

ON THE PLASMA BROADENING AND SHIFTING OF NON-HYDROGENIC SPECTRAL LINES

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Abstract. The present status of the experimental studies of plasma broadening and shifting of non-hydrogenic neutral atom and positive ion spectral lines will be discussed with an emphasis to the plasma diagnostic applications. Short overview of the available theoretical results will be followed by the description of experimental techniques for the line shape and shift measurements. The influence of other broadening mechanisms to the Stark width and shift determination will be discussed. To select higher accuracy experimental data for plasma diagnostic purposes the available experimental results are analyzed and the uncertainty of recommended ones is estimated. The procedure for application of selected lines for plasma electron density diagnostics will be described. In order to test theories the selected data are compared with results of various Stark width and shift calculations. Neutral atom lines asymmetry and new techniques for ion-broadening parameter measurements will be reviewed. The studies of line widths and shifts along isoelectronic sequences of multiply ionized atoms will be discussed also.