

POSSIBLE MEASUREMENT
OF THE PROBABILITY OF P -STATES
IN THE GROUND STATE OF ${}^4\text{He}$ NUCLEUS

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S u m m a r y

Using the experimental data on the total cross-sections of ${}^4\text{He}(\gamma, p){}^3\text{H}$ and ${}^4\text{He}(\gamma, n){}^3\text{He}$ reactions with $S = 1$ transitions as the base, we discuss the possibility of measuring the probability of 3P_0 -states in the ground state of ${}^4\text{He}$ nucleus. The analysis of the experimental data has suggested the conclusion that, within the statistical error, the ratio of the cross section of the reaction in the collinear geometry to the cross section of the electrical dipole transition with the spin $S = 0$ at the angle of the emission of nucleons $\theta_N = 90^\circ$ ν_p and ν_n in the range of photon energies $22 \leq E\gamma \leq 100$ MeV does not depend from the photon energy. This is in agreement with the assumption that the $S = 1$ transitions can originate from 3P_0 states of ${}^4\text{He}$ nucleus. The average values of ν_p and ν_n in the mentioned photon energy range are calculated as $\nu_p = 0.01 \pm 0.002$ and $\nu_n = 0.015 \pm 0.003$ (the errors are statistical only).