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Hundred Gauss magnetic fields in spicules and coronal rain clumps

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We present the analysis of spectropolarimetric data obtained with the CRISP instrument at the SST in the Ca II 845.2 nm line. We used the Weak-field approximation (WFA) to obtain information about the magnetic field present in chromospheric spicules and coronal rain clumps. Albeit being computationally simple to implement, to correctly apply the WFA requires a careful assessment of the conditions of the plasma. Magnetic fields of the order of hundreds of Gauss were inferred in a large number of spicule and coronal rain pixels. In the later case, the full magnetic field vector could be determined. We also combined simultaneous Ca II 845.2 nm and H α intensity observations to estimate the temperature and non-thermal velocity of the plasma in coronal rain and spicules. The statistical distribution of the temperature of spicules (coronal rain) peaks at 15,000 K (20,000 K) and the microturbulent velocity lies in the range 5-20 km/s (0-15 km/s) and peaks at 12 km/s (5 km/s).

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