

## COMPARISONS AND COMMENTS ON ELECTRON AND ION IMPACT PROFILES OF SPECTRAL LINES

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Stark broadening theory is now mature and is currently exploited for calculating many data of widths and shifts for numerous lines of many elements and various degrees of ionization that are needed for spectroscopic diagnostics and modelling in astrophysics, laboratory and technological plasmas. A great number of data, obtained through the semi-classical perturbation theory, have been calculated by our research team; tables have been published in international journals for many important neutral atom and ion emitters and typical needs of temperatures, and electron and ion densities. They are currently implemented in the STARK-B database which participates to the European effort within the VAMDC (Virtual Atomic and Molecular data Centre). Despite of that, a great number of data are still missing and their orders of magnitude would at least be welcome. In the present lecture, we will revisit the comparison, orders of magnitudes and trends of the Stark widths and shifts in the impact approximation, by considering and discussing their semiclassical perturbation expressions: electron versus positive ion collisions, trends within ion perturber charges and masses, charges of the ion emitters, atomic structure and quantum numbers of the involved atomic levels, and so on. We will also emphasize the necessity of providing fitting formulae, since their results are essential for the modelling codes of stellar atmospheres and stellar envelopes. The coefficients of our proposed fitting formulae will be inserted in STARK-B.

STARK-B: <http://stark-b.obspm.fr>

VAMDC: <http://www.vamdc.eu>