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STARK BROADENING DATA – NEEDS AND APPLICATIONS

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Stark broadening data are of importance for a number of problems connected with the research and modelling of various astrophysical plasmas as well as for laboratory plasmas, inertial fusion plasma and technological plasmas investigations and for designing of laser equipment, For example in astrophysics, such data are needed for modelling and spectroscopic diagnostics of stellar atmospheres and envelopes. In fact stellar spectroscopy is a powerful tool for investigation of stellar plasma and by analyzing stellar spectral lines, we can determine for example the temperature in particular atmospheric layers, the chemical composition of stellar plasma, surface gravity, spectral type and effective temperature. For such purposes, Stark broadening data are often needed, since in a number of cases, the influence of collisions with charged particles on emitting/absorbing atoms and ions is important and its result is the broadening of spectral lines, so called Stark broadening.

We will review here the needs for Stark broadening data in various research topics and technology with the accent on significance of Virtual Atomic and Molecular Data Center for their search and for search of atomic data needed for determination of Stark broadening parameters.