

SPACE AND COSMIC RAY PHYSICS SEMINAR

University of Maryland
Computer & Space Sciences Building, Rm 2400
4:30 PM Monday, February 9, 2004
Tea & cookies 4:00-4:30 PM

Simon Wing

The Johns Hopkins University Applied Physics Lab.
Laurel, Maryland

Imaging the Magnetotail

Progress in space plasma physics requires coordinated analysis of multi-point observations and hence, many upcoming ionospheric and magnetospheric missions will consist of multiple spacecraft. We are developing a magnetotail assimilation model that can assimilate large multi-point observations in the magnetotail and ionosphere in a coherent and unified manner. This method relies on the plasma sheet plasma isotropy, which has a strong theoretical foundation as well as overwhelming observational support. The statistical and instantaneous 2-D global images of the plasma sheet ion pressure, temperature, and density obtained with this method have been well validated. The power of this method for magnetotail investigations is illustrated in the study of the dynamics and source of the cold-dense ion in the plasma sheet during periods of northward IMF. The 2-D equatorial plasma sheet n and T profiles exhibit a dawn-dusk asymmetry in the cold-dense ion distribution, which is consistent with (1) the mixing of the magnetosheath and plasma sheet ions and (2) ion transport dominated by gradient and curvature and ExB drifts.

Sponsored by: Department of Physics, University of Maryland, and the Institute for Physical Science and Technology, University of Maryland. For information call Matthew Hill at (301) 405-6209 or go to the following website: http://space.umd.edu/seminars/Spring_2004_Seminar.html (A PDF file of this abstract is available for download at this URL.)

For free parking please park in lot DD or anywhere on levels 1-2 in lot B (the big parking garage) after 4.00 pm. Make sure that you park in a spot WITHOUT a parking meter.