QUASI-ELASTIC SCATTERING IN THE INCLUSIVE ($^3$He, t) REACTION

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abstract  
The triton energy spectra of the charge-exchange $^{12}$C($^3$He,t) reaction at 2 GeV beam energy are analyzed in the quasi-elastic nucleon knock-out region. Considering that this region is mainly populated by the charge-exchange of a proton in $^3$He with a neutron in the target nucleus and the final proton going in the continuum, the cross-sections are written in the distorted-wave impulse approximation. The t-matrix for the elementary exchange process is constructed in the DWBA, using one pion- plus rho-exchange potential for the spin-isospin nucleon- nucleon potential. This t-matrix reproduces the experimental data on the elementary pn $\rightarrow$np process. The calculated cross-sections for the $^{12}$C($^3$He,t) reaction at $2^\circ$ to $7^\circ$ triton emission angle are compared with the corresponding experimental data, and are found in reasonable overall accord.