

ON THE ELECTRON IMPACT BROADENING OF DOUBLY CHARGED MAGNESIUM ION LINES

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Broadening of spectral lines by collisions with charged particles is of interest for a number of topics in astronomy and physics, like for astrophysical, laboratory, laser produced, fusion or technological plasma investigation, modelling and diagnostics. Magnesium is an element of particular astrophysical importance due to its high cosmic abundance. For example Solar abundance of magnesium is the largest after H, He, O, C, Ne and N. Moreover, carbon burning in stellar interiors of some massive stars produces oxygen-neon-magnesium cores.

Within the semiclassical perturbation approach, using the impact approximation, we will consider *ab initio*, using the Cowan code for the needed energies and oscillator strengths, Stark broadening parameters for several Mg III lines. In addition to electron-impact full halfwidths and shifts, Stark broadening parameters due to proton-, and doubly charged helium ion-impacts will be investigated as well, in order to provide Stark broadening data for the important charged perturbers in stellar atmospheres.

The obtained results will be compared with the available theoretical results.