

Abstract Submitted
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Langmuir wave linear evolution in inhomogeneous nonstationary anisotropic plasma¹ I.Y. DODIN, V.I. GEYKO, N.J. FISCH, Princeton University — Equations describing the linear evolution of a nondissipative Langmuir wave in inhomogeneous nonstationary anisotropic plasma without magnetic field are derived in the geometrical optics approximation. A continuity equation is obtained for the wave action density, and the conditions for the action conservation are formulated. In homogeneous plasma, the wave field \tilde{E} universally scales with the electron density N as $\tilde{E} \propto N^{3/4}$, thereby resulting in a modified adiabatic index of the plasma $\gamma = 3/2$, whereas the wavevector evolution varies depending on the wave geometry.

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