

Few-body structure of light hypernuclei

Tuesday, 29 October 2013 11:00 (30 minutes)

One of the main goals of hypernuclear physics is to investigate the hyperon-nucleon (YN) and hyperon-hyperon (YY) interactions. Interesting and important hypernuclear few-body problems contribute. To solve the three- and four-body problem precisely, we employ Gaussian Expansion method (GEM) [1], which has been successfully applied to calculate properties of various bound three- and four-body systems. The basis functions describe well both short-range correlations and the long-range tail. Here we emphasize what is interesting and important from the view point of hypernuclear physics.

(i) It is one of important subject to discuss about ΛN charge symmetry breaking effect. For this purpose, the binding energies of ${}^{\Lambda}_{10}\text{Be}$ and ${}^{\Lambda}_{10}\text{B}$ are calculated with the framework of $\alpha + \alpha + \Lambda + N$ four-body model.

(ii) Recently, it was observed a neutron-rich Λ hypernucleus, ${}^6_{\Lambda}\text{H}$ [2]. To structure of this hypernucleus, we performed four-body calculation of $t + \Lambda + n + n$. In the conference, we discuss about our result and new experimental data.

[1] E. Hiyama, Y. Kino, and M. Kamimura, Prog. Par. Nucl. Phys., **51**, 223(2003).

[2] M. Angello *et al.*, Phys. Rev. Lett. **108**, 042501 (2012).

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