

Abstract Submitted
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γ -ray spectroscopy of ${}_{\Lambda}^{11}\text{B}$ and ${}_{\Lambda}^{12}\text{C}$: Results of the KEK E566 experiment MA YUE, E566 COLLABORATION — Bound excited states of ${}_{\Lambda}^{11}\text{B}$ and ${}_{\Lambda}^{12}\text{C}$ were populated following the $(\pi^+, K^+){}_{\Lambda}^{12}\text{C}/{}_{\Lambda}^{11}\text{B}+p$ reaction. The 12-GeV/c primary proton beam was provided by KEK-PS and the secondary π^+ beams of 1.05 GeV/c were produced and momentum analyzed by the K6 beam line bombarding a 18.6-g/cm² Carbon target. A momentum of the scattered K^+ was subsequently tracked by the SKS spectrometer system. γ rays from hypernuclei produced were detected by the Ge detector array, Hyperbal2, which consisted of 14 standard closed end-type and 6 Clover-type detectors each surrounded by BGO background suppressing counters. Construction of missing mass spectrum identified the bound state as well as the proton emitting unbound excited states of ${}_{\Lambda}^{12}\text{C}$, the latter leading to ${}_{\Lambda}^{11}\text{B}$. γ rays in coincidence with these regions were associated with the respective hypernucleus. Six γ -ray transitions, three of each belonging to ${}_{\Lambda}^{11}\text{B}$ and ${}_{\Lambda}^{12}\text{C}$, were observed. Cascade decays of ${}_{\Lambda}^{11}\text{B}(3/2^+ \rightarrow 1/2^+ \rightarrow 5/2^+)$ and the ground state doublet spacing of ${}_{\Lambda}^{12}\text{C}$ were newly identified from the present analysis. In addition, a 157-keV γ ray from a hyperfragment of ${}_{\Lambda}^{12}\text{C}$ was observed. From the energy level spacings we check the consistency of the strength of spin-spin (Δ) and nuclear-spin orbit (S_N) in the effective AN interaction of the p -shell hypernuclei. Results of the analysis and the discussion will be presented.

Takeshi Koike

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