

Clusterization Probability in ^{14}N Nuclei

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Abstract : The main aim of the current work is to examine if ^{14}N is candidate to be clusterized nuclei or not. In order to check this attendance, we have measured the angular distributions for ^{14}N ion beam elastically scattered on ^{12}C target nuclei at different low energies; 17.5, 21, and 24.5MeV which are close to the Coulomb barrier energy for $^{14}\text{N}+^{12}\text{C}$ 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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