

**STARK BROADENING EFFECT IN HOT DA WHITE DWARFS:
ULTRAVIOLET LINES OF Fe V**

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Ultraviolet spectral lines of Fe V ion are observed in many hot white dwarfs atmospheres (Preval et al. 2013, 2019). Fe V spectral lines are also used to measure the fine structure constant α , at the surface of the white dwarf G191-B2B (Hu et al. 2019, 2021). Recently in Hamdi et al. (2021), we have calculated Stark broadening parameters (widths and shifts) for a large number of Fe V spectral lines using semi-classical perturbation approach (Sahal-Bréchet 1969a,b). The work was motivated by the importance of Fe V spectral lines for the study of white dwarfs atmospheres and specially for the measure of the variation of the fine structure constant in strong gravitational field. In this work, we present Stark broadening widths and shifts for 15 UV lines of Fe V calculated using semiclassical perturbation approach. The needed atomic data are calculated using Hartree-Fock approach with relativistic corrections (Cowan 1981). Our results are presented as a function of temperature for collisions with electrons, protons singly and doubly charged helium. Finally, we have investigated the importance of electron impact broadening effect in the atmospheric conditions of hot DA white dwarfs. We use the atmospheric models of Wesemael et al. (1980).

References

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