

ION DYNAMICS AND INDUCED RECONNECTION IN A THIN PLASMA SHEET DURING SUBSTORM

A.P.Kropotkin and V.I.Domrin (*Institute of Nuclear Physics, Moscow State University, Moscow, 119899, Russia*)

In collisionless plasma, instead of a pair of shocks which are responsible for a fast reconnection in MHD models of Petscheck type, a single thin kinetic current sheet (CS) is formed. A full analytical theory of such a CS is presented. The electromagnetic energy in the sheet gets transform into energy of accelerated ion flows penetrating the background plasma outside CS. Burst of magnetic reconnection described by proposed model, allows to interpret the main features of the magnetic variations during substorm activation events.