HAW05-2005-020006

Abstract for an Invited Paper for the HAW05 Meeting of the American Physical Society

Systematic analyses on Hydrogen isotopes by using an extended AMD approach SHIGEYOSHI AOYAMA, Niigata University

It is a very challenging problem to make an extremely neutron-excess system which corresponds to the neutron star. Very recently, an experimental evidence of ⁷H was reported as an enhancement of the cross section above the t+n+n+n+n threshold [1]. Its neutron ratio to the proton is the largest value of six. It is very interesting to investigate pair correlations between the nucleons and the cluster-like correlation of triton in such the almost neutron matter like nuclei only with one proton. Recently, we propose a new extended AMD approach [2]. In this approach, AMD combined with the generator coordinate method is extended with the idea of the stochastic variational method (SVM). We call this new approach AMD triple-S (Superposition of Selected Snapshots) [2]. By using AMD triple-S, we will give the calculated results and discussions for H-isotopes with the core-nucleus plus the valence neutrons model, and discuss the nucleon correlations in the extremely neutron-rich nuclei. Work done in collaboration with Naoyuki Itagaki, Niigata University.

A.A. Korsheninnikov *et al.*, Phys. Rev. Lett. **90**, 082501 (2003).
N. Itagaki, A. Kobayakawa and S. Aoyama, Phys. Rev. **C68**, 054302 (2003).