

Abstract Submitted
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Studying the structure of the neutron-unbound ^{12}Li A. SPYROU, M. THOENNESSEN, NSCL/MSU, P.A. DEYOUNG, C.C. HALL, Hope College, MONA COLLABORATION — The decay-energy spectrum of ^{12}Li was measured in a neutron-fragment coincidence experiment at the National Superconducting Cyclotron Laboratory at MSU. ^{12}Li was produced in the two-proton knockout reaction from a ^{14}B secondary beam at 54 MeV/u. ^{12}Li is neutron unbound and decays into ^{11}Li and a neutron. The ^{11}Li fragments were detected with position sensitive detectors behind the sweeper magnet, while the Modular Neutron Array (MoNA) was used to detect the emitted neutrons. The decay energy of ^{12}Li was reconstructed event-by-event from the four-momentum vectors of the two products. Two resonances were observed in the invariant-mass spectrum at ~ 200 keV and ~ 500 keV. The measurement of the structure of ^{12}Li is an essential first step for the understanding of the two-neutron decay mode of ^{13}Li . The latter was also measured during the experiment in the one-proton knockout reaction from ^{14}Be and the analysis is in progress.

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