

Growth rates of envelope modulations of electromagnetic waves in relativistic temperature electron-positron plasmas, stimulated by weak or finite phonon damping

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We study the modulational instability of an electron-positron plasma with relativistic temperatures and phonon damping. It is shown that when the phonon damping is $O(1)$ or $O(?)$, a modulational instability appears even for classical temperatures. When the phonon damping is $O(?2)$, we find that in the non-relativistic limit, previous results are recovered, and for ultrarelativistic temperatures, the instability occurs in a wider band around the relativistic plasma frequency.