

THE INFLUENCE OF THE RADIATIVE NON-SYMMETRIC ION-ATOM COLLISIONS IN STELLAR ATMOSPHERES, IN UV AND VUV REGIONS

Ljubinko M. Ignjatović¹, Anatolij A. Mihajlov¹, Vladimir A. Srećković¹,
Milan S. Dimitrijević^{2,3}, Aristophanes Metropoulos⁴

¹Institute of Physics, University of Belgrade, P.O. Box 57, 11001, Belgrade, Serbia;

²Astronomical Observatory, Volgina 7, 11060 Belgrade 38, Serbia

³Observatoire de Paris, 92195 Meudon Cedex, France

⁴Theoretical and Physical Chemistry Institute, National Hellenic Research Foundation,
Athens, Greece

The aim of this work is to draw attention to the processes of radiative charge exchange in strongly non-symmetric ion-atom collisions as factors of influence on the opacity of stellar atmospheres in UV and VUV regions. Therefore, for several ion-atom systems ($\text{He} + \text{He}^+$ and $\text{H} + \text{A}^+$, where $\text{A} = \text{Li}, \text{Na}$ etc.) some characteristics have been determined, such as molecular potential curves and dipole matrix elements. Then, using these characteristics, calculations have been carried out to determine coefficients of spectral absorption due to these processes together with the corresponding molecular photo-dissociation processes, in the atmosphere of the Sun and some DB white dwarfs. The standard models of the considered atmospheres have been used in the calculations. It has been established that the examined processes generate rather wide and firm molecular absorption bands in the UV and VUV regions, which should be taken into account at interpretation of the data obtained from measurements.

AOB (ASTRONOMICAL OBSERVATORY – BELGRADE) NODE OF THE VIRTUAL ATOMIC AND MOLECULAR DATA CENTER

Andjelka Kovačević¹, Milan S. Dimitrijević^{2,3}, Luka Č Popović², Zoran Simić²,
Darko Jevremović², Jovan Aleksić²

¹Department of Astronomy, Faculty of Mathematics, Studentski Trg 15, 11000
Belgrade, Serbia

²Astronomical Observatory, Volgina 7, 11060 Belgrade, Serbia,

³LERMA, Observatoire de Paris, 92195 Meudon, Cedex, France

We will consider and discuss actual status and plans for the future development and activity of Serbian AOB (Astronomical Observatory – Belgrade) Node of Virtual Atomic and Molecular Data Center (<http://www.vamdc.eu>, VAMDC), an European Union funded FP7 project: Also, we will discuss activities, needed that AOB Node of VAMDC becomes a regional center for the connection of activities on atomic and molecular data, and an organizer of regional trainings for students and potential users, as well as a VAMDC Node for monitoring the needs of users in South Eastern Europe.