

NUCLEUS-NUCLEUS POTENTIAL WITH REPULSIVE CORE AND ELASTIC SCATTERING. PART 2. THE ELASTIC SCATTERING CROSS SECTIONS WITH AND WITHOUT CORE

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Elastic scattering $^{16}\text{O} + ^{12}\text{C}$ at energies 132 and 169 MeV, $^{12}\text{C} + ^{12}\text{C}$ at energies 139.5 and 158.8 MeV and $^{16}\text{O} + ^{16}\text{O}$ at energies 124 and 145 MeV are analyzed in the framework of optical model with repulsive core nucleus-nucleus potential. Elastic scattering cross sections are evaluated in the approaches with and without core. It is shown that core leads to increasing elastic scattering cross sections at backward angles. Near- and far-sides components of elastic scattering amplitude decomposition and effect of core on these components are studied.

Keywords: nucleus-nucleus potential, repulsive core, elastic scattering cross section, near- and far-sides components of scattering amplitude.