

## Ion dynamics and Hall field structure in large-scale steady magnetic reconnection

# Masao Nakamura[1]

[1] Dept. of Aerospace Eng., Osaka Prefect. Univ.

We investigate the ion dynamics and the Hall electric and magnetic field structure in the large-scale steady fast magnetic reconnection of antiparallel fields using hybrid simulations. The Hall field is induced by the currents due to the ion-electron dynamics in the diffusion region. The Hall field structure expands within the ion reconnection jet whose width increases monotonically with increasing distance downstream away from the diffusion region. The leading edge of the Hall field propagates farther away in the pre-existing plasma sheet boundary layer. We discuss a cause-effect relationship between the ion dynamics and the Hall field structure in the large-scale steady fast magnetic reconnection.