

# Towards the P-wave nucleon-pion scattering amplitude in the $\Delta$ (1232) channel: interpolating fields and spectra

*Friday, 27 July 2018 16:30 (20 minutes)*

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  $\Delta$  (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)

**Session Classification:** Hadron Spectroscopy and Interactions

**Track Classification:** Hadron Spectroscopy and Interactions