Investigation of $\bar{K}N - \pi\Sigma$ interaction effects on $K^-pp$ system using Faddeev method

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(Received 9 May 2012 ; in final form 23 June 2012)

Abstract
Coupled-channels Faddeev-Yacubovsky as well as AGS calculations of three-body, $J^\pi = 0^-$ $\bar{K}(NN)_{I=1}(I = \frac{1}{2})$ quasibound state in the $\bar{K}NN - \pi\Sigma N$ system were performed in momentum space and the dependence of the three-body energy on the two-body $\bar{K}N - \pi\Sigma$ interaction was investigated.

Keywords: $\Lambda(1405)$, kaonic nuclei, deeply bound kaonic nuclear states, $K^-pp$, Kapur-Peierls

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