

Abstract Submitted
for the HAW09 Meeting of
The American Physical Society

Exotic nuclei with open heavy flavor mesons SHIGEHIRO YASUI, KEK, KAZUTAKA SUDOH, Nishogakusha University — We discuss stable exotic nuclei bound with \bar{D} and B mesons with respecting heavy quark symmetry. We indicate that an approximate degeneracy of $\bar{D}(B)$ and $\bar{D}^*(B^*)$ mesons plays an important role, and discuss the stability of $\bar{D}N$ and BN bound states. We find the binding energies 1.4 MeV and 9.4 MeV for each state in the $J^P = 1/2^-$ with $I = 0$ channel, and no bound states with the other channels. These states are stable in the strong decay, and can be observed in the weak decay processes $\bar{D}N \rightarrow K^+\pi^-\pi^- + p$, and $BN \rightarrow D^-\pi^+ + p$. We discuss also possible existence of exotic nuclei $\bar{D}NN$ and BNN . The existence of $\bar{D}N$ and BN bound states would provide an opportunity to probe new exotic states near the thresholds, and, as well as strangeness nuclei, open a new way to investigate for exotic nuclei with variety of multi-flavor explored at future hadron facilities such as J- PARC (Japan Proton Accelerator Research Complex) and GSI (Gesellschaft für Schwerionenforschung).

Shigehiro Yasui
KEK

Date submitted: 29 Jun 2009

Electronic form version 1.4