

EXPERIMENTAL INVESTIGATION OF ${}^6\text{Li}({}^3\text{He},n){}^8\text{Be}$
REACTION AT LOW ${}^3\text{He}$ ENERGY

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The reactions ${}^6\text{Li}({}^3\text{He},n_0){}^8\text{Be}$ and ${}^6\text{Li}({}^3\text{He},n_1){}^8\text{Be}$ have been experimentally investigated in the range of incident ${}^3\text{He}$ energies from 0.6 to 1.3 MeV. The aim of this work was the study of ${}^9\text{B}$ energy levels in the excitation energy range around 17 MeV, the problem we studied before^{1,2}.

In the range of energies (0.6-1.3 MeV), for both groups of the protons leading to the ground and the first excited state in ${}^8\text{Be}$, excitation functions were obtained. The cross section was measured in steps of 20 keV in the energy range $0.6 < E_{{}^3\text{He}} < 1.3$ MeV. The values obtained for the cross section are within the limits

$$0.03 < \sigma(\text{mb/STER C.M.}) < 0.75$$

for the n_0 group, and

$$0.20 < \sigma(\text{mb/STER C.M.}) < 3.40$$

for the n_1 group of protons.

Because the cross section measuring at the beam energies below the Coulomb barrier, special calculation analysis of Coulombs functions and corresponding corrections have been made in order to obtain the cross section values with proper accuracy. Analysing the obtained results it has been shown that the ${}^9\text{B}$ level of 17.20 MeV exists.

References: 1. M. Aleksić, R. Popić, D. Stenojević and B. Stepančić, FIZIKA 2 (1970) 113

2. M. Aleksić and R. Popić, FIZIKA 10 (1976) 177