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Electron Impact Ionization cross sections and rate coefficients for α-tetra hydro furfuryl alcohol NEERAJ KUMAR, SATYENDRA PAL, Department of Physics, MMH College, Ghaziabad, Uttar Pradesh, India — $\alpha-$tetrahydrofurfuryl alcohol (THFA; $C_5H_{10}O_2$) is an aromatic compound having the molecular structure similar to that of 2-deoxy-D-ribose (deoxyribose). This molecule has attracted enormous interest in the field of research because its electron charge cloud possesses a quite significant spatial extent (dipole polarizability, $\alpha = 70.18$ au) and has a relatively strong permanent dipole moment ($\mu \sim 2$D). In the present work, we have extended and generalized the modified Jain-Khare semi-empirical formalism for the evaluation of the total ionization cross sections corresponding to the formation of the cations in the electron impact ionization of molecules to the electron impact ionization of α-tetrahydrofurfuryl alcohol (THFA; $C_5H_{10}O_2$), in the energy range varying from ionization threshold to 1000 eV. The evaluated cross sections revealed a reasonably good agreement with the experimental and theoretical data, wherever available. We have also calculated the ionization rate coefficients as a function of electron energy, using the evaluated total ionization cross sections and the Maxwell-Boltzmann distribution.

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