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Fine magnetic features and chirality in solar active regions

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Abstract. In this talk, we present the fine magnetic features, especially near the magnetic inversion line in the solar active region NOAA 10930 observed by Hinode. The high resolution vector magnetograms provide the information of the magnetic field in detail. After the analysis, some results on the basic properties on the relationship with the fine features of electric current and helicity density can be obtained: The electric current flowed within the magnetic fibrils exists two fundamental components. A component is along the direction of magnetic field and another around the magnetic fibrils. Even if the magnetic helicity of the active regions is contributed from the fine helical features of magnetic field, the individual magnetic fibrils do not show the immediate characteristic of the global helical configuration of active regions, due the non-parallelism between the fine magnetic field and its current. This means that the microstructure of magnetic field in the solar atmosphere is probably far from the force free field.