Abstract Submitted
for the DPP13 Meeting of
The American Physical Society

Relativistic Shear Flows and Applications to Astrophysical Jets[1] EDISON LIANG, WEN FU, Rice University, PARISA ROUSTAZADEH, Rice University and Ohio University, IAN SMITH, Rice University, MARKUS BOETTCHER, North-West University, Potchefstroom, 2520 South Africa — We present Particle-in-Cell (PIC) simulations of relativistic shear boundary layers. Strong magnetic fields are generated by the shear flow and efficient nonthermal particle acceleration to high Lorentz factors are observed. We compare results for pure electron-positron, pure electron-ion and hybrid electron-ion-positron shear flows. Applications to relativistic astrophysical jets such as those observed in blazars and gamma-ray bursts will be discussed.

[1]Work supported by NASA Fermi Cycles 3 - 5.

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Date submitted: 14 Jul 2013 Electronic form version 1.4