

Strange Quark Magnetic Moment of the Nucleon at Physical Point

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We present a lattice QCD calculation of the strange quark contribution to the proton's magnetic moment and the charge radius at the physical pion mass. We perform a model-independent extraction of the strange magnetic moment and strange charge radius from the electromagnetic form factors in the momentum transfer range of $0.051 \text{ GeV}^2 \lesssim Q^2 \lesssim 1.31 \text{ GeV}^2$. The finite lattice spacing and finite volume corrections are included in a global fitting on three lattices with different lattice spacings, different volumes, and three sea quark masses. We obtain the strange magnetic moment $G_M^s(0) = -0.073(17) \mu_N$ and strange charge radius $\langle r_s^2 \rangle_E = -0.0047(22) \text{ fm}^2$. Additionally, we present our results of the disconnected u, d -quarks contribution to the proton's electromagnetic form factors.