

Speaker : T. Nakamura

Low-Lying Excited States of Halo Nuclei

Abstract

One of the unique features of halo nuclei is that the continuum just above the neutron-decay threshold plays an important role since the separation energy is very small. We present recent spectroscopic studies of continuum and resonance states of halo nuclei ^{11}Li , ^{14}Be and ^{19}C . For ^{11}Li , we have observed a strong E1 strength at $E_{\text{rel}} \sim 0.3\text{MeV}$ in the Coulomb breakup[1]. For ^{14}Be , we have applied the (p,p') and ($^{12}\text{C},^{12}\text{C}'$) reactions for exciting the first 2^+ state[2]. We have also studied the ^{13}Be resonances which are produced in the breakup of ^{14}Be . For ^{19}C , we have applied the (p,p') reaction to observe the unbound state[3]. By showing these results, we discuss the characteristic features of excitation properties of halo nuclei.

[1] T.Nakamura et al., Phys. Rev. Lett. 96, 252502 (2006).

[2] T.Sugimoto, T.Nakamura et al., Phys. Lett. B 654, 160 (2007).

[3] Y.Satou, T.Nakamura et al., Phys. Lett. B, in press.