

(e, 2e) Impact ionization cross section of biomolecules

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The charged particle impact ionization studies of fundamental atomic and molecular systems have been of great interest since the early days of quantum mechanics. Extensive theoretical and experimental investigations have been carried out to understand the electron and positron impact single ionization processes of various targets. [1-6]. Such type of studied is important in many areas, such as understanding the processes in the earth's upper atmosphere, in the development of new lasers and novel forms of lighting, as well as in the treatment of cancers that use radiotherapy.

Triple differential cross section calculations for the ionization of $1e_1, 2a_1$ and $3a_1$ orbitals of the NH_3 and water molecule molecule by low energy electron, impact are reported. The present investigation is done in the distorted wave born approximation (DWBA) using post collision interaction and polarization of target. We found a very good agreement with the experimental data of Nixon and Murray [7].

We observed that by changing the projectile's charge, significant differences were observed between the electron and positron impact ionization cross section of NH_3 and H_2O molecules.

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