STARK-B DATABASE AS A RESOURCE FOR "STARK" WIDTHS AND SHIFTS DATA: STATE OF ADVANCEMENT AND PROGRAM OF DEVELOPMENT

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"Stark" broadening theories and calculations have been extensively developed for about 50 years and can now be applied to many needs, especially for accurate spectroscopic diagnostics and modelling. This requires the knowledge of numerous collisional line profiles. Nowadays, the access to such data via an on line database becomes essential. STARK-B [1] is a collaborative project between the Astronomical Observatory of Belgrade and the Laboratoire d'Étude du Rayonnement et de la matière en Astrophysique (LERMA). It is a database of calculated widths and shifts of isolated lines of atoms and ions due to electron and ion collisions (impacts). It is devoted to modelling and spectroscopic diagnostics of stellar atmospheres and envelopes, laboratory plasmas, laser equipments and technological plasmas. Hence, the domain of temperatures and densities covered by the tables is wide and depends on the ionization degree of the considered ion. STARK-B has been fully opened since September 2008 and is in free access. The first stage of development was ended in autumn 2012, since all the existing data calculated with the impact semiclassical-perturbation method and code by Sahal-Bréchot, Dimitrijević and coworkers have now been implemented. We are now beginning the second stage of the development of STARK-B. The state of advancement of the database and our program of development will be presented at the conference, together with its context within VAMDC [2]. VAMDC is an international consortium which has built a secure, documented, flexible interoperable platform e-science permitting an automated exchange of atomic and molecular data.

References

[1] http://stark-b.obspm.fr
[2] http://www.vamdc.eu/