

**REGULARITIES IN THE STARK BROADENING  
AND SHIFT PARAMETERS OF SPECTRAL LINES**

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This lecture surveys some recent advances in plasma diagnostic research based on the investigation of spectral line shapes. The emphasis is on contribution to: (i) the experimental measurements and theoretical calculations of the Stark broadening parameters of large number of spectral lines originating from different neutral and ionized emitters; (ii) verification of the Stark parameters dependence on the fundamental plasma parameters such as are the electron density ( $N$ ) and temperature ( $T$ ); (iii) discovering and verification of Stark parameters dependence on different atomic structure parameters such as are the upper level ionization potential ( $\chi$ ) of a particular transition within transition array or the same type of transition (a.g. resonance's or off resonance's) of all elements in Periodic table,  $\chi$  and rest core charge ( $Z_c$ ) of the emitter seeing by the electron undergoing transition within isoelectronic and isonuclear sequences, (and nuclear charge number ( $Z$ ) within homologous sequences; (iv) Stark parameters calculation using the established dependence on the upper level ionization potential for the spectral lines not been investigated so far experimentally or theoretically but belonging to the above mentioned similar spectra, and (v) comparison of the our experimental and theoretical data with those obtained by the other authors.