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Investigating the Mass spectra of Fully strange tetraquark

This work investigates the mass spectra of fully strange tetraquarks ($ss\bar{s}\bar{s}$) using Regge Phenomenology, modeling these tetraquarks as diquark-antidiquark pairs. We employ a quasi-linear Regge trajectory ansatz in the $(J, \sqrt{s})$ plane, where J represents the total angular momentum, and $\sqrt{s}$ denotes the mass. By focusing exclusively on strange quarks, we derive relations for the intercepts and slope ratios of Regge trajectories, aiding in the prediction of ground and excited states masses. This approach aims to illuminate the behavior of fully strange tetraquark states in terms of angular momentum and mass, offering new insights into the structure and dynamics of exotic hadrons within the strange sector. Our findings contribute to the broader understanding of multi-quark states and present a framework for interpreting possible resonance states observed in experimental data.

Field of contribution

Phenomenology

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