Nonlinear effects due to Langmuir waves in densifying plasmas\textsuperscript{1}

NAT FISCH, ILYA DODIN, Princeton University — Electron Langmuir waves in plasma undergoing slow compression or rarefaction respond adiabatically to the modification of the plasma density and the pressure tensor, such that the total number of plasmons is conserved. However, the change in density modifies the ratio of the field energy to the plasma kinetic energy in ways that depend on how the density changes. The changes in field energy affect the ponderomotive forces, which can in turn govern a variety of plasma processes.

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