

**ECCCL** 2012

**Electron Controlled Chemical Lithography  
2012 Meeting**

**18<sup>th</sup>-22<sup>nd</sup> of May 2012**

**Stykkishólmur, Iceland**



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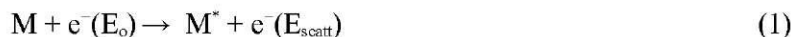
## An overview of ECCL activities at the Institute of Physics University of Belgrade

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During the COST Action CM0601 “*Electron Controlled Chemical Lithography*”, id est period from 2006 till this final conference meeting in 2012, a group at the Institute of Physics University of Belgrade gathered around the Laboratory for Atomic Collision Processes have been involved in several activities in the scope of the Action. These activities were mainly encompassed within working groups 1 and 2: WG 1 – Selective bond cleavage by electron induced dissociation and WG 2 – Chemical control by electron induced molecular fragmentation [1]. The main area of study has been low and intermediate energy electron interactions with gaseous targets (metal vapour atoms and molecules) as well as interactions with the surfaces along the nanocapillaries.

The excitation processes of Mg, Ag, In, Pb and Bi metal atoms has been investigated for many excited states  $M^*$  of different symmetries, both below the first ionization level and above it (autoionizing states), where the range of electron impact energies varies from 10 to 100 eV and scattering angles up to  $150^\circ$ :



The molecules of interest were mainly those of biological importance like tetrahydrofuran, tetrahydrofurfuryl alcohol, 3-hydroxytetrahydrofuran, alanine and pyrimidine. Both elastic and inelastic differential cross sections have been measured in conjunction with the calculations based on a corrected form of the independent-atom method, known as the screen corrected additivity rule procedure and using an improved quasifree absorption model.

The study of electron transmission through nanocapillaries have been published in several papers and presented at ECCL conferences and WG meetings. The first evidence of guiding effect for electrons was published by our group and it was widely examined [2] by means of low and high resolution electron spectroscopy.

### Acknowledgements

This work has been supported by MES project # OI 171020 and by COST Action CM0601 ECCL (Electron Controlled Chemical Lithography).

### References

- [1] COST Action CM0601 (ECCL) web site <http://www.isa.au.dk/networks/eccl/index.html> and COST web site [http://www.cost.eu/domains\\_actions/cmst/Actions/CM0601](http://www.cost.eu/domains_actions/cmst/Actions/CM0601)
- [2] A. R. Milosavljević, J. J. Jureta, Gy. Viktor, Z. Pešić, D. Šević, S. Matefi-Tempfli, M. Matefi-Tempfli, and B. P. Marinković, EPL **86** 23001 (2009) [6pp].



