[SO-09] Multiple Flux Systems in Halo CME Source Regions Observed by Yohkoh

H. R. Kim[1], M. Jang[1], Y. J. Moon[1], G. S. Choe[1], R. S. Kim[2] and Sujin Kim[1,2]
[1]Kyunghee University, [2]Korea Astronomy and Space Science Institute

To examine the role of magnetic field connectivity and magnetic field energy in the pre-eruption stage of solar eruption, we have examined multiple flux systems in Halo CME source regions observed by Yohkoh Soft X-ray telescope (SXT). From the SOHO CME online catalog, we considered about 150 active regions associated with front-side Halo CMEs from 1996 to 2001. In these active regions, we identified sigmoidal structures and coronal loops using Yohkoh SXT data and their magnetic polarities from SOHO MDI images. As a result, we found (1) that the total occurrence ratio of bipolar configurations to quadrupole ones is about 1:3 in these events, and (2) that the multiple flux systems are 78% of all events. There is a numerical model of multiple flux systems having more energy than the open fields. From the comparison with this model, we estimated winding angles between flux tubes in the two events that are well identified as interwinding multiple flux systems.

[SO-10] Physical characteristics of small-scale X-ray/EUV jets observed by Hinode XRT and TRACE

[1]김연한, [1]문용재, [1]조경석, [1]봉수찬, [1]박영득, [2]T. Sakurai, [3]채종철
[1]한국천문연구원, [2]일본국립천문대, [3]서울대학교 물리천문학부

We present the morphological and kinematic characteristics of three small-scale X-ray/EUV jets that are simultaneously observed by the X-ray telescope (XRT) onboard Hinode (Solar-B) and the TRACE. Thus, we found three X-ray/EUV jets and their major characteristics can be summarized as follows : (1) They all have no association with major flares. (2) From the comparison between XRT and TRACE observations, we found that they have similar characteristics in terms of projected speed, lifetime, and size. (3) Their sizes range from 4-5 × 10^5 km. (4) Their projected speeds are estimated to be 180-310 km s^{-1} with an average speed of about 250 km s^{-1} (5) Their lifetimes lie in the range of 100 to 600 s. (6) From the comparison between the XRT images with the SOHO MDI maps for two events, all they are associated with the parasitic polarity region. These characteristics are similar to the previous observations for X-ray jets by the Yohkoh SXT but quite different from EUV jets associated with H-alpha surges. In addition, from the EIS four spectral lines for the last event, we found blueshift (up to -64 km s^{-1}) and redshift (up to 20 km s^{-1}) motions as well as nonthermal velocities ranging from 57 to 106 km s^{-1} at the jet footpoint. We note a tendency : the hotter the maximum ionization temperature is, the larger the area of blueshift region is. These characteristics are consistent with a typical jet model that includes the magnetic reconnection between open coronal fields and emerging magnetic fields.