

Optical and Double Folding Analysis for ${}^6\text{Li}+{}^{16}\text{O}$ Elastic Scattering

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Abstract : Available experimental angular distributions for ${}^6\text{Li}$ elastically scattered from ${}^{16}\text{O}$ nucleus in the energy range 13.0–50.0 MeV are investigated and reanalyzed using optical model of the conventional phenomenological potential and also using double folding optical model of different interaction models: DDM3Y1, CDM3Y1, CDM3Y2, and CDM3Y3. All the involved models of interaction are of M3Y Paris except DDM3Y1 which is of M3Y Reid and the main difference between them lies in the different values for the parameters of the incorporated density distribution function $F(\rho)$. We have extracted the renormalization factor N_R for ${}^6\text{Li}+{}^{16}\text{O}$ nuclear system in the energy range 13.0–50.0 MeV using the aforementioned interaction models.

Keywords : elastic scattering, optical model, folding potential, density distribution

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