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Resonant second harmonic generation of chirped pulse laser in plasma

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ABSTRACT

Resonant second harmonic generation of a relativistic self-focusing chirped pulse laser in plasma has been investigated. The second harmonic undergoes periodic focusing in the plasma channel created by the fundamental wave and the strength of focusing increases with the propagation distance. The normalized second-harmonic amplitude varies periodically with distance and attains maximum value in the focal region. A significant enhancement in the intensity of second harmonic on account of relativistic self-focusing of the chirped pulse laser is seen. We have also examined the effect of chirped pulse on the normalized amplitude of the second harmonic generation. A sharp increase in the normalized second harmonic amplitude is seen for positive chirp.

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