

RCNP SEMINAR

Research Center for Nuclear Physics, Osaka University

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Title Anti-K Nucleon Interactions and Strange dibaryon systems

Time&Date 16:00- , September 17 (Friday) , 2010

Place Lecture room, 4th floor , RCNP, Osaka University

Abstract

We study the resonance energy of the strange dibaryons using two models with the energy-independent and energy-dependent potentials for the s-wave $\bar{K}N$ interaction. Both models are derived by reductions from the leading order term of the effective chiral Lagrangian, so-called the Weinberg-Tomozawa term. These potential models produce rather different off-shell behaviors of the two-body $\bar{K}N - \pi\Sigma$ amplitudes in $I = 0$ channel. The model with energy-independent (energy-dependent) potential predicts one (two) resonance pole in the $\Lambda(1405)$ region, while they describe the available data equally well. We find that the energy-independent potential model predicts one resonance pole of the strange dibaryons, whereas the energy-dependent potential model predicts two resonance poles: one is the shallow quasi-bound state of the $\bar{K}NN$, and another is the resonance of the πYN with large width. An investigation of the binding energy of the strange dibaryons will make a significant contribution to clarify resonance structure of s-wave $\bar{K}N - \pi\Sigma$ around the $\Lambda(1405)$ region.