ON THE STRUCTURE OF KNN AND KNNN CLUSTERS

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The exciting discovery [1] of deeply bound K-few-nucleon states is discussed. The binding energies of such structures are calculated with several methods:

1. variational approach with a K-N pseudo-potential
2. variational approach with a trial wave function calculated exactly with energy dependent KN interactions on static nucleons
3. the adiabatic approach.

Comparison of these approaches with the experimental data is done. One finds that the dominance of the K-N interaction by Lambda(1405) does not generate the required attraction strength. An important role is played by the P wave Sigma(1385) state [2]. Some consequences of these calculations in states of kaonic atoms and kaonic states in heavier nuclei are discussed.

[1] T.Suzuki et al. Phys Lett B 597(2004)263
[2] S.Wycech and A.M. Green nucl-th/0501019

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