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Dissipation of Thin Current Sheets Interacting with Nonlinear Alfven Waves in Relativistic Plasmas EDISON LIANG, GUY HILBURN, Rice University, HUI LI, WEI LIU, Los Alamos National Laboratory — We present results from 2.5D and 3D particle-in-cell simulations of the interaction of thin current sheets with nonlinear Alfven waves in relativistic plasmas. We find that the Alfven waves cause the current sheet to bend and kink and enhance its dissipation rate. The electrons are heated by several competing mechanisms, eventually forming a double Maxwellian population. The cooler Maxwellian is heated mainly by Alfven turbulence cascade while the hotter Maxwellian is heated by the drift kink instability. The implications of these results for the kinetic dissipation of turbulence driven by the magnetorotational instability (MRI) will be discussed. Potential applications to the emissions of low-luminosity black hole accretion flows will be studied.

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