

Abstract Submitted
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Collisions of electrons with Fe atoms at $E= 1\text{eV} - 1\text{ MeV}$: A Relativistic investigation¹ BIDHAN C. SAHA, Florida AM University, ARUN K. BASAK, M. ALFAZ UDDIN, A. K. FAZLUL HAQUE, M. A. R. PATOARY, M. M. HAQUE, M. SHORIFUDDOZA, M. H. KHANDKER, R. HASSAN, Department of Physics, Rajshahi University — A complex optical potential embodying the static, exchange, polarization and absorption effects is developed to solve Dirac relativistic equation in partial waves [1,2] for calculating elastic and inelastic cross sections due to e^- -Fe scattering at $E = 1\text{ eV}- 1\text{ MeV}$. We present here the differential, integral, momentum transfer and viscosity cross sections along with their spin polarization. We also report the details of the critical minima in the elastic differential cross sections, the absorption, and total cross sections. For the critical minima due to electron impact there are neither any experimental nor any theoretical study presently available. Our predicted cross sections agree nicely with experimental and other theoretical findings. Details will be presented at the conference. [1] A. K. F. Haque, M. A. Uddin, D. H. Jakubassa – Amundsen, and Bidhan. C. Saha, *J. Phys. B* **51**, 175202 (2018). [2] Haque *et al.* Elastic scattering of e^\pm by Cd, Hg and Pb atoms at $1\text{eV} \leq E \leq 1\text{ GeV}$. AQC 83 [*in press*], 2020.

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