And Collisions of electrons and positrons with Hg atoms: A relativistic treatment*

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The mercury atom *(Hg*) is the most used target for modeling the low temperature plasma for understanding the relevant physical processes. Its scattering data due to both electrons and positrons are important for solid-state and surface physics. Its large atomic number along with very significant inner-shell correlation effects poses considerable difficulties in calculating the collision cross sections. Using a complex optical potential $V_{opt}(r)$ [1] we solved the Dirac relativistic equation by employing the partial wave analysis. In this report we present our calculated differential, integrated elastic, momentum transfer, viscosity, inelastic and total cross sections and compared them with available experimental data for 1.0 eV < E< 10.0 keV.

[1] A. K. F. Haque, M. M. Haque, P. P. Bhattacharjee, M. A. Uddin, M. A. K. Patoary, A. K. Basak, M. S. Mahabub, M. Maaza, and B. C. Saha, J. Phys. Commun 1, 035014 (2017).

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