

# Stimulated Raman Scattering of Self Focused Cosh-Gaussian Laser Beams in Underdense Plasma Targets: Effect of Density Ramp

*Saturday, 26 November 2022 10:00 (15 minutes)*

The phenomenon of stimulated Raman scattering (S.R.S) of intense self focused Cosh-Gaussian (ChG) laser beams in underdense plasma targets modeled by a ramp shaped different density profiles, has been investigated. An intense laser beam with frequency  $\omega_0$  propagating through plasma gets coupled with a pre-existing electron plasma wave (EPW) at frequency  $\omega_{ep}$  and produces a back scattered wave at frequency  $\omega_s = \omega_0 - \omega_{ep}$ . Semi analytical solution of the set of coupled wave equations (pump, EPW and scattered wave) has been obtained under W.K.B. approximation by using variational theory. It has been observed that S.R.S reflectivity of plasma is significantly affected under the effect of slope of density ramp.

## Topics

Session B. Laser physics and modern optoelectronics

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