

## THE APPLICATION OF THE CUT-OFF COULOMB MODEL POTENTIAL FOR THE CALCULATION OF BOUND - BOUND STATE TRANSITIONS

N. M. Sakan<sup>1</sup>, V. A. Srećković<sup>1</sup>, Z. Simić<sup>2</sup>, and M. S. Dimitrijević<sup>2,3</sup>

<sup>1</sup>*Institute of Physics, Pregrevica 118, 11080 Zemun, Belgrade, Serbia*

<sup>2</sup>*Astronomical Observatory, Volgina 7, 11060 Belgrade 38, Serbia*

<sup>3</sup>*LERMA, Observatoire de Paris, UMR CNRS 8112, UPMC,  
92195 Meudon Cedex, France*

*E-mail: nsakan@ipb.ac.rs, vlada@ipb.ac.rs, zsimic@aob.rs, mdimitrijevic@aob.rs*

In this contribution we present results of bound state transition modeling using the cut-off Coulomb model potential. The cut-off Coulomb potential has proven itself as a model potential for the dense hydrogen plasma (see Mihajlov et al. 2011,2015). The main aim of our investigation include a further steps of improvement of the usage of model potential. The presented results cover a wide region of the plasma electron densities and temperatures. Such plasmas are of interest from both the laboratory and the astrophysical aspect. Here, we keep in mind the plasma of the inner layers of the solar atmosphere, as well as of partially ionized layers of other stellar atmospheres, for example the atmospheres of DA and DB white dwarfs with effective temperatures between 10 000 K and 25 000 K (Srećković et al. 2014). It is expected that such approach would lead towards the inclusion of bound state transition photo-absorption process within the frame of the presented Coulomb cut-off potential model.

### References

- Mihajlov, A. A., Sakan, N. M., Srećković, V. A., Vitel, Y.: 2011, *J. Phys. A*, **9**, 095502.  
Mihajlov, A. A., Srećković, V. A., Sakan, N. M.: 2015, *J. Astrophys. Astr.*, **36**, 635-642.  
Srećković, V. A., Mihajlov, A. A., Ignjatović, L. M. and Dimitrijević, M. S.: 2014, *JPCS*, **565**, 012022.