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Charged Pion Electric Polarizability from Lattice QCD

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Electric and magnetic polarizabilities are two of the fundamental properties of hadrons which help us understand the distribution of charge and currents inside hadrons and how they respond to external electromagnetic fields. For nucleons, these values are determined experimentally from Compton scattering. For charged pions, the experiments are more challenging since no free pion target is available and the results are less precise, but a number of experiments are planned that will improve the accuracy. Lattice QCD can be used to compute hadron properties as determined by quark and gluon dynamics, providing results that are complementary to other theoretical approaches. In this talk I will review the lattice QCD methods used to compute hadron polarizabilities, focusing on electric polarizability of charged pion, and present our results.

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