

Light Tetraquarks Mass Estimates Using QCD Sum Rules

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Multiquark states have been of great interest among hadronic physicists, and despite the big breakthrough that came in 2003 with the discovery of the charmonium-like tetraquark candidate $X(3872)$, their internal quark structure (e.g., molecular versus diquark clusters) is not well-understood yet. QCD sum-rule mass estimates for multiquark states can provide insights on possible internal quark structures. Previous research suggests that the next-to-leading order (NLO) corrections to QCD sum-rule mass determinations are quite different in heavy and light multiquark states. The study of these multiquark systems can give us another approach to understanding strong interactions at the elementary level and at different energy scales. The goal of this research is a detailed examination of the NLO corrections to mass estimates of the light scalar tetraquarks using QCD sum-rules.

email address

bac302@usask.ca

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Theory

Primary author(s) : Mrs CID MORA, Barbara (University of Saskatchewan)

Co-author(s) : Dr STEELE, Tom (University of Saskatchewan)

Presenter(s) : Mrs CID MORA, Barbara (University of Saskatchewan)