

Abstract Submitted
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Driven and Spontaneous Reconnection in the Lab and in Astrophysics D. CRAIG, A.F. ALMAGRI, S.H. CHOI, D.J. DEN HARTOG, G. FIKSEL, S.C. PRAGER, J.S. SARFF, University of Wisconsin - Madison and the Center for Magnetic Self Organization in Laboratory and Astrophysical Plasmas, D.L. BROWER, B.H. DENG, W.X. DING, UCLA — Spontaneous reconnection (associated with plasma instabilities) and driven reconnection (associated with imposed plasma flows) exist in both laboratory and astrophysical plasmas. In the MST Reversed Field Pinch, both types of reconnection appear simultaneously during a sawtooth crash giving an opportunity to compare the two types. Measurements of the current sheet width in both cases are similar and consistent with the width of magnetic islands associated with the reconnection. The temporal behavior of both types of reconnection is also similar and exhibits an explosive character. The simultaneous presence of both types of reconnection enhances the overall release of magnetic energy in the system and also seems to be important for the production of strong ion heating, momentum redistribution, and MHD dynamo effects. Other naturally occurring examples of plasmas undergoing both types of reconnection (e.g. possibly solar flares) will be discussed and compared. Work Supported by U.S.D.O.E. and N.S.F.

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