[포SO-17] Dynamics of Double Coronal X-ray Sources in Solar Flares Interpreted as Merging of Two Flux Ropes

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Recently, Liu et al. (2008) reported double coronal hard and soft X-ray sources in an M1.4 flare. The non-thermal emission in the high energy band is observed in the inner region of each source and the thermal emission in the low energy band is observed in the outer region. The upper source moves downward and the lower source moves upward. Eventually the two sources merge and form a single source. We propose that this observation can be explained by merging of two flux ropes as shown in Choe and Cheng (2000). In a reconnecting current sheet of a flare, a new flux rope can be generated in the lower corona while a pre-born flux rope is ascending in the higher corona. Since the two flux ropes carry axial currents of the same direction, they attract each other. As coronal flux ropes tend to move upward by nature, the downward motion of the upper flux rope is mild while the upward acceleration of the lower flux rope is outstanding. In the system consisting of two flux ropes, currents are concentrated not only in the current sheet between two flux ropes, but also in the center of each flux rope. Thus the highest energy emission comes from the former regionand the next highest emissions are from the latter regions. The outer parts of the flux ropes are filled with lower energy plasmas emitting thermal radiation. We will discuss what ctwo flux ropes.

[포SO-18] An imaging spectroscopic study of EUV bright points by hinode/EIS

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We investigated Extreme-Ultraviolet (EUV) bright points in the active region (AR 0926) on 2006 December 2 by the EUV Imaging Spectrometer (EIS) onboard Hinode spacecraft. We have determined their Dopplervelocities and non-thermal velocities from 15 EUV spectral lines (log T=4.7-7.2) by fitting each line profile to a Gaussian function. We present the Doppler velocity as a function of temperature which corresponds to a different height. As a result, we found one interesting EUV bright point showing the following observational characteristics (1) There is a systematic increase from -56 km/s(blueshift) at log T=5.8 to 12 km/s(redshift) at log T=6.7, while there is noticeable corresponding brightening in all low temperature images (log T < 6.2), there is little brightening in some high temperature images. When assuming that this bright point is caused by magnetic reconnection and the Doppler shift indicates a result of reconnection outflow, the systematic decrease of the outflow speed with height implies that magnetic reconnection occur in the low atmosphere.