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Underlying mechanisms for particle acceleration in trans-relativistic reconnection PATRICK KILIAN, Los Alamos National Laboratory, XIAOCAN LI, Dartmouth College, FAN GUO, HUI LI, Los Alamos National Laboratory — A recent trend in reconnection research has been the study of the trans-relativistic regime where the energy density of the magnetic field is smaller or comparable to the energy density associated with the rest mass of protons, but much larger then the energy density associated with the rest mass of electrons. This parameter range is relevant for radiatively inefficient, geometrically thick, optically thin accretion discs discs around black holes that accrete well below the Eddington limit. Electrons are quickly accelerated to high energies and form non-thermal distributions. This talk focuses on the underlying mechanisms that determine the properties of this distribution and their relative importance. To investigate these we have performed a number of fully-kinetic simulations using different system sizes, guide fields and mass ratios.

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