Kinetic simulations of particle acceleration in magnetic reconnection with open boundary conditions FAN GUO, WILLIAM DAUGHTON, Los Alamos Natl Lab, SUREN BYNA, Lawrence Berkeley National Laboratory, HUI LI, Los Alamos Natl Lab, XIAOCAN LI, University of Alabama in Huntsville, YI-HSIN LIU, NASA Goddard Space Flight Center — Kinetic simulations of magnetically dominated reconnection (plasma beta $\ll$ 1) with closed or periodic simulation domains have shown the formation of hard power-law distribution with spectral index p $\sim$ 1. However, for most of applications observations have inferred significantly softer spectra. Here we present 2D and 3D fully kinetic simulations with open boundary conditions that allow the escape of accelerated particles from the reconnection acceleration region. While the primary acceleration mechanism is still the Fermi acceleration through curvature drift motion of particles, we show that the energy spectrum can be significantly softer than "-1." We further examine the effect of domain size, plasma beta, and magnetization parameters.

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