LA-UR-20-25828
Approved for public release; distribution is unlimited.

Title: First Principles Kinetic Simulations of Relativistic Collisionless Shocks and Their Particle Acceleration

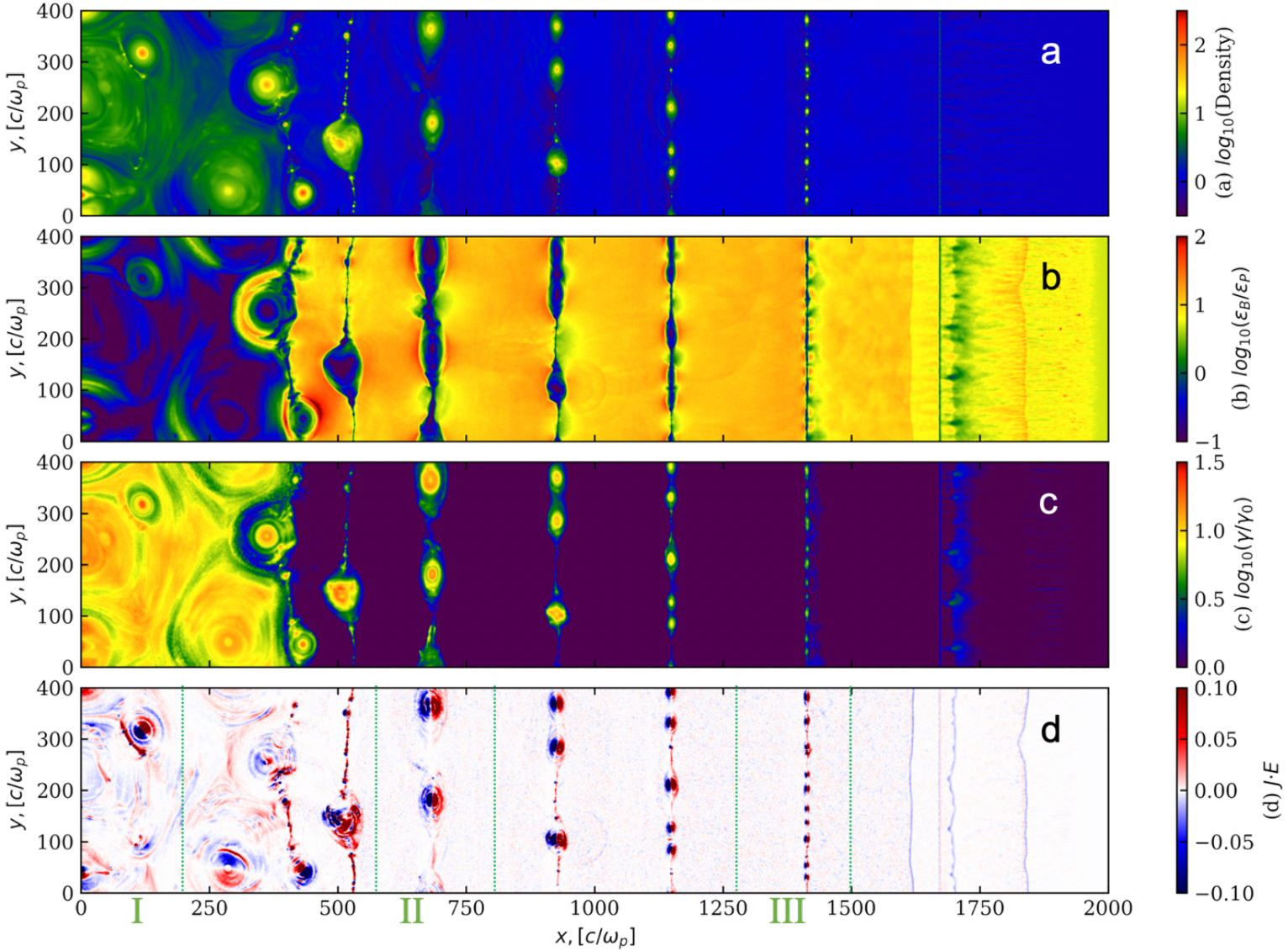
Author(s): Guo, Fan

Intended for: Report

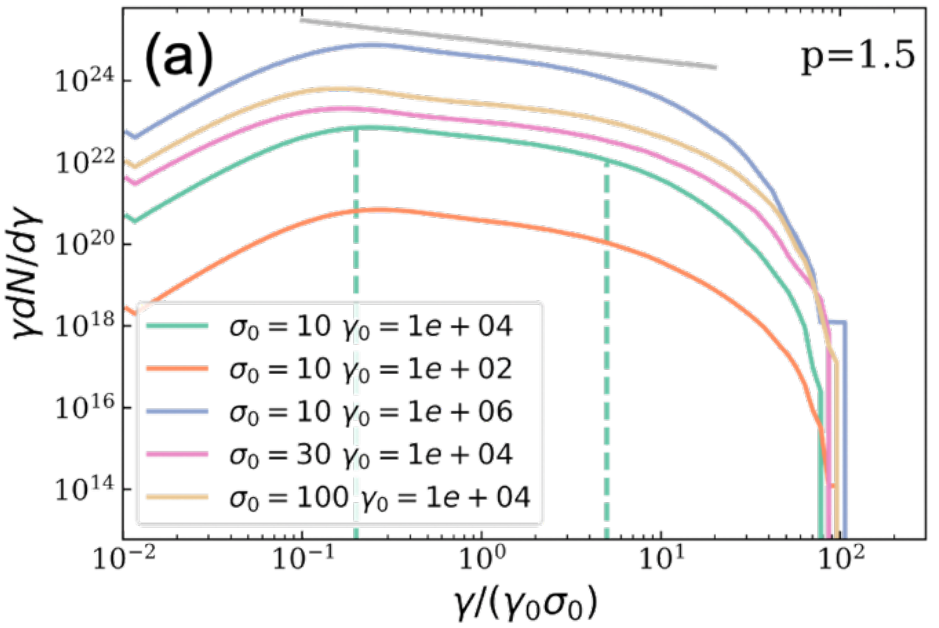
Issued: 2020-08-03

First Principles Kinetic Simulations of Relativistic Collisionless Shocks and Their Particle Acceleration

PI: Fan Guo, LA-UR #xxx



2D spatial profile of different quantities for the standard run S0 with magnetization $\sigma_0 = 10$, bulk Lorentz factor $\gamma_0 = 10^4$, $\alpha = 0.1$ at time $\omega_{pt} = 2000$.



Particle energy distribution γdN/dγ for electrons and positrons in different runs. When bulk Lorentz factor and magnetization is large, particle energy spectra follow power-law distributions in high energy.