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STARK BROADENING DATA FOR N VI SPECTRAL LINES

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In a number of research topics Stark broadening data, or data for broadening by collisions with charged particles, are useful. In particular for astrophysical plasma research, but also for other topics like laboratory, fusion and laser produced plasma research, modelling and diagnostics. N VI spectral lines are present in white dwarf spectra (Rauch 2007) where conditions for Stark broadening are particularly favorable, so that the corresponding data are very useful. Stark broadening data for the spectral lines of N VI are also of interest for proton-boron fusion plasma, because in numerous experiments (see e.g. Istokskaia et al., 2023) the target is boron nitride (BN). By employing the semiclassical perturbation theory (see for example Sahal-Bréchet et al., 2014 and references therein), we calculated Stark widths and shifts, for 15 multiplets of N VI broadened by collisions with the most important charged constituents of stellar and proton-boron fusion plasma: electrons, protons, alpha particles (He III), B III, B IV, B V and B VI ions, for a grid of temperatures and perturber densities. The behavior of N VI Stark widths and shifts within a spectral series has been discussed in Dimitrijević et al. (2023a) and data for a perturber density of 10^{16} cm^{-3} have been presented in Dimitrijević et al. (2023b). The data for the whole grid of electron densities will be published as a small database in Dimitrijević et al. (2024). In this contribution we will present our results and their analysis.

[1] Dimitrijević, M.S., Christova, M.D., Sahal-Bréchet, S.: 2023a, *Contrib. Astron. Obs. Skalnaté Pleso, Universe*, 53(3), 84.

[2] Dimitrijević, M.S., Christova, M.D., Sahal-Bréchet, S.: 2023b, *Universe*, 9, 511.

[3] Dimitrijević, M.S., Christova, M.D., Sahal-Bréchet, S.: 2024, Data, to be submitted.

[4] Istokskaia, V., et al.: 2023, *Communications Physics*, 6, 27.

[5] Rauch, T.: 2007, *Astron. Astrophys.*, 470, 317.