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Level assignments of $^{11}\text{Be}^*$ through β -delayed low energy neutron emissions YOSUKE AKASAKA, T. SHIMODA, K. KAWAI, H. IZUMI, I. WAKABAYASHI, Dept. of Phys., Osaka Univ., Y. HIRAYAMA, H. MIYATAKE, IPNS, KEK, K.P. JACKSON, C.D.P. LEVY, TRIUMF, DEPT. OF PHYS., OSAKA UNIV. COLLABORATION, IPNS, KEK COLLABORATION, TRIUMF COLLABORATION — The low energy neutron emissions from $^{11}\text{Be}^*$ were studied in the β -n and β -n- γ coincidence measurements from a *spin-polarized* $^{11}\text{Li}_{gs}$. The spin-parity assignments for the $^{11}\text{Be}^*$ states were made based on the fact that the allowed β -transition from the polarized ^{11}Li shows β -decay asymmetry depending on the spin value of the daughter state in ^{11}Be . The experiment was performed at TRIUMF ISAC, where approximately 55% nuclear-polarized ^{11}Li beam was available. The β -decay asymmetries were measured in coincidence with the delayed neutrons from $^{11}\text{Be}^*$ and/or the subsequent γ -rays from $^{10}\text{Be}^*$. In the β -n coincidence, very low energy neutrons with $E_n = 73$ (5) keV and 17 (1) keV were observed. From the β -decay asymmetries in coincidence with the respective neutron, the spins and parities of the neutron emitting states in ^{11}Be were unambiguously determined to be $3/2^-$ and $5/2^-$, respectively. From the β -n- γ coincidence the level energies of the ^{11}Be states were determined to be $E_x = 3.951(6)$ and $3.890(1)$ keV, respectively. The I^π assignment for the former is consistent with that in the literature, whereas the latter is in contradiction to the previous assignment ($3/2^+$) based on the $^9\text{Be}(t,p)^{11}\text{Be}^*$ reaction data.

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