ION PRESSURE NON-GYROTROPICITY AND GEOMAGNETIC TAIL CURRENT SPLITTING

PETER. ISRAELEVICH, Alexander Ershkovich

Department of Geophysics and Planetary Sciences, Raymond and Beverly Sackler Faculty of Exact Sciences, Tel Aviv, University, Ramat Aviv, 69978, Israel,
e-mail: peteri@post.tau.ac.il

We investigated the relation between the geotail current sheet structure and the anisotropy of the ion temperature in the plasma sheet using *Cluster* data. The electric current density distribution in the geomagnetic tail is shown not to depend on the ratio between the parallel and perpendicular ion temperature. It is shown that the tail current sheet bifurcation is controlled by non-gyrotropicity of plasma pressure: double peaked current density distribution is observed when the ion perpendicular temperature exhibits anisotropy, and the electric current density is stronger for larger ratio $(T_{\perp max} - T_{\perp min})/ T_{\perp}$. The current sheet thinning is accompanied by the perpendicular temperature anisotropy, and, generally, double-peaked current sheets are thinner than single-peaked sheets.

geomagnetic tail, plasma sheet, electric current

Peter Israelevich, Department of Geophysics and Planetary Sciences, Raymond and Beverly Sackler Faculty of Exact Sciences, Tel Aviv, University, Ramat Aviv, 69978, Israel, fax: 972-3-6409282, e-mail: peteri@post.tau.ac.il