

STARK BROADENING AND WHITE DWARFS

M. S. Dimitrijević^{1,2}, A. Kovačević³, Z. Simić¹,
S. Sahal-Bréchet², N. Ben Nessib⁴

¹*Astronomical Observatory, Volgina 7, 11060 Belgrade 38, Serbia*

²*Observatoire de Paris, LERMA, CNRS, UMR 8112, 5 Place Jules Janssen,
92190 Meudon, France*

³*Department of Astronomy, Faculty of Mathematics,
Studentski Trg 15, 11000 Belgrade, Serbia*

⁴*INSAT (National Institute of Applied Sciences and Technology), Tunis, Tunisia*

*E-mail: mdimitrijevic@aob.bg.ac.rs, andjelka@matf.bg.ac.rs, zsimic@aob.bg.ac.rs,
sylvie.sahal-brechot@aob.bg.ac.rs, nebil.benessib@planet.tn*

White dwarf and pre-white dwarf atmospheres are one of the best examples for the application of Stark broadening research results in astrophysics, due to plasma conditions very favorable for this line broadening mechanism. For example in hot hydrogen-deficient (pre-) white dwarf stars $T_{eff} = 75\,000\text{ K} - 180\,000\text{ K}$ and $\log g = 5.5-8$ [cgs]. Even for much cooler DA and DB white dwarfs with typical effective temperatures of $10\,000\text{ K} - 20\,000\text{ K}$, Stark broadening is usually the dominant broadening mechanism.

We will review the classification and evolution of white dwarfs, in particular from the point of view of the significance of Stark broadening and our work on investigation of this line broadening mechanism in atmospheres of such stars.

We will discuss also the organization and search of atomic data needed for such investigations, especially their organization in the STARK-B database (<http://stark-b.obspm.fr/>), and the new search facilities which will provide the collective effort to develop Virtual Atomic and Molecular Data Center (VAMDC - <http://vamdc.org/>, Dubernet et al., 2010).

References

Dubernet, M. L. et al.: 2010, *J. Quant. Spectrosc. Radiat. Transfer*, **111**, 2151.