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Stratification of canopy magnetic fields in a plage region

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The role of magnetic fields in the chromospheric heating problem remains greatly unconstrained. Most theoretical predictions from numerical models rely on a magnetic configuration, field strength, and connectivity; the details of which have not been well established with observational studies for many chromospheric scenarios. High-resolution studies of chromospheric magnetic fields in plage are very scarce or non existent in general.

Our aim is to study the stratification of the magnetic field vector in plage regions. Previous studies predict the presence of a magnetic canopy in the chromosphere that has not yet been studied with full-Stokes observations. We use high-spatial resolution full-Stokes observations acquired with the CRisp Imaging Spectro-Polarimeter (CRISP) at the Swedish 1-m Solar Telescope in the Mg I 5173 Å, Na I 5896 Å and Ca II 8542 Å lines.

We have developed a spatially-regularized weak-field approximation (WFA) method, based on the idea of spatial regularization. This method allows for a fast computation of magnetic field maps for an extended field of view. The fidelity of this new technique has been assessed using a snapshot from a realistic 3D magnetohydrodynamics simulation.

Student poster?

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