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Transverse Isotropy: Disappearance of Mott oscillations in sub-barrier elastic scattering of identical heavy ions and the nuclear ineraction[1] MAHIR HUSSEIN, Universidade de Sao Paulo, Sao Paulo, Brazil, L. FELIPE CANTO, Universidade Fderal do Rio de Janeiro, Rio de Janeiro, Brazil, RAUL DONANGELO, Facultad de Ingeniería, Montevideo, Uruguay — It is found that at a certain critical value of the Sommerfeld parameter the Mott oscillations usually present in the scattering of identical heavy ions, disappear and the cross section becomes quite flat. We call this effect Transverse Isotropy (TI) (L. F. Canto, R. Donangelo and M. S. Hussein, Mod. Phys. Lett. A, **16**), 1027 (2001).. The critical value of the Sommerfeld parameter at which TI sets in is found to be $\eta_c = \sqrt{3s+2}$, where s is the spin of the nuclei participating in the scattering. No TI is found in the Mott scattering of identical Fermionic nuclei. The critical center of mass energy corresponding to η_c is found to be $E_c = 0.40$ MeV for $\alpha + \alpha$ (s = 0), and 1.2 MeV for ^{6}Li + ^{6}LI (s = 1). We further found that the inclusion of the nuclear interaction induces a significant modification in the TI (L. F. Canto, M. S. Hussein and W. Mittig, Phys. Rev. C, **89** 024610 (2014)). This can be verified by calculating the second derivative of the cross section at $\theta = 90^\circ$. We suggest measurements at these sub-barrier energies for the purpose of extracting useful information about the nuclear interaction between light heavy ions.

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