

Electron impact ionization and dissociation of C_2^+

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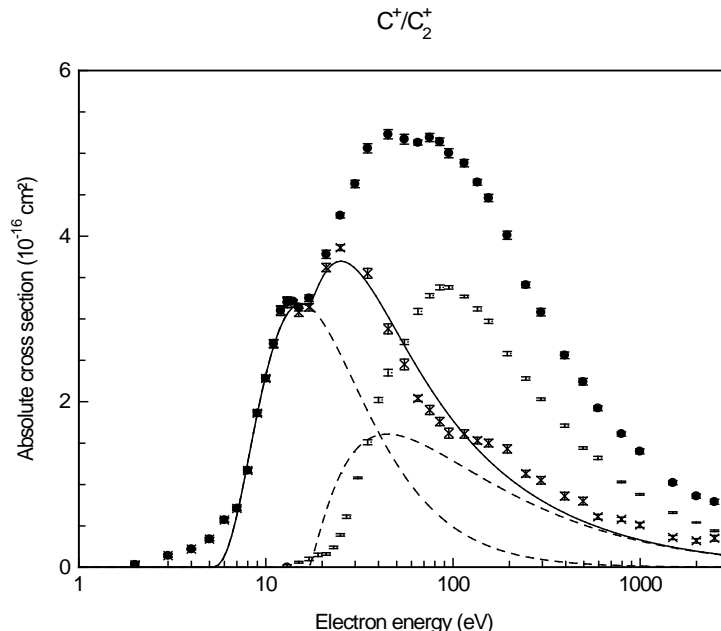
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Electron impact ionization and dissociation of C_2^+ molecular ion is studied by means of a crossed electron-ion beam experimental set-up. The animated beam method is applied, [1] and the collision energy range extends continuously from 5 eV to 2.5 keV. Absolute cross sections are measured for the production of C^+ and C^{++} ions, which may result from both dissociative excitation (DE) and dissociative ionisation (DI) of target. In the case of dissociation processes, substantial internal energy may be transferred to the dissociation fragments, inducing important enlargements of both the angular and the velocity distributions in the laboratory frame, even at large initial ion energy, and usually, only a fraction of them is detected. A careful examination and control of the dissociation products passing through the magnetic velocity analyser allows the determination of the product ions transmission so that absolute values of the cross section are obtained [2]. The kinetic energy release (KER) distribution of dissociation products in the centre of mass frame is deduced from the analysis of the magnetic field scan, at selected electron energies.



Absolute cross sections for C^+ versus electron energy: inclusive (\bullet), DE (\times) and DI (\circ)

References:

- [1] P. Defrance, F. Brouillard, W. Claeys and G. Van Wassenhove, *J. Phys.* **B14**, (1981) 103
- [2] J. Lecointre, D.S. Belic, H. Cherkani-Hassani, J.J. Jureta and P. Defrance, *J. Phys. B : At. Mol. Opt. Phys.* **39** (2006) 3275-3297