

STARK BROADENING OF Ne II, Ne III AND O III SPECTRAL LINES BY COLLISIONS WITH PROTONS AND HELIUM IONS FOR STARK-B DATABASE AND VIRTUAL ATOMIC AND MOLECULAR DATA CENTER (VAMDC)

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

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*

E-mail: mdimitrijevic@aob.bg.ac.rs, andjelka@matf.bg.ac.rs, zsimic@aob.bg.ac.rs, sylvie.sahal-brechet@obspm.fr

The data on Stark broadening of spectral lines of interest for diagnostics, modelling and investigations of stellar atmospheres and other various plasmas in astrophysics, laboratory, technology and fusion research, obtained by us using semiclassical perturbation method, are organized in the STARK-B database (<http://stark-b.obspm.fr/>). We note as well that this database is a part of Virtual Atomic and Molecular Data Center (VAMDC - <http://vamdc.org/>, Dubernet et al., 2010), supported by EU in the framework of the FP7 "Research Infrastructures - INFRA-2008-1.2.2 - Scientific Data Infrastructures" initiative.

In Djeniže et al. (2002) and Milosavljević et al. (2001) we determined Stark broadening parameters due to collisions with electrons for 15 Ne II and 3 Ne III, and in Srećković et al. (2001) for 5 O III multiplets. However, for stellar atmospheres research, Stark broadening data due to collisions with principal ionic perturbers, protons and ionized helium, are also useful. In order to complete data to be included in STARK-B database, we determined here these additional data. Also, we determined within the semiclassical perturbation method electron-, proton-, and ionized helium impact broadening parameters for the important Ne II $2s^22p^4(3P)3p^2D^o - 2s^22p^4(3P)3d^2P$ spectral line in the visible part of the spectrum.

References

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