

2004 Fall Meeting
Search Results

Cite abstracts as **Author(s) (2004), Title, *Eos Trans. AGU*, 85(47), Fall Meet. Suppl., Abstract xxxxx-xx**

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HR: 08:00h

AN: **SM51D-01**

TI: [Impulsive Reconnection Dynamics: From the Laboratory to the Local Cosmos](#)

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AB: Reconnection in nature is rarely quasi-steady. Most often, it is impulsive or bursty. Impulsive reconnection is characterized not only by a fast growth rate, but by a rapid change in the time-derivative of the growth rate. Recent developments in collisionless reconnection theory, based on the generalized Ohm's law, hold the promise of providing solutions to outstanding problems involving impulsive reconnection phenomena spanning laboratory, magnetospheric, and solar physics. We illustrate the application of the theory to magnetospheric substorms, solar flares, and sawtooth crashes in toroidal plasmas. Although reconnection is spontaneous in some of these cases and forced in others, all of these cases can be studied from a common perspective. We present analytical as well as high-resolution simulation results based on Hall MHD (or two-fluid) equations, and address the important issue of the scaling of the (time-dependent) reconnection rate with respect to resistivity and/or particle inertia.

DE: 7519 Flares

DE: 2744 Magnetotail

DE: 2752 MHD waves and instabilities

SC: SPA-Magnetospheric Physics [SM]

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