Abstract Submitted
for the DPP19 Meeting of
The American Physical Society

Explosive Reconnection and Particle Acceleration in Relativistic Plasma[1] MAXIM LYUTIKOV, Purdue University — We develop a model of particle acceleration during explosive reconnection events in relativistic highly magnetized plasma and apply the model to explain the Crab gamma-ray flares. The most rapid acceleration occurs during the early stages of X-point collapse. Ensuring flux mergers proceed with lower rates, and eventually dissipates a large fraction of the magnetic energy. We argue that magnetic reconnection is an important (and dominant in some cases) process of particle acceleration in high energy astrophysical sources.

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Date submitted: 24 Jun 2019 Electronic form version 1.4