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Entanglement fidelity for elastic electron-electron scattering in a strongly coupled semiclassical plasmas under the influence of electric field BABATUNDE FALAYE, Ave Santa Barbara 145, Col Planetario Lindavista, Mexico D.F., C. P. 07730-CR -07051 — This study presents the effects of electric field, AB-flux field and uniform magnetic field directed along z-axis on electron-electron scattering encircled by a strongly coupled semiclassical plasmas. The all-inclusive effects result into a strongly repulsive system while the localizations of quantum levels change and the eigenvalues increase. We have employ perturbation formalism in our calculations. The condition $|E_{nm}^{(0)}| >> |E_{nm}^{(1)}| > |E_{nm}^{(2)}| > |E_{nm}^{(3)}| > .... > |E_{nm}^{(n)}|$ holds. We find that, the combined effect of the fields is stronger than solitary effect and consequently, there is a substantial shift in the bound state energy of the system. We also find that to perpetuate a low-energy elastic electron-electron scattering in a strongly semiclassical plasmas, a strong electric field and a weak magnetic field are required where AB-flux field can be used as a regulator. The entanglement fidelity in the scattering process is also examined. We have used partial wave analysis to derive the entanglement fidelity. We find that for a low electric field intensity, the entanglement fidelity varies with projectile energy.

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