Session 3

# (Invited) Magnetic field diagnostics with UV spectropolarimetry

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The electromagnetic radiation of the strongest atomic lines found in the UV solar spectrum comes from the solar chromosphere and thus encodes information about the physical properties of the emitting chromospheric plasma. However, exploiting this spectropolarimetric data is not easy, not only because those regions of the spectrum are out of reach for ground based facilities, but their modeling is also a computational challenge. Recently, the CLASP experiments have opened a new window to the diagnostic of the upper chromosphere and the base of the transition region, as well as the possibility to contrast the theory of atomic line formation with the observations. From the theoretical and computational point of view, these strong UV atomic lines form in a relatively rarefied region of the atmosphere, thus showing not only non-local thermodynamic equilibrium effects, but also the effect of atomic polarization and partially coherent photon scattering. In the last years, the community has significantly progressed on our capabilities to carry out radiative transfer modeling accounting for these physical ingredients, which take a heavy toll on the computational requirements. In particular, we have reached the point of being able to carry out the inversion of spectropolarimetric data, albeit under significant assumptions such as that of plane-parallel model atmospheres. This talk summarizes the main aspects of the UV spectropolarimetric modeling and shows some recents results on chromospheric diagnostics from spectropolarimetric inversions of the CLASP2 data.