

# Probing Current and Cross-Helicity in the Solar Atmosphere

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We present results of systematic data analysis of solar vector magnetograms and dopplergrams for revealing average values of current helicity and twist over active regions and their systematic interpretation in the framework of dynamo theory. We discuss opportunities for collection of data on cross-helicity and further improvement of dynamo models with respect to account of this quantity in future.

By analysis of datasets of active regions with their relative rotation we estimate the effective depth, at which these magnetic structures are anchored. To carry out so, we use the data on solar internal rotation provided by helioseismic inversion technique. This enables us to conclude on possible change of the sign of helical quantities with depth in the solar convection zone.

Separate studies of evolution of the effective depth at which the main magnetic activity is located over the solar cycle enables us in the future, with accumulation of a bigger dataset on current helicity of active regions, to track the effective depth at which solar magnetic field generation processes operate.