

Breakup study of neutron-drip line nuclei at RIBF

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Recent experimental results on Coulomb and nuclear breakup for neutron drip-line nuclei at the newly commissioned RIBF at RIKEN are presented. Coulomb breakup reaction is a useful tool to probe halo structure since the cross section is enhanced due to the large E1 transitions at low excitation energies (soft E1 excitation) for halo nuclei. We have measured inclusive Coulomb breakup cross sections for the one-neutron halo candidate ^{31}Ne and two-neutron halo candidate ^{22}C at about 230-240 MeV/nucleon. These secondary beams were obtained using an intense ^{48}Ca beam at 345 MeV/nucleon at RIBF. In this experiment, we indeed observed the large Coulomb breakup cross sections over 0.5b for both nuclei, which can only be explained by the existence of halo structure in these nuclei. For ^{31}Ne we discuss the structure in terms of properties in the island of inversion as well. In this talk, we also report on the on-going project of SAMURAI/NEBULA, where kinematically complete measurements of breakup reactions for halo/skin nuclei are planned in the near future.

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