

PHOTOPROTONS FROM ^{11}B

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A $1,85 \text{ mg/cm}^2$ target enriched to 98.5 % of ^{11}B was irradiated by a bremsstrahlung beam at seven end-point energies between 18 and 31 MeV. The spectra and angular distribution of the photoprotons were measured. From the spectra the cross sections for the transitions to the ground and the first excited state of ^{10}Be have been obtained.

The energy dependence of the cross sections for (γ, p_0) and (γ, p_1) reactions show a broad maximum at 21 MeV similar as observed in the (γ, xn) reaction⁽¹⁾. This similarity does not allow to make a conclusion about the isospin splitting of the giant dipole resonance.

The mean value of the a_2 coefficient of the angular distribution for the transition leading to the ground state of ^{10}Be is -0.4 ± 0.05 and is consistent with $1p_{3/2}^{-1} 1d_{5/2}$ excitations. According to the theoretical calculation⁽²⁾ this type of transitions should dominate in the energy region between 15 and 25 MeV.

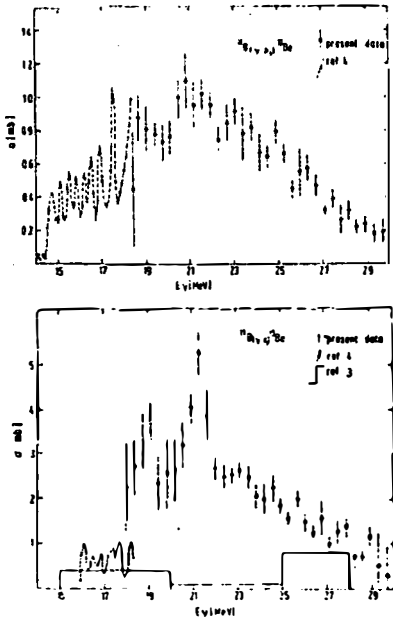


Fig.1: Cross sections of the (γ, p_0) and (γ, p_1) reactions

References

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