

Abstract Submitted
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Effects of Plasma Beta on Multiple Island Ion Acceleration KEVIN SCHOEFFLER, JAMES DRAKE, MARC SWISDAK, University of Maryland — Magnetic reconnection has been found to be associated with energetic ions and electrons. Gamma ray emission from the solar photosphere, and energetic particles found by Wind in the magnetosphere confirm this association. One explanation for the acceleration of these particles is by 1st order Fermi acceleration of particles bouncing in contracting magnetic islands. The contracting islands heat up particles in the direction of the magnetic fields, causing a temperature anisotropy with $T_{\parallel} > T_{\perp}$. When the anisotropy reaches the marginal fire hose condition, this mechanism should end. Larger initial values of β might cause the fire hose condition to be reached more quickly. Using a particle-in-cell code, we investigate the effects of β by simulating island growth with initial equilibria with multiple Harris current sheets.

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