

Invited lecture

**ATOM-RYDBERG ATOM PROCESSES IN THE STELLAR
ATMOSPHERES: DWARF ATMOSPHERES, QUIET SUN
AND SUNSPOTS**

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The rate coefficients of the chemi-ionization processes in $H(1s) + H^*(n,l)$ and $He(1s2) + He^*(n,l)$ collisions, taking into account the influence of the corresponding $(n-n')$ -mixing processes, are determined for the temperature range characteristic for the solar and DB white-dwarf atmospheres.

The theory and modeling is done on the basis of the method described in Mihajlov *et al.* (2015). The direct calculations of the chemi-ionization rate coefficients are carried out for the models of the quiet Sun, sunspot and DB white-dwarf atmospheres.

It is demonstrated that the inclusion of $(n-n')$ mixing processes in the calculation influences the values of chemi-ionization rate coefficients significantly in all examined cases.

References

Mihajlov, A. A., Srećković, V. A., Ignjatović, Lj. M., Klyucharev, A. N., Dimitrijević, M. S., Sakan, N. M.: 2015, *Journal of Astrophysics and Astronomy*, **36**, 3.