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Evolution of envelop soliton and associated instability during Intense Laser Plasma interaction**Swarniv Chandra***Government General Degree College at Kushmandi, India*

In this work, we have looked into the amplitude modulation and formation of envelop soliton in a quantum plasma with relativistic degeneracy pressure expressions as strong laser beam falls on it. In our work, we have focused to the situation where an intense laser interacts with plasma and we have made use of a new topological treatment of problems containing a set of coupled differential equations. At first we have solved the equations to arrive at the dispersion relation. We have studied phase plot using PIC simulation from where Kelvin Helmholtz type instabilities were observed. We have made use of homotopy perturbation technique to find out more about the evolution of density, electric field, velocity streamlines and the subsequent amplitude modulation with different types of nonlinearity. We identified the range of plasma and laser parameters in which such nonlinearity is important. The results obtained here will be helpful in interpreting different phenomena that arises in laser plasma interaction and plasma astrophysics where shocks solitons etc. in dense hot plasma can be studied in laboratory scales. This work have made use of our own designed Homotopy aided Symbolic Simulation (HASS) technique and the INSAT-FORK code to investigate this problem.

Biography

Swarniv Chandra has completed his undergraduate studies from Ramakrishna Mission Vidyamandira, Belur Math and subsequently the postgraduation from IIT Delhi. He completed his PhD from Jadavpur University, Kolkata. He has published more than 75 papers in reputed SCI journals and peresently working as an assistant professor of Physics at overnment General Degree College at Kushmandi, West Bengal. He has been awarded Young Scientist Award twice by the Government of India.