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Nucleon magnetic moments and electric polarizabilities

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Electromagnetic properties of the nucleon are explored with lattice QCD using a novel technique. Focusing on background electric fields, we show how the electric polarizability can be extracted from nucleon correlation functions. A crucial step concerns addressing contributions from the magnetic moment, which affects the relativistic propagation of nucleons in electric fields. By properly handling these contributions, we can determine both magnetic moments and electric polarizabilities. Lattice results from anisotropic clover lattices are presented. Our method is not limited to the neutron, and we show results for the proton as well.

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talk

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