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Excited Scalar and Pseudoscalar Mesons in the Extended Linear Sigma Model

Tuesday 9 May 2017 18:30 (30 minutes)

Masses and decays of excited scalar and pseudoscalar $\bar{q}q$ states are studied in depth within the Extended Linear Sigma Model (eLSM). The model also contains ground-state scalar, pseudoscalar, vector and axial-vector mesons. The main objective is to investigate the hypothesis that the $f_0(1790)$ resonance, observed a decade ago by the BES Collaboration and recently by LHCb, represents an excited scalar quarkonium. In addition the possibility is analysed that the new $a_0(1950)$ resonance, observed recently by BABAR, may also be an excited scalar state. Both hypotheses receive justification in this approach although there appears to be some tension between the simultaneous interpretation of $f_0(1790)/a_0(1950)$ and pseudoscalar mesons $\eta(1295)$, $\eta(1300)$, $\eta(1440)$ and $K(1460)$ as excited $\bar{q}q$ states.
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