Abstract Submitted
for the DPP12 Meeting of
The American Physical Society

Global Fully Kinetic Model of Magnetic Reconnection in a Magnetosphere VADIM ROYTERSHTEYN, HOMA KARIMABADI, SciberQuest, Inc, WILLIAM DAUGHTON, LANL — Magnetic reconnection is thought to play a key role in controlling dynamics of planetary magnetospheres. In the collisionless plasma it is a complex multi-scale process, driven by macroscopic dynamics, but crucially dependent upon microscopic physics on the electron kinetic scales. Recent advances in high-performance computing have enabled us to conduct meaningful simulations that incorporate in a self-consistent manner a large subset of the relevant physics. Here we present and discuss results of 2D simulations that describe reconnection in a self-consistent global model. The system is driven by interaction of the solar wind with a magnetized body. We discuss reconnection at the magnetopuase with special attention paid to spatial location of the dominant reconnection site, time variability of the reconnection rate, and single vs multiple X-line scenarios.

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Date submitted: 24 Jul 2012 Electronic form version 1.4