Contribution ID: 37

Searching for tetraquarks on the lattice

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

Some properties of the lowest lying scalar mesons are in conflict with the conventional $\bar{q}q$ assignment and can be naturally explained if these are tetraquark states. We present a search for possible existence of light scalar tetraquarks on the lattice. The spectrum of physical states with a given isospin and J^PC=O^+++ is determined using a large number of tetraquark interpolators at the source and the sink. In the I=0 channel, we unavoidably find discrete two-pion states, but we also find an additional light state which could be possibly related to the sigma resonance with a strong tetraquark component. In the exotic I=2 channel, where no resonance is expected, we find no light state in addition to two-pion states.

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Session Classification: Poster Session

Track Classification: Poster Session