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Analysis of Li-6 Scattering at 240 MeV Using Different Nuclear Potentials

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Abstract

Angular distributions of the elastic and inelastic scattering cross sections of Li-6 projectile on different heavy ion target nuclei including the Mg-24, Si-28, Ca-48, Ni-58, Zr-90, and Sn-116 at energy of 240 MeV have been analyzed by using two different folded potentials based on the CDM3Y6 and So Paulo potentials for the real part of the optical potential, while the imaginary parts have a phenomenological Woods-Saxon shape. Coupled channel calculations for the low-lying 2(+) state at 1.369, 1.779, 3.832, 1.454, 2.186, and 1.29 MeV for Mg-24, Si-28, Ca-48, Ni-58, Zr-90, and Sn-116, respectively, have been carried out, and the best fit values for B(EL) with the above models have been extracted by fitting the inelastic scattering cross section and compared with the values of previous works. The total reaction cross section and real and imaginary volume integrals have also been investigated.

Keywords

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