

Abstract Submitted  
for the DPP15 Meeting of  
The American Physical Society

**Conceptual Design of the Harbin Reconnection eXperiment (HRX)** AOHUA MAO, PENG E, XIAOGANG WANG, Harbin Institute of Technology, HANTAO JI, YANG REN, Princeton University — A new terrella device, called the Space Environment Simulation and Research Infrastructure or SESRI, is under construction at Harbin Institute of Technology, in which the Harbin Reconnection eXperiment (HRX) system is one of the most important components. The goal of HRX reconnection experiment design is to provide a unique platform for studying reconnections relevant to those in magnetopause and magnetotail. Most of the currently existing terrella experiments have been focusing on global phenomena, e.g. bow shock, in either linear or toroidal geometry, which are typically very different in magnetosphere plasmas. The new HRX regimes explores both local and global reconnection dynamics by driving reconnection with a unique set of coils in a dipole magnetic field configuration which will be able to investigate a range of important reconnection issues in magnetosphere geometry. The design of the HRX device approximately follows the Vlasov similarity laws between the laboratory plasma of the device and the magnetosphere plasma to match local reconnection dynamics. Motivation, design criteria for the HRX experiments, and the preliminary experiment proposal will be discussed.

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Date submitted: 24 Jul 2015

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