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Clusterization Probability in 14N Nuclei

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Abstract : The main aim of the current work is to examine if 14N is candidate to be clusterized nuclei or not. In order to check this attendance, we have measured the angular distributions for 14N ion beam elastically scattered on 12C target nuclei at different low energies; 17.5, 21, and 24.5MeV which are close to the Coulomb barrier energy for 14N+12C nuclear system. Study of various transfer reactions could provide us with useful information about the attendance of nuclei to be in a composite form (core + valence). The experimental data were analyzed using two approaches; Phenomenological (Optical Potential) and semi-microscopic (Double Folding Potential). The agreement between the experimental data and the theoretical predictions is fairly good in the whole angular range.

Keywords : deuteron transfer, elastic scattering, optical model, double folding, density distribution
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