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Quark confinement in multiquark systems

Wednesday, 25 September 2024 09:00 (25 minutes)

In this talk, we will introduce a new color basis system and confinement mechanism for multi-quark systems within QCD's string-like framework. This approach extends the color Hilbert space for $QQ\bar{Q}\bar{Q}$ states to include a "hidden color" state that mixes with two-meson states, leading to an attractive potential sufficient for bound state formation. Using a realistic Hamiltonian model, we calculate the mass spectrum of tetraquarks via the complex scaling method, incorporating full coupling to two-meson thresholds. The results will be compared with those from the traditional color-dependent linear confinement potential to explore the impact on tetraquark spectra.

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