

THE STRUCTURE OF THE LOW-LYING STATES OF ${}^7\text{Be}$

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It is well known that the structure of the low-lying states of light nuclei is well understood in the frame of two-body cluster model. Thus, experimental and theoretical study of the ground and first excited states of ${}^7\text{Be}$ nucleus strongly suggest the $|{}^3\text{He}\rangle \times |{}^4\text{He}\rangle$ cluster structure of these states.

In order to study the residual part of the nuclear Hamiltonian of these states, direct radiative capture reaction ${}^6\text{Li}(p,\gamma){}^7\text{Be}$ has been studied for proton energies from 0.4 to 1.1 MeV. Excitation functions and branching ratio of radiative transitions to the ground and first excited states have been measured. Comparison of measurements with predictions of direct radiative capture model reveals the values of spectroscopic factors and reduced partial widths for the $|{}^6\text{Li}\rangle \times |p\rangle$ cluster configuration of these states. The values obtained are compared with the values for $|{}^3\text{He}\rangle \times |{}^4\text{He}\rangle$ cluster configuration, and importance of $|{}^6\text{Li}\rangle \times |p\rangle$ configuration is asserted.