

R008-28

Zoom meeting D : 11/4 PM2 (15:45-17:30)
16:15-16:30

Field structure and plasma momentum transfer in quasi-steady large-scale magnetic reconnection

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In the geomagnetotail, a large scale magnetic reconnection is one of the most important energy release and transport processes. We study the large scale magnetic reconnection in a two-dimensional magnetotail by means of a hybrid model. Around the diffusion region, characteristic electromagnetic field structures, e.g. a quadrupolar out-of-plane Hall magnetic field, and accelerated plasma particles are generated by the local plasma dynamics. The some field structures are phasestanding around the diffusion region and the boundary layer between the reconnection plasma jet and the lobe region. The out-of-plane magnetic field propagates away from the reconnection jet region as a kinetic Alfvén wave with super-Alfvénic speed around the boundary layer of the plasma sheet. The wave transfers substantial energy and momentum by Poynting flux together with the accelerated plasma particles. These mechanisms are important for understanding the balanced dynamic structure of the quasi-steady large scale two-dimensional magnetic reconnection.