

Abstract Submitted  
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**Isospin and particle representations for quasi-bound state of kaonic clusters**<sup>1</sup> IGOR FILIKHIN, North Carolina Central University, Durham, NC, USA, ROMAN KEZERASHVILI, New York City College of Technology, The City University of New York, USA, BRANISLAV VLAHOVIC, North Carolina Central University, Durham, NC, USA — In the framework of the method of the Faddeev equations in configuration space, the  $NN\bar{K}(I=0)$  (and  $\bar{K}\bar{K}N$ ) kaonic cluster system including two identical particles is considered. We use the formalism of isospin and particle representations [1] to describe the systems. The treatment of  $I=1$  and  $I=0$  isospin  $\bar{K}N$  channels is discussed. The presence of the Coulomb force in  $ppK^-$  channel violates the isospin symmetry of the  $NN\bar{K}(I=0)$  system. According to the particle representation,  $NN\bar{K}$  is a two-level system of coupled  $ppK^-$  and  $pn\bar{K}^0$  channels with and without the Coulomb energy, respectively. The results of calculations for the bound states with the phenomenological and chiral motivated  $\bar{K}N$  potentials are given for different representations. In particular, new single channel calculations for the  $ppK^-$  (and  $K^-K^-p$ ) cluster are presented. It is shown that the exchange of identical particles plays an important role in the formation of a bound state of the systems. The relation of the exchange and the three-body mass rearrangement effects is discussed. [1] J. Revai, arXiv: 1608.01802v1 (2016).

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