

Parallel talk

Quark model study of multiquark states

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摘要

The six- and four-quark systems are studied in the framework of constituent quark models. It is emphasized that the color confinement used in multiquark system should be different from the one used in two- or three-quark system. For six-quark system, we look for $\Delta\Delta$ and $N\Delta$ dibaryon resonances by calculating NN scattering phase shifts with explicit coupling to these dibaryon channels in quark delocalization and color screening model. The model gives a good description of low-energy NN properties and predicts $IJ^P = 03^+$ and 01^+ $\Delta\Delta$ resonances, which can be promising candidates for the isoscalar ABC structure reported by the CELSIUS-WASA Collaboration. For tetraquark system, a flux-tube quark model with multi-body confinement interaction is employed to study $Y(2175)$ as a tetraquark state. The $Y(2175)$ with diquark-antidiquark structure has energy 2174 MeV which is very consistent with experimental data. The calculation shows that multi-body confinement potential may play a vital role in the multiquark system.

关键词 [quark model](#), [dibaryon](#), [tetraquark](#), [color confinement](#), [multibody interaction](#)

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