

M33a The plasma properties of the penumbral fine structure

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The inversion code SIR (Stokes Inversion based on Response function) is used for the first time on the data retrieved by the Hinode spectropolarimeter (SP) which is observing in the neutral iron lines (Fe I 630.15 nm and Fe I 630.25 nm).

The results are compared with previous analysis based on the data from the La Palma Stokes Polarimeter (LPSP) which was observing in the same wavelength region.

The work is aimed on the fine structure of the penumbra where great achievements can be expected due to the spatial resolution of Hinode SP ($0.25''$) which is at least three times better than the spatial resolution of LPSP (the best spatial resolution for the full-Stokes polarimetry available before the launch of the Hinode satellite).