

Recent result of an exclusive measurement of $^3\text{He}(\text{K}^-, \Lambda\text{p})\text{n}$ reaction to search for KbarNN bound state at J-PARC

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As a consequence of the attractive KbarN interaction, kaonic nuclei which is bound state of anti-kaon and nucleon has been widely discussed. All theoretical studies support the existence of kaonic nuclei, however, its energy and width are widely spread depending on energy dependence of the KbarN interaction model. The investigation of such bound state would help us to understand the KbarN interaction especially in the energy region below the KbarN threshold which cannot be provided by low-energy KbarN scattering experiments or X-ray measurement from kaonic atoms. We have searched for simplest kaonic nuclear bound state, KbarNN bound state, using in-flight kaon induced reaction on helium-three target at the J-PARC. We carried out the first physics data-taking in 2013 and observed a peak structure just below the KbarNN threshold by an exclusive analysis of $^3\text{He}(\text{K}^-, \Lambda\text{p})\text{n}$ reaction. In that time, only simple Breit-Wigner pole structure was used to evaluate its position and width due to lack of statistics. Therefore, we performed the second physics data-taking in 2015, to conform the peak structure with higher statistics and apply more detail analysis such as studying of momentum transfer dependence. The recent results with the higher statistical data will be presented in this contribution.

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