

Contribution ID: 196

Type: Talk

Scattering Amplitudes from Euclidean Correlators

Thursday, 1 August 2024 11:30 (20 minutes)

Hadronic scattering amplitudes can be approximated as linear combinations of spatially-smeared Euclidean correlators, sampled at discrete non-coinciding times. The resulting approximation formula holds in infinite-volume continuum QCD, however the approximant has an obvious representation in the discrete finite-volume theory. This observation can be used to design a numerical strategy to obtain scattering amplitudes from Lattice QCD calculations, which is complementary to Lüscher's method in finite volume. Unlike Lüscher's method, the proposed strategy works exactly the same independently of the energy of the process and the number of open channels. In this talk, I will present the approximation formula and discuss how it can be used in practical calculations. I will not dwell on its mathematical proof, which is based on the Haag-Ruelle scattering theory.

Primary authors: Prof. PATELLA, Agostino (Humboldt-Universität zu Berlin); TANTALO, Nazario (Rome University Tor Vergata and INFN sez. of Rome Tor Vergata)

Presenter: Prof. PATELLA, Agostino (Humboldt-Universität zu Berlin)

Session Classification: Theoretical developments

Track Classification: Theoretical Developments