

5. DEPENDENCE OF OBSERVABLES IN ELASTIC SCATTERING OF INTERMEDIATE ENERGY PROTONS BY ${}^6\text{He}$ FROM ITS STRUCTURE

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In the framework of variation calculations on the basis of resonating group method with exact consideration of the Pauli principle the most probable geometric configuration of the ground state ${}^6\text{He}$ nucleus (two-neutron $\alpha - {}^2n$ and linear three-cluster $n - \alpha - n$) is obtained. For both configurations the calculation of observables in the elastic 721-MeV protons on ${}^6\text{He}$ nucleus were carried out. As occurred, existing experimental data on elastic proton scattering (elastic scattering differential cross-section at $-t \leq 0,1 \text{ (GeV/c)}^2$ transferred momenta) do not allow to draw a reliable conclusion as for the preference of a ground state ${}^6\text{He}$ geometric configuration obtained in the variation calculations. It is shown that experimental data for polarization and spin rotation function in the region of $-t \geq 0,1 \text{ (GeV/c)}^2$ transferred momenta will allow to acquire more reliable conclusion, as for the most probable geometric configuration of the ground state ${}^6\text{He}$ nucleus.