

Abstract Submitted
for the DPP13 Meeting of
The American Physical Society

Magnetic Reconnection in highly magnetized relativistic plasmas

FAN GUO, HUI LI, WILLIAM DAUGHTON, YI-HSIN LIU, Los Alamos National Laboratory — Magnetic reconnection is a key mechanism that rapidly converts magnetic energy into plasma kinetic energies. It has been widely used to explain explosive release of magnetic energy in astrophysical plasmas. In many astrophysical systems such as Active Galactic Nucleus (AGN) jets and pulsar wind nebulae, the magnetization parameter (the ratio between magnetic energy and plasma kinetic energy) is expected to be very large. We explore the formation of thin current sheets and their properties in highly magnetized relativistic plasmas. Furthermore, we perform particle-in-cell simulations to investigate the efficiency of magnetic energy dissipation in these parameters.

Fan Guo
Los Alamos National Laboratory

Date submitted: 12 Jul 2013

Electronic form version 1.4