

Application of new reduction methodology for reaction cross sections induced by tightly bound nuclei

The investigation is made to extract the total reaction cross section from a previous work where the elastic scattering of the tightly bound ^{10}B on the ^{58}Ni target was measured, at energies close to the Coulomb barrier. Total reaction cross sections were extracted from the elastic scattering analysis using the Optical Model with double-folding type potentials. We have also taken the total reaction cross section of the systems with the same mass targets ^{58}Ni and different projectiles from the literature and tried to compare with our system by reducing the cross sections, for the elimination of trivial effects due to different sizes and different Coulomb barriers. In addition to that, for all the systems considered, one-channel calculations that account only for fusion have been performed to study the quantitative effect of the direct reaction channels on the total reaction cross section.

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