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Spectral line broadening and the corresponding databases

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Profiles of spectral lines broadened by collisions with charged particles (Stark broadening) and neutral atoms (Van der Waals and resonance broadening) are needed for determination of various quantities and solution of different problems in astrophysics, physics and technology, as for example modelling of stellar plasma, analysis and synthesis of spectral lines, calculations of absorption coefficient, opacity, radiative transfer, abundance determination, laboratory plasma diagnostic, lasers and laser produced plasma, inertial fusion experiments and modelling and optimisation of plasmas in technology.

In this contribution we will present databases containing data relevant to the broadening of atomic and ionic spectral lines, needed for above mentioned topics. We will discuss and describe Atomic Spectral Line Broadening Bibliographic Database of National Institute of Standards and Technology (NIST - Washington); the Vienna Atomic Line Database (VALD), a collection of atomic and molecular transition parameters of astronomical interest (Piskunov et al. 1995); the collection of databases of Paris Observatory: MOLAT Atomic and Molecular Data containing, among others, three databases of interest for line profiles: BALSS (Bibliography of Atomic Line Shapes and Shifts), Griem's tables (Griem 1974) and STARK-B database containing data on Stark broadening parameters (Sahal-Bréchot et al. 2015). Additionally we will present and VAMDC, european Virtual Atomic and Molecular Data Center. Also, we will dicuss where the data on spectral line profiles may be used.

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