



The study of solar magnetic field and helicity using multi- magnetographs

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We used the vector magnetograms observed by several magnetographs to study the magnetic field evolution and current helicity in solar active regions. Two helicity parameters, current helicity density h_c and alpha-coefficient of linear force free field are calculated. We consider the differences in measurements, observing conditions, data reduction methods, and discuss their contributions to the dispersions in the hemispheric sign rule of helicity. We concluded: the differences in the transverse field strength and its azimuthal angle have significant effects on helicity parameters; the nature of the hemispheric helicity rule is a weak tendency with a significant scatter; the assumptions of local homogeneity and isotropy in computation of observational proxies of helicity require further analysis in the light of our findings.