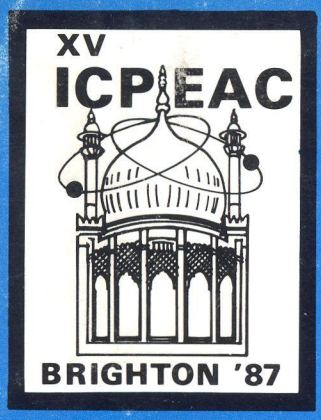

ELECTRONIC
AND ATOMIC
COLLISIONS

ABSTRACTS OF CONTRIBUTED PAPERS

Fifteenth International Conference on the Physics of Electronic and Atomic Collisions

Brighton, United Kingdom 1987

Edited by J. Geddes, H.B. Gilbody, A.E. Kingston, C.J. Latimer, H.J.R. Walters

TOTAL ABSOLUTE CROSS SECTIONS MEASUREMENTS FOR ELECTRON SCATTERING ON CO_2 AND H_2O MOLECULES

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The absolute total cross sections for electron - CO_2 and H_2O molecules scattering have been measured in a very wide energy range between 0.5 and 3000 eV.

Measurements were performed employing two different techniques. For energies varying between 0.5 and 80 eV a linear transmission method was used with a 127° electrostatic monochromator as a source of electrons. The Ramsauer technique enabled us to measure total cross sections for intermediate and high energies (60 - 3000 eV).

Results for CO_2 are presented in Fig. 1. Total cross section function exhibits two distinct maxima. The first at 3.8 eV is related to the well known[1] Π_u negative-ion shape resonant state of CO_2. Very broad hump between 6 and a few hundreds eV may be partly attributed to short-lived resonances[2,3] and to ionization processes[4].

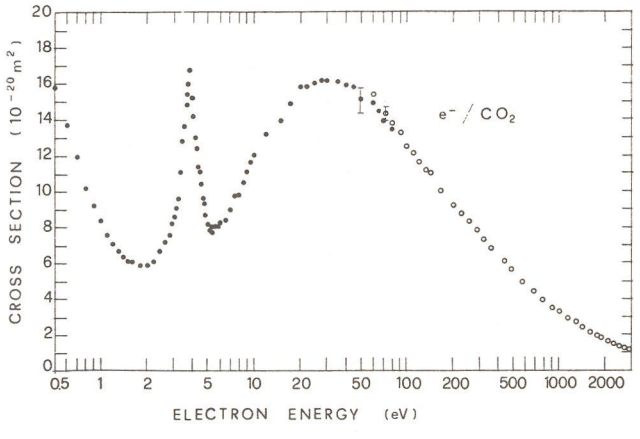

FIGURE 1. Total cross sections for electron - CO_2 scattering measured with: • , linear transmission method (Gdańsk); o , Ramsauer technique (Trento).

Figure 2 presents the total cross sections for H_2O. The increase of the total cross section in the lowest energy part of the curve (below 2 eV) could be related to rotational processes[5] and a broad maximum near 9 eV to resonance phenomena[6,7].

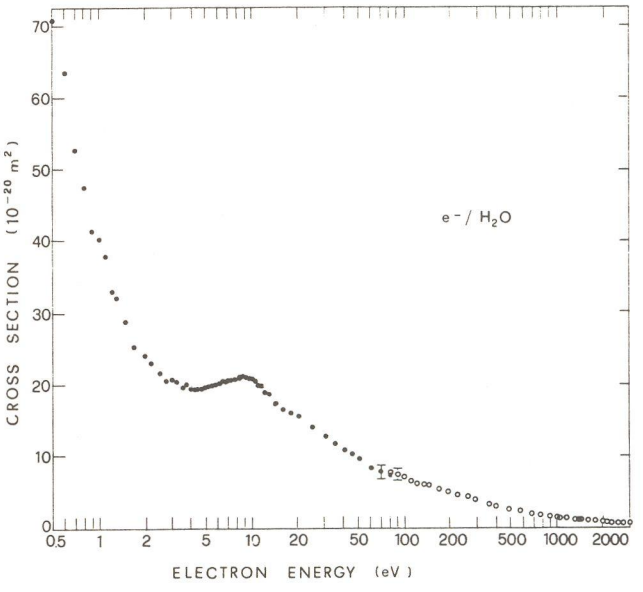

FIGURE 2. Total cross sections for electron - H_2O scattering taken with: • , linear transmission method; o , Ramsauer technique.

Comparison with other available results will be presented at the Conference.

Supported by MPI and CNR (Italy) and CPBP (Poland).

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