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Electric Polarizability of Charged Pions from nHYP Four-Point Functions

Wednesday 5 November 2025 09:00 (20 minutes)

Understanding a hadron's electric and magnetic polarizabilities allows one to access internal structural information. Traditionally, the external field two-point function method has been used to calculate polarizabilities. However, recent work has demonstrated the effectiveness of using four-point functions for computing polarizabilities of charged and neutral hadrons. Our previous study on the electric polarizability of the charged pion used a quenched Wilson action on a lattice with pion mass from 1100 MeV to 370 MeV. In this work, we employ a number of improvements, including a dynamical action (nHYP), smaller pion masses, and a variable lattice size in order to extrapolate to infinite volume. I will describe the analysis procedure, some early results, and expectations for future work.

Parallel Session (for talks only)

Structure of hadrons and nuclei

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