

[7SO-19] **Chirality of Intermediate Filaments and Magnetic Helicity of Active Regions**

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Filaments which form either between or around active regions are called intermediate filaments. In spite of various theoretical studies, the origin of the chirality of filaments is still uncovered. We investigated how intermediate filaments are related to their associated active regions, especially from the point of view of magnetic helicity and relative orientation. The handedness of filaments has been determined based on the orientations of barbs seen in BBSO full-disk H α images taken during the rising phase of solar cycle 23. The sign of magnetic helicity of active regions has been determined using S/inverse-S shaped sigmoids from Yohkoh SXT images. As a result, we have found a good correlation between chirality of filaments and magnetic helicity sign of active regions. Among 47 filaments, 41 filaments have shown the same sign as helicity sign of nearby active regions. It has been also confirmed that the chirality of filaments is independent of their relative orientation with respect to active regions, which is against a theoretical prediction. These results suggest that the chirality of filaments may originate from magnetic helicity of active regions.

[7SO-20] **A Simulation Study of the Roll Effect in Erupting Prominences**

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The roll effect in prominence eruption is one of the most mysterious phenomenon in the sun. We still do not understand why the prominence ribbon bends as if rolling and how the rolling sense depends on the prominence chirality. The explanation by Bangert, Martin and Berger (2005) is based on an unconfirmed assumption that the magnetic arcade overlying the prominence should be systematically displaced in a certain direction depending on the prominence chirality. In this paper, we put forward an alternative explanation that the roll effect is caused by separation of electron- and ion-flows. To examine this idea, we have performed an MHD simulation of arcade reconnection with anisotropic electrical conductivity. Our simulations do not only reproduce the rolling of the flux rope, but also confirm the sense of rolling depending on the prominence chirality. There, however, remains a question to answer: what is the major cause of separation of electron- and ion flows. We will discuss several possibilities of generating such separation.