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Constraining beyond the Standard Model nucleon isovector charges

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At the TeV scale, low-energy precision observations of neutron characteristics provide unique probes of novel physics. Precision studies of neutron decay observables are susceptible to beyond the Standard Model (BSM) tensor and scalar interactions, while the neutron electric dipole moment, d_n, also has high sensitivity to new BSM CP-violating interactions. To fully utilise the potential of future experimental neutron physics programs, matrix elements of appropriate low-energy effective operators within neutron states must be precisely calculated. We present results from the QCDSF/UKQCD/CSSM collaboration for the isovector charges g_T , g_A and g_S of the nucleon, Σ and Ξ baryons using lattice QCD methods and the Feynman-Hellmann theorem.

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