

# INVESTIGATION OF ${}^3\text{He}(p, 2p)d$ REACTION IN T-MATRIX AND DIFFRACTION APPROXIMATIONS AT INTERMEDIATE ENERGIES

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In the framework of T-matrix approximation with distorted waves, as well as with the help of generalized theory of multiple scattering, the investigation of  ${}^3\text{He}(p, 2p)d$  reaction of two-particle break-up of  ${}^3\text{He}$  into proton and deuteron is carried out. Phenomenological wave functions, which describe ground state of  ${}^3\text{He}$  and  ${}^2\text{H}$  nuclei, are used. The integral of their overlap is calculated. Calculations of the energy resolved correlation spectra of protons in the reaction as well as comparison with the experiment are carried out for the incident proton energies of 50 and 65 MeV in a coplanar geometry. A good agreement with experiment has confirmed a principal importance of taking into account the longitudinal transferred momentum for quantitative description of the data in the framework of DTMS. Even a qualitative description of data on angular correlation of the break-up products cannot be achieved in principle without taking into account the longitudinal transferred momentum. It is shown that the effects of multiple scattering and final state interaction between products of reaction play an important role in the description of observable characteristics of the process.

*Keywords:* diffraction approximation, two-particle break-up, reactions on light nuclei.