Session 2

(Invited) Spectropolarimetry of flaring active region

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The structure and dynamics of flaring active regions are controlled by the magnetic field. Therefore, measurements of the magnetic field are key to our understanding of flare physics. It is well known that flare activity increases the signal-to-noise of the polarimetric signals in optical and near infrared spectral regions at energy deposition sites such as ribbons and kernels. This makes flares well-observable with large aperture, high-resolution ground-based telescopes, providing a unique chromospheric diagnostic for measuring the magnetic field. However, intense heating of the chromosphere during flares leading to a deepening of the monochromatic optical depth via ionisation, which is an example of the multi-variable effects that make sophisticated tools such as inversions critical in the careful interpretation of flare spectropolarimetry. Furthermore, flare material evaporates from the chromosphere and becomes part of the corona and subsequently condensate and form loops with high density and lower temperature. Such loops also permit the use of chromospheric diagnostic as the plasma falls and traces magnetic field lines. In my talk I will discuss recent advances, basic methods, and specific aspects of flare polarimetry.