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Fully Kinetic Model of Magnetic Reconnection in a Magnetosphere VADIM ROYTERSHTEYN, HOMA KARIMABADI, YURI OMELCHENKO, SciberQuest, Inc — Magnetic reconnection in collisionless plasma is a complex process coupling physical process across multiple scale. It is thought to play a crucial role in the dynamics of planetary magnetospheres, for example by allowing transport of solar wind across magnetospheric boundaries. Here we present and discuss results of large-scale 2D fully kinetic simulations of magnetic reconnection in 2D dipolar magnetospheres driven by interaction with incoming solar wind. Such simulations allow for the first time self-consistent accurate description of magnetic reconnection in this configuration. The focus is on flux rope formation, stability and properties of the magnetopause. The results of fully kinetic simulations are compared and contrasted against hybrid simulations.

Vadim Roytershteyn
SciberQuest, Inc

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