

Exotic baryons as a hadronic molecule in the heavy quark region

Wednesday, 27 July 2016 14:15 (35 minutes)

In the hadron spectroscopy in the heavy quark region, new symmetry plays an important role. The symmetry is the heavy quark spin symmetry. It manifests the mass degeneracy of the states with different total spin, e.g. degeneracies of D and D^* mesons and Σ_c and Σ_c^* baryons. It is important to generate the exotic hadron structures found in the heavy quark region. The mass degeneracy enhances the mixing of D ($J^P = 0^-$) and D^* ($J^P = 1^-$) mesons. Therefore the pion coupling πDD^* is introduced, while the coupling πDD is forbidden. It is known that the one pion exchange potential (OPEP) is important for the binding of atomic nuclei. The attraction of the OPEP motivates us to investigate new hadron-hadron systems in the heavy quark region. In this talk, we study bound and resonant states of hadronic molecules of a heavy meson and a baryon. In addition, the mass degeneracy can appear in not only the ordinary hadrons but also hadronic molecules. It indicates the existence of partner states of the heavy quark symmetry. We also discuss the properties of the hadronic molecules in the heavy quark limit.

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Session Classification: Meson-Nucleon Interactions