

3rd International Conference on

Quantum Optics and Quantum Computing

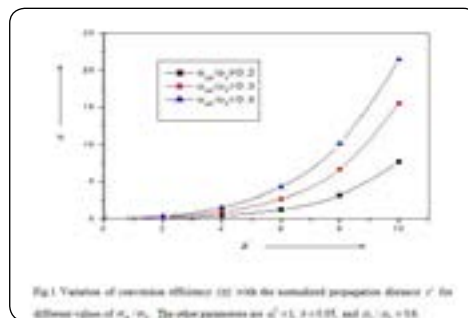
September 10-11, 2018 | London, UK

Second harmonic generation of self-focused chirped laser pulse in cold quantum plasma

Vishal Thakur and Niti Kant

Lovely Professional University, India

The relativistic effect of self-focusing on the second-harmonic generation of a chirped pulse laser in a preformed plasma channel has been studied. Self-focusing of the fundamental laser pulse enhances the intensity of the second harmonic pulse. Wiggler magnetic field also plays an important role in the enhancement of the efficiency of the second harmonic generation. The effect becomes more pronounced as the plasma density increases. Also effect of cold quantum plasma in the enhancement of second harmonic generation can be noticed. The present work may have very valuable applications in the field of laser driven accelerators, laser driven fusion, etc.



Recent Publications

1. Nanda V, Ghotra H S and Kant N (2018) Early and strong relativistic self-focusing of cosh-Gaussian laser beam in cold quantum plasma. *Optik* 156:191–196.
2. Kumar H, Aggarwal M, Richa and Gill T S (2016) Combined effect of relativistic and ponderomotive nonlinearity on self-focusing of Gaussian laser beam in a cold quantum plasma. *Laser and Particle Beams* 34:426–432.
3. Patil S D, Takale M V, Navare S T, Dongare M B and Fulari V J (2013) Self-focusing of Gaussian laser beam in relativistic cold quantum plasma. *Optik* 124:180–183.
4. Marklund M and Brodin G (2007) Dynamics of spin $\frac{1}{2}$ quantum plasmas. *Physics Review Letter* 98:025001.
5. Manfredi G (2005) How to model quantum plasma. *Field Institute Communications* 46:263–287.

Biography

Vishal Thakur is working at the Department of Physics, Lovely Professional University, Punjab, India. He received PhD in High power Laser Interaction with Plasma and Semiconductors in 2016 from Lovely Professional University Phagwara. His research is focused on the areas of ultra-short intense lasers interaction with plasmas, laser-plasma based accelerators, harmonic generations, quantum plasma and THz radiation. He has published 7 research papers in various international reputed journals.

vishal20india@yahoo.co.in

Notes: