

## **Analytical Approximations of the Differential Elastic Scattering Cross-Sections for Slow Electrons and Positrons Transport in Solids: A Comparative Study**

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**Abstract :** In this work, we try to determine the best analytical approximation of differential cross sections, used generally in Monte Carlo simulation, to study the electron/positron slowing down in solid targets in the energy range up to 10 keV. Actually, our comparative study was carried out on the angular distribution of the scattering angle, the elastic total and the first transport cross sections which are the essential quantities used generally in the electron/positron transport study by using both stochastic and deterministic methods. Indeed, the obtained results using the relativistic partial wave expansion method and the backscattering coefficient experimental data are used as criteria to evaluate the used model.

**Keywords :** differential cross-section, backscattering coefficient, Rutherford cross-section, Vicanek and Urbassek theory

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