

Towards the P-wave nucleon-pion scattering amplitude in the Δ (1232) channel: interpolating fields and spectra

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The study of strong scattering in Lattice QCD is enabled by the use of the Luescher method, which defines a mapping between the two body spectrum in the finite volume and the infinite volume scattering amplitude. It however requires full and precise knowledge of the spectrum in a given moving frame and irreducible representation. In this project we investigate the Δ (1232) resonance in the pion-nucleon system. The focus of the talk is on the group theoretical construction of single and multi hadron interpolating fields in various moving frames and irreducible representations. We construct a varied basis of interpolating fields in all of the relevant irreducible representations and determine the relevant energy levels.

Primary authors: Mr SILVI, Giorgio (Forschungszentrum Jülich - University of Wuppertal); Mr PAUL, SRIJIT (The Cyprus Institute)

Co-authors: POCHINSKY, Andrew (MIT); Prof. ALEXANDROU, Constantia (The Cyprus Institute); Prof. NEGELE, John Negele (MIT); LESKOVEC, Luka; Dr PETSCHLIES, Marcus (University Bonn); Prof. SYRITSYN, Sergey (Stony Brook University (SUNY)); MEINEL, Stefan (University of Arizona)

Presenter: Mr SILVI, Giorgio (Forschungszentrum Jülich - University of Wuppertal)

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