

Abstract Submitted
for the DPP14 Meeting of
The American Physical Society

Phase space dynamics of Landau damping with a truncated Maxwellian distribution GRANT HART, EMMA HOGGAN, ROSS SPENCER, Brigham Young University — We have built a Particle-In-Cell (PIC) simulation that models a damped wave in a nonneutral plasma. In this simulation we can cut off the distribution function at an arbitrary velocity. As the cut-off velocity is passed through the resonant velocity, the change in plasma behavior demonstrates the effect of that group of plasma particles on the damping of the wave. Certain particles change from damping to anti-damping as they change their phase relative to the wave in the resonant region. The frequency of the wave changes by about 2% as the cut-off velocity passes through the resonance, much larger than expected from the change in the charge in the plasma. We are developing different ways of analyzing the data from this simulation to illuminate the different effects that occur.

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Date submitted: 11 Jul 2014

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