E109-010 **Room: 202** **Time: May 21 14:30-14:45**

Dynamics of large-amplitude bipolar magnetic fields observed in the reconnection region

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Magnetic reconnection is one of the key processes in the magnetotail reconfiguration, and has been studied for more than decades. However, observational features in the reconnection region are frequently far from the simple single X line picture. Some of recent numerical simulations have tried to explain the dynamics of multiple X line formation in the current sheet and related evolution of multiple plasmoids and flux-ropes, but the comparision with the actual observation is not yet done fully.

We present short time-scale magnetic field variation during fast flow observations associated with the magnetic reconnection observed by magnetic field and plasma instruments on board the four Cluster satellites. Using high-resolution mangetic field data, we found large-amplitude bipolar magnetic field variations within a few seconds, in some cases with its intensity more than a half of lobe magnetic field strength. Some of them are found to be observed during the flow reversal where the bulk plasma velocity drops, and the others are associated with the intensification of fast bulk plasma flows. These fast plasma flows are frequently associated with electron flat-top distribution which indicates that the location is just in the vicinity of an X line, on the other hand, characteristics of electrons are sometimes different from surroundings inside the bipolar signatures. From the timing difference and spatial separation of the observations by each satellite, these bipolar signatures are revealed to be very small in the order of an ion inertia scale. Polarity of the variation is consistent with the flux-rope type variation associated with fast flows mainly directed tailward or Earthward. We discuss the generation mechanism of such distinct structures, considering the multiple formation of X lines, and compare with results of recent numerical simulations.