



Particle configurations in the $NN\bar{K}$ system

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Abstract. Three-body AAB model for the $NN\bar{K}(s_{NN} = 0)$ kaonic cluster is considered based on the configuration space Faddeev equations. Within a single-channel approach, the difference between masses of nucleons and kaons and the charge independence breaking of nucleon-nucleon interaction are taken into consideration. We definite the particle configurations in the system according to the particle masses and pair potentials. There are two sets of the particle configurations, $pp\bar{K}^-$, $np\bar{K}^0$ and $nn\bar{K}^0$, $np\bar{K}^-$, charged and neutral. The three-body calculations are performed by applying NN and $N\bar{K}$ phenomenological isospin-dependent potentials. The mass and energy spectra related to the particle configurations are presented. We evaluate the mass and energy uncertainties for the $NN\bar{K}$ model. An analogy to NNN model for the ${}^3\text{H}$ and ${}^3\text{He}$ nuclei is proposed.

Keywords: mesic nuclei, kaon-baryon interactions, Faddeev equations

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