

The Second Workshop on Thin Current Sheets

19-21 April, 2004, College Park, Maryland

Program

Monday, April 19, 2004

08:30-09:00 P. O'Shea, J. Drake and M. I. Sitnov, Opening remarks

TCS observations in space I

- 09:00-09:35 T. E. Moore, Magnetotail current sheet observations from POLAR.
09:35-10:10 Y. Asano (speaker), T. Mukai, M. Hoshino, Y. Saito, H. Hayakawa, and T. Nagai, Statistical study of thin current sheet evolution around substorm onset (Geotail observations).
10:10-10:45 R. Nakamura (speaker), W. Baumjohann, A. Runov, Current sheet dynamics observed by Cluster.

10:45-11:00 Coffee break

TCS observations in laboratory I

- 11:00-11:35 M. Yamada, Initial results from the study of the fine structure of the MRX current sheet.
11:35-12:10 H. Ji, Electromagnetic waves measured in reconnecting current sheets and their theoretical perspectives.
12:10-12:45 R. Kulsrud, Fast reconnection with anomalous resistivity and Petschek shocks and its application to astrophysics.

12:45-14:15 Lunch break

Turbulence and reconnection onset I

- 14:15-14:50 W. Daughton, The onset of magnetic reconnection.
14:50-15:25 P. H. Yoon, Ion- or electron-dominated thin current sheets.
15:25-16:00 M. I. Sitnov, Structure and dynamics of thin anisotropic current sheets: Challenges of Cluster and MRX observations.

16:00-16:15 Coffee break

Reconnection and Hall-MHD physics I

16:15-16:50 J. D. Huba, 2D Hall magnetic reconnection: Dependence on current

- layer width.
- 16:50-17:25 J. C. Dorelli, The role of Hall electric fields in driven magnetic reconnection.
- 17:25-18:00 M. Shay, The scaling of embedded collisionless reconnection.

Tuesday, April 20, 2004

TCS observations in space II

- 08:30-09:05 R. Nakamura, (speaker), W. Baumjohann, A. Runov, Y. Asano, A. Balogh, and H. Reme, Thin current sheets measured by Cluster at 200 km tetrahedron scale.
- 09:05-09:40 Y. Asano, (speaker), R. Nakamura, W. Baumjohann, A. Runov, A. Balogh, B. Klecker, H. Reme, Relative occurrence of bifurcated current sheets (Cluster observations).
- 09:40-09:55 Coffee break

Scales, structure and main current carriers Turbulence and reconnection onset II

- 09:55-10:30 P. L. Pritchett, Properties of ion- and electron-scale thin current sheets.
- 10:30-11:05 J. Birn, K. Schindler, and M. Hesse (speaker), Thin electron current sheets and their relation to auroral potentials.
- 11:05-11:40 C. Z. Cheng and S. Zaharia, 3D cross-tail current structure in near-Earth plasma sheet and ballooning instability as substorm onset Mechanism.
- 11:40-12:15 J. Chen, Asymmetric Thin Current Sheets: A 1-D Test-Particle Simulation and Comparison With Solar Wind Data.
- 12:15-14:00 Lunch break

TCS observations in laboratory II

- 14:00-14:35 T. Intrator, I. Furno, E. Hemsing, S. Hsu, G. Lapenta, Flux ropes in the Reconnection Scaling Experiment: Building blocks of the solar corona plasma.
- 14:35-15:10 S. Vincena, W. Gekelman, P. Pribyl, Flows and instabilities associated with an extremely narrow current sheet.
- 15:10-15:25 Coffee break

Reconnection and Hall-MHD physics II

- 15:25-16:00 J.A. Slavin (speaker), E. Tanskanen, C.J. Owen, M.W. Dunlop, E. Lucek, A. Balogh, and K.-H. Glassmeier, Cluster observations of TCRs and magnetic flux removal from the lobes of the near-tail.
- 16:00-16:35 J. F. Drake, The structure of the parallel electric field and particle acceleration during magnetic reconnection.
- 16:35-17:10 M. Hesse, The structure of the electron dissipation region in collisionless reconnection.
- 17:10-17:45 M. Swisdak, Structure of thin current sheets associated with reconnection X-lines.

Wednesday, April 21, 2004

Particle dynamics

Turbulence and reconnection onset III

- 08:30-09:05 A. Taktakishvili, (speaker) A. Greco, G. Zimbardo, P. Veltri, L. M. Zelenyi, and R. E. Lopez, Ion dynamics in the magnetotail in the presence of magnetic turbulence.
- 09:05-09:40 B. D. Jemella, Singular current layers and the Sweet-Parker/Petschek models of reconnection in MHD
- 09:40-10:15 L. M. Zelenyi, H. V. Malova, D. C. Delcourt, V. Y. Popov, D. A. Ovodkov (speaker), A. V. Sidelnikov, A. S. Sharma, The nonlinear particle dynamics in double-humped thin current sheets.
- 10:15-10:30 Coffee break
- 10:30-11:05 L. M. Zelenyi, H. V. Malova (speaker), V. Y. Popov, D. C. Delcourt, S. Sharma, Multilayer kinetic model of anisotropic thin current sheet.
- 11:05-11:40 J. Birn, J. C. Dorelli, M. Hesse (speaker), and K. Schindler, Thin current sheets and loss of equilibrium: Three-dimensional theory and simulations.

TCS and more complex phenomena

- 11:40-12:15 A. T. Y. Lui, Linking substorm current system to thin current sheet in the Earth's magnetotail.
- 12:15-14:00 General discussion and conclusion