

20th Summer School and International  
Symposium on the Physics of Ionized Gases

# 20th SPIG

September 4 - 8, 2000, Zlatibor, Yugoslavia

## CONTRIBUTED PAPERS

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ABSTRACTS OF INVITED LECTURES,  
TOPICAL INVITED LECTURES AND PROGRESS REPORTS



Editors:

Z. Lj. Petrović, M. M. Kuraica, N. Bibić and G. Malović

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Faculty of Physics, University of Belgrade  
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# COMPLETING OF ELECTRON-ATOM SCATTERING PICTURE FOR ARGON AND THE RARE GASES

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Electron-atom scattering picture is not complete, even for unpolarised incident electrons and argon, a century after the Lenard's pioneering works. Such criticism particularly has weight in the case of the rare gases (Ne, Kr, Xe and Rn).

A grate deal of effort was devoted to measure differential and integrated cross sections for both elastic and inelastic scattering of electrons by Ar (see e.g. the recent papers by Panajotović *et al.*, 1997 and Filipović *et al.*, 2000a,b).

For processes that are not too complicated, like elastic scattering, one can obtain information about: (a) relative contribution of effects of short-range exchange and long-range Coulombic interactions to the cross sections, (b) critical points – where differential cross section attains its smallest values and nearly total polarization of scattered electrons is suspected, (c) relative atomic diameter. For processes that are more complex, measurements were generally carried out only at a few impact energies, so it is not easy to make a picture of: (a) absorption effects, (b) statistical weight ratio for two fine structure states, (c) generalization of the oscillator strength concept. Complete knowledge about a structure (rapid decrease) in the elastic integral cross sections for Ar and Xe at intermediate energies (10-100 eV) requires a new approach and more precise measurements.

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