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A study of the in-flight 3He(K-,Lambdap)n reaction and the “K-pp” bound state

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A theoretical investigation is done to clarify the origin of the peak structure observed near the K- pp threshold in the in-flight 3He(K-, Lambda p)n reaction of the J-PARC E15 experiment, which could be a signal of the lightest kaonic nuclei, that is, the KbarNN (I=1/2) state. We employ modern KbarN interactions within a Fadeev-based approach and find that the experimental signal is qualitatively well reproduced by the assumption that, after the emission of the energetic neutron, a KbarNN bound state is formed, decaying eventually into a Lambda p pair. We discard a possible interpretation in terms of the formation of a uncorrelated Lambda(1405) p state.

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