon properties from chirally symmetric lattice QCD YASUMICHI AOKI, RIKEN BNL Research Center, RBC-UKQCD COLLABORATION — We report on the calculations for properties of nucleon using domain-wall fermions on the lattice. The calculation takes into account the effect of u , d and s sea quarks. The use of domain-wall fermion makes it possible to have chiral symmetry of the lattice action under control. Hence the influence of the spontaneous chiral symmetry breaking onto low energy quantity is correctly incorporated even at a finite lattice spacing. The form factors of the isovector vector and axial vector current, as well as some lowest moment structure functions are calculated. Finite volume effect on these quantities are examined. Direct calculation of the matrix elements of baryon number violating nucleon decay is performed, which provides a reliable estimate of the proton lifetime.

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