

The structure of an outflow during an X-line retreat

Kenya Shimizu^{1*}, Masaki Fujimoto², Iku Shinohara²

¹University of Tokyo, ²Institute of Space and Astronautical Science, Japan Aerospace Exploration Agency

Particle-in-cell simulations of magnetic reconnection are performed to study the structure of an outflow in asymmetric reconnection. Here the asymmetry is introduced by setting a hard wall that blocks one of the outflows from the reconnection region while leaving sufficient free space in front of the other outflow. Eventually this setting leads to a slow motion of the diffusion region away from the wall, the so-called 'X-line retreat'. During the retreat the structure of the electron outflow against the wall is similar to that seen in a reconnection jet just prior to termination of reconnection in a size-limited simulation box. This implies that the X-line retreat occurs to keep the minimum open space in front of the outflow that makes a reasonably good reconnection rate to be available.

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