

**Magnetic Nature of Prominences and CMEs at Different Scales Throughout the Cycle**  
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Solar magnetic fields tend to twist as they emerge from the photosphere and evolve dynamically in the corona. Described in terms of magnetic helicity or field chirality (handedness) the field structures have a tendency for left-handed (right-handed) to dominate in the northern (southern) hemisphere. Photospheric, chromospheric, coronal and heliospheric forms of magnetic field twist are causally linked forming a highly interconnected system evolving dynamically in space and time. This system may include photospheric vortices, active regions, filament channels and filaments, coronal arcades, CMEs and ICMEs.

I will discuss the formation and evolution of the magnetic systems of filament channels, filaments and CMEs and one of the main characteristics of such systems – the magnetic twist (helicity). How does the magnetic helicity of pre-eruptive and eruptive systems evolve through the different phases of the solar cycle? The answer to this question will help to understand global magnetic field evolution and therefore space climate and weather through the varying cycles.