

Dawn-Dusk Asymmetry of Arcade Formations in the Solar Corona

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Giant arcade formations observed with the soft X-ray telescope (SXT) aboard Yohkoh spacecraft are caused by reconnection of anti-parallel magnetic field along magnetic neutral line. This mechanism is very similar to that of magnetospheric substorm. It is known that, in substorms, the diffusion region is located in the dusk side more than the dawn side. On the other hand, no statistical evidence has been found so far on the existence of such asymmetry in the solar corona. We have examined the polarity of the footpoints of the arcade formations that grow from one end of the neutral line to the other end, and found that (1) more arcades grow to the direction of $V \times B$ electric field, that corresponds to dawn-to-duskward in the magnetotail, and (2) larger arcade have larger growth velocity.