

**CHEMI-IONIZATION/RECOMBINATION PROCESSES AS
FACTORS OF THE INFLUENCE ON THE SPECTRAL
LINE SHAPES IN STELLAR ATMOSPHERES**

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In this work, the chemi-ionization processes in atom- Rydberg atom collisions, as well as the corresponding chemi-recombination processes are considered as the factors of the influence on the atom exited-state populations in weakly ionized layers of stellar atmospheres. The presented results are related to the photospheres of the Sun and some M red dwarfs as well as weakly ionized layers of DB white dwarfs atmospheres. It has been found that the mentioned chemi ionization/recombination processes dominate over the relevant concurrent electron-atom and electron-ion ionization and recombination process in all parts of considered stellar atmospheres. The obtained results demonstrate the fact that the considered chemi ionization/recombination processes must have a very significant influence on the optical properties of the stellar atmospheres. Thus, it is shown that these processes and their importance for non-local thermodynamic equilibrium modeling of the solar atmospheres should be investigated further.