

362. Title:Laser beat wave terahertz generation in a clustered plasma in an azimuthal magnetic field

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Abstract:Laser beat wave excitation of terahertz radiation in a rippled density clustered plasma, in the presence of an azimuthal magnetic field, is investigated. The lasers exert a beat ponderomotive force on cluster electrons, imparting them an oscillatory velocity with a significant transverse component due to the azimuthal magnetic field. The oscillatory velocity beats with the cluster density ripple and produces a nonlinear current, driving terahertz radiation. The terahertz field turns out to have ring shaped distribution. Its amplitude is enhanced by the cluster plasma resonance when  $4\pi/3 n_0 r_0^3 n_e / (\omega^2 - \omega_{pe}^2/3) \gg n_0/2$