

Spectral analysis of the gauge invariant quark propagator

vendredi 22 septembre 2023 11:30 (30 minutes)

We explore the Dirac decomposition of the gauge invariant quark propagator, shedding light on the hadronization of a quark as this interacts with the vacuum. Using the spectral representation of the quark propagator, we link the coefficients of the Dirac decomposition of the gauge invariant quark propagator to sum rules governing the chiral-odd and chiral-even quark spectral functions.

In particular, in light-like axial gauges, we obtain a novel sum rule for the quark spectral function associated to the gauge-fixing vector. Based on the gauge invariance of the gauge invariant quark propagator, we demonstrate the formal gauge invariance of the so called jet mass, a color-screened gauge-invariant dressed quark mass) that can be expressed in any gauge as the first moment of the chiral-odd quark spectral function. Lastly, we also present a gauge-dependent formula that connects the second moment of the chiral-even quark spectral function to invariant mass generation and final state rescattering in the hadronization of a quark.

Auteur principal: Dr SILVA ROCHA COSTA, Caroline (JLAB)

Orateur: Dr SILVA ROCHA COSTA, Caroline (JLAB)

Classification de Session: Plenary