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Exploring tetraquark mixing models for the two nonets in the $J^P = 0^+$ channel

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Some time ago, a tetraquark mixing model was proposed to explain the structure of the two nonets in the $J^P = 0^+$ channel :

the light nonet, consisting of $a_0(980)$, $K_0^*(700)$, $f_0(500)$, $f_0(980)$,

and the heavy nonet, comprising $a_0(1450)$, $K_0^*(1430)$, $f_0(1370)$, and $f_0(1500)$.

In this talk, we will review the tetraquark mixing model and highlight its successful aspects, including elucidating the mass differences of the two nonets, determining the coupling strengths of these nonets with two pseudoscalar mesons, and identifying their decay modes.

Additionally, we will discuss how the hidden-color components of the tetraquark mixing model substantially contribute to the hyperfine masses.

This strongly suggests that the two nonets are tetraquarks in the light quark system rather than being composed of hadronic molecules.

session

C. Hadron Structure

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