

Abstract Submitted
for the DPP09 Meeting of
The American Physical Society

Asymmetric Self-focusing of a Laser Pulse under Relativistic and Ponderomotive Nonlinearities¹ AMRITA SINGH, D.A.V. College, Mujaffarnagar, U.P., ASHOK KUMAR SHARMA, CES, IIT Delhi — A short pulse laser beam suffers self-pulse distortion due to combined effects of nonlinearity induced self-focusing and dispersion. Nonlinearity arises due to relativistic mass variation and ponderomotive force. As the beam propagates through plasma, beam width parameter (f) decreases, so intensity of the beam increases. Self focusing of the beam takes place. As time passes, decrease in (f) is smaller and smaller, broadening of pulse takes place. Intensity of the beam decreases with time. Hence due to ponderomotive and relativistic nonlinearities, broadening of the pulse takes place and intensity of the beam decreases due to temporal effect.

¹Supported by UGC.

Amrita Singh
D.A.V. College, Mujaffarnagar, U.P.

Date submitted: 20 Jul 2009

Electronic form version 1.4