

Effects of background heavy ions on magnetic field structure and ion dynamics in a large scale magnetic reconnection

Masao Nakamura[1]

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

We investigate effects of background heavy ions on magnetic field structure and ion dynamics in a large scale magnetic reconnection. After the formation of fast reconnection jets away from a diffusion region, the background heavy ions exhibit unmagnetized Speiser-type motions far from the diffusion region, although the protons show various characteristic motions according to the distances from the reconnection line. These motions result in a change of density rate and a momentum exchange between the protons and background heavy ions through the electromagnetic field in the reconnection jets. That makes derivations of the ion cross-tail current carriers and distributions and the field structure form the no heavy ion case.