Role o magnetic and current helicities in solar dynamos

D.Sokoloff (1)

(1) Department of Physics, Moscow State University (sokoloff@dds.srcc.msu.su)

Magnetic helicity is an integral of motion which efficiently constrains solar dynamo action in a much more efficient way rather energy conservation. The point is that the capacity short wavelength part of magnetic fluctuation spectrum is negligible for the magnetic helicity case aand the effective magnetic helicity cascade is much more rare rather that one of the energy. From the other hand, magnetic helicity is closely coupled with current helicity which determines so-called alpha-effect which is one of two basic drivers o solar dynamo. Resently solar current helicity becomes accessible for observations. The observations performed in particular at Huairou Solar Station, China provide the unique direct observational information concerning alpha-effect. Comparision between various theoretical predictions concerning spatial and temporal distribution o alpha-effect and correcponding observational data concerning solar current helicity is presented.