

ABSOLUTE DIFFERENTIAL CROSS SECTIONS FOR ELASTIC ELECTRON SCATTERING FROM SMALL BIOMOLECULES

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The experimental investigation of electron interaction with biomolecules that are analogues to building blocks of DNA (furan, 3-hydroxytetrahydrofuran and pyrimidine) and proteins (formamide, N-methylformamide), at medium incident electron energies 40 – 300 eV, is presented. Motivation for this investigation came from the radiation damage research and a need to understand the role of secondary electrons formed by high-energy particles [1]. The accurate cross sections obtained under well-defined conditions may thus represent starting parameters in a more complex modeling. The experimental procedure includes the measurement of both relative and absolute cross sections (using the relative flow method) for elastic electron scattering from biomolecules, as well as the measurement of kinetic energy distribution of positive ions. Experimental results are compared with theory, based on a corrected form of independent atom model, Screen Corrected Additivity Rule (SCAR) [2], showing a good agreement.

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REFERENCES

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