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DIFFERENTIAL CROSS SECTIONS FOR INELASTIC SCATTERING OF ELECTRONS BY KRYPTON IN THE ENERGY RANGE OF 20 TO 80 eV

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Normalized, absolute differential cross sections (DCS) for elastic scattering of electrons by krypton atom have been reported previously for the impact energies 20, 30, 40, 50, 60 and 80 eV¹.

We continued by investigating inelastic scattering of electrons by krypton in the electron - atom crossed beams experiment. Energy resolution of the spectrometer was approximately 40 meV, and scattering angles ranged from 5° to 150°. For the 9 lowest electronic states of krypton (Fig.1 and Table 1), and impact energies 20, 30, 40, 60 and 80 eV, relative DCS were obtained.

In a separate series of experiments, with Kr and Cd as a target atoms, transmission properties of the analyzer were obtained.

In this work we have measured DCS for 5s[3/2]₁ state at 60 eV impact energy (Fig.2)

with additional aim to compare with theoretical result by Meneses et al.² because it is important for studying alignment and orientation of atoms in collision processes³.

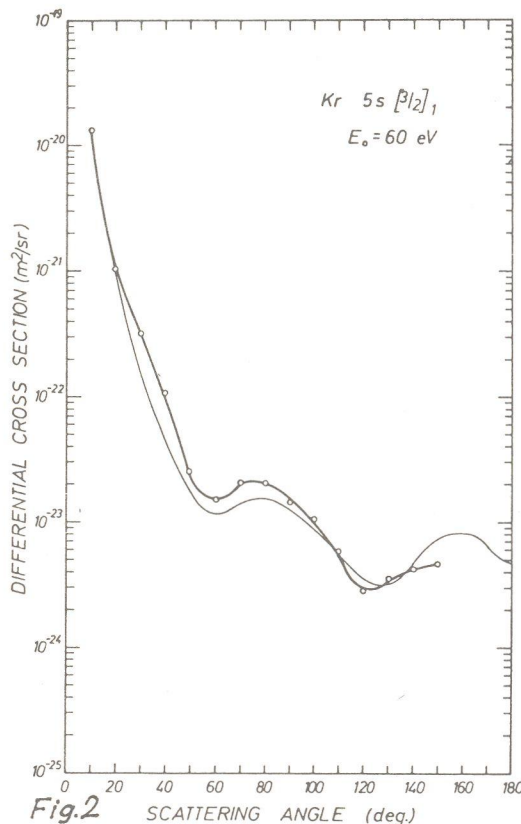
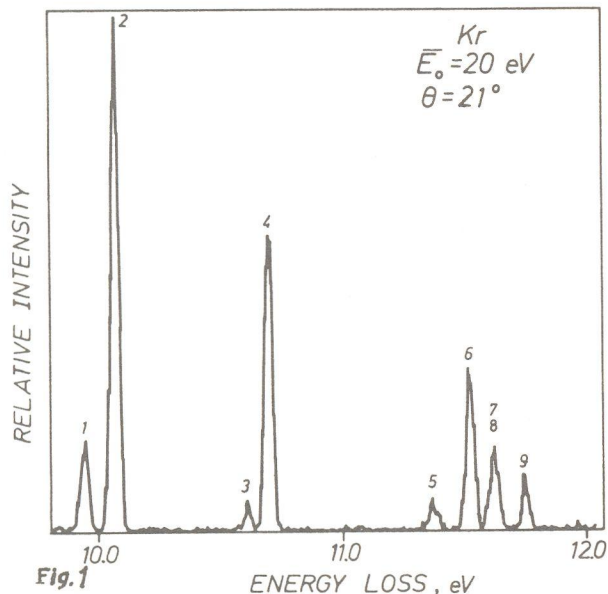


Table 1

FEATURE No.	DESIGNATION	ENERGY, eV	FEATURE No.	DESIGNATION	ENERGY, eV
Ground	4p ⁶ 1s	0.0	6	5p[5/2] ₃	11.443
1	5s[3/2] ₂	9.915	7	5p[3/2] ₂	11.445
2	5s[3/2] ₁	10.033	8	5p[3/2] ₁	11.526
3	5s'[1/2] ₀	10.563	9	5p[1/2] ₀	11.666
4	5s'[1/2] ₁	10.644			
5	5p[1/2] ₁	11.304			

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