

## Electron Impact Ionization Cross-Sections for e-C<sub>5</sub>H<sub>5</sub>N<sub>5</sub> Scattering

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**Abstract :** Ionization cross sections of molecules due to electron impact play an important role in chemical processes in various branches of applied physics, such as radiation chemistry, gas discharges, plasmas etching in semiconductors, planetary upper atmospheric physics, mass spectrometry, etc. In the present work, we have calculated the total ionization cross sections for Adenine (C<sub>5</sub>H<sub>5</sub>N<sub>5</sub>), a biologically important molecule, by electron impact in the incident electron energy range from ionization threshold to 2 keV employing a well-known Jain-Khare semiempirical formulation based on Bethe and Möller cross sections. In the non-availability of the experimental results, the present results are in good agreement qualitatively as well as quantitatively with available theoretical results. The present results drive our confidence for further investigation of complex bio-molecule with better accuracy. Notwithstanding, the present method can deduce reliable cross-sectional data for complex targets with adequate accuracy and may facilitate the acclimatization of calculated cross-sections into atomic molecular cross-section data sets for modeling codes and other applications.

**Keywords :** electron impact ionization cross-sections, oscillator strength, jain-khare semiempirical approach

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