

Abstract Submitted
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Nuclear and Coulomb breakup of the Borromean nucleus ^{11}Li
TAKASHI NAKAMURA, R301N COLLABORATION — We have performed kinematically complete measurements of breakup reactions of ^{11}Li with a ^{12}C and with a Pb target at about 70 MeV/nucleon at the radioactive beam facility RIPS at RIKEN. Due to the loosely-bound nature of this nucleus, the breakup reactions will provide useful knowledge on the ground and low-lying states of ^{11}Li , as well as that on the subsystems such as ^{10}Li and di-neutron correlation. In the breakup with the C target, where nuclear interaction dominates over the Coulomb interaction, the knockout reaction becomes important. There, the ^{10}Li nucleus is produced as an intermediate state. We show the relative energy spectrum of ^{10}Li , which is important in understanding the structure of ^{11}Li . In the breakup with the Pb target, where Coulomb breakup is dominant, we have observed strong E1 transition strengths at $E_{\text{rel}} \sim 0.3$ MeV, which was missing in the previous experiments. In this presentation we also discuss the characteristics of reactions mechanisms of breakup reactions with halo nuclei.

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