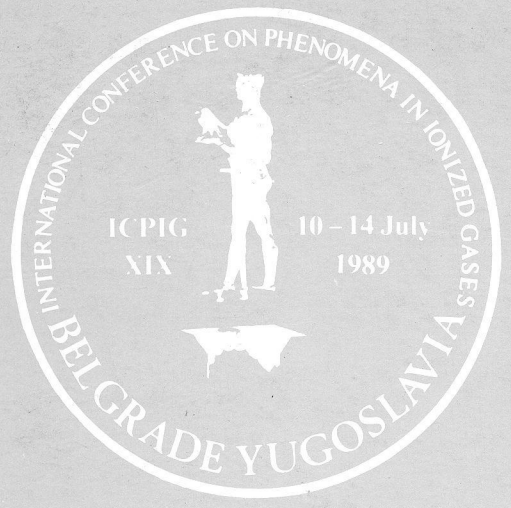

XIX International Conference on Phenomena in Ionized Gases

Contributed Papers

Wednesday 12th July 1989

FACULTY OF PHYSICS
UNIVERSITY OF BELGRADE

10-14 July 1989

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EXCITATION MOMENTUM TRANSFER CROSS SECTIONS FOR Na AND Cd METAL ATOMS

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Momentum transfer cross sections for the electron impact excitation of sodium and cadmium metal atoms have been determined in the intermedite energy range from 5 to 85 eV by the integration of differential cross sections.

Performing a crossed electron-atom beam technique |1|, normalized absolute differential cross sections have been obtained from 0^{o} to 150^{o} scattering angles |2|. The normalization has been done to the optical oscillator strenghts for the resonant 3^2P state of Na and the $5^1P_1^o$ state of Cd atom. Relative diferential cross sections for the elastic and the other inelastic scattering were put on the absolute scale by measuring intensty ratios to the resonant transitions.

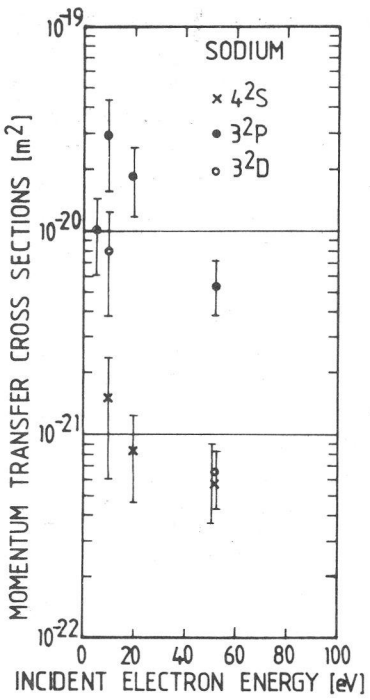

Fig. 1.

Extrapolating differential cross sections to 180^{o} and integrating over solid angle, integral, momentum transfer and viscosity cross sections have been obtained.

In the Fig. 1 momentum transfer cross sections for the electron excitation of the 3^2P, 4^2S and 3^2D states of sodium are shown. In the Fig.2 momentum transfer cross sections for the electron excitation of the 5^3P_1, 5^3P_2, 5^1P_1, 6^1S_o and 5^1D_2 states of cadmium are shown. There are no results in the literature for comparison.

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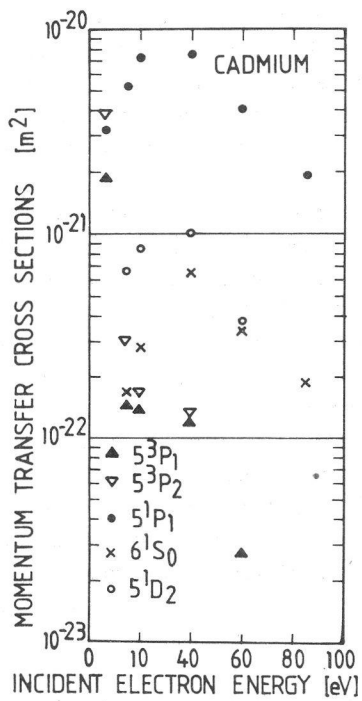

Fig. 2.

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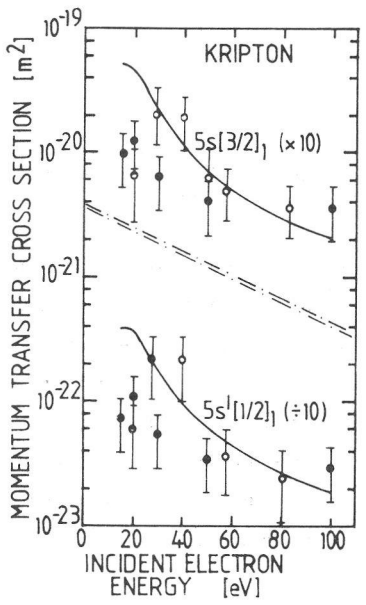

Fig.2. Momentum transfer cross sections for Krypton. The solid lines are results from FOMBT by Meneses et al. [5] and the filled circles with error bars are experimental results by Trajmar et al. [7].

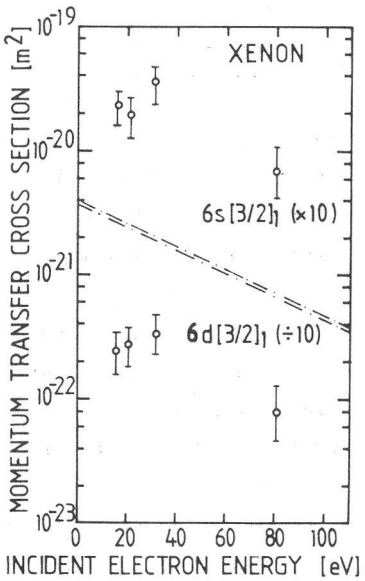

Fig.3. Momentum transfer cross sections for Xenon.

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