

2005 Fall Meeting
Search Results

Cite abstracts as **Author(s) (2005), Title, *Eos Trans. AGU*, 86(52), Fall Meet. Suppl., Abstract xxxxx-xx**

Your query was: **au="NG, C"**

HR: 1340h

AN: **SM23A-0411**

TI: [Turbulent Magnetic Reconnection Near a 3D Magnetic Null](#)

AU: * **Ng, C**

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AB: Magnetic reconnection is considered near a three dimensional magnetic null point with the presence of small-scale magnetic field fluctuations. There has been an ongoing controversy about the role and importance of a magnetic null point in reconnection. While it can be argued that a region of smooth magnetic field without null/closed field line will evolve ideally, it is not totally clear whether the flow around a null must be singular. This is because a smooth field line velocity flow can always be found locally around a null point if the determinant of the magnetic field gradient tensor at the null point is nonzero. One possible way for nonideal field line flow is to consider time dependent field, especially with small-scale fluctuations, which are of small strength compare with the typical large-scale magnetic field but may have comparatively strong magnetic gradients locally at some points in space or time. This can potentially change the determinant of the magnetic field gradient tensor to zero at some points in time and thus allow nonideal field line flow. We test this idea with numerical experiments to see if small-scale fluctuations can indeed change the magnetic field topology around a null point and thus can allow magnetic reconnection. Possible applications of this idea to space environments will be discussed. (This work is support by NSF grant AST-0434322.)

DE: 2723 Magnetic reconnection (7526, 7835)

DE: 7524 Magnetic fields

DE: 7526 Magnetic reconnection (2723, 7835)

DE: 7835 Magnetic reconnection (2723, 7526)

DE: 7954 Magnetic storms (2788)

SC: SPA-Magnetospheric Physics [SM]

MN: Fall Meeting 2005

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