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EFT calculations of P- and T-violating forces in light nuclei

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A nonzero electric dipole moment (EDM) of the neutron, proton, deuteron or helion, in fact, of any finite system necessarily involves the breaking of a symmetry, either by the presence of external fields (i.e., electric fields leading to the case of induced EDMs) or explicitly by the breaking of the discrete parity and time-reflection symmetries in the case of permanent EDMs. Recent results for the relevant matrix elements of nuclear EDM operators based on calculations in chiral effective field theory (chiralEFT) are presented. Furthermore, strategies are discussed for disentangling the underlying sources of CP breaking beyond what is generated by the Kobayashi-Maskawa quark-mixing mechanism in the Standard Model.

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