# EVOLUTION OF RAYLEIGH TAYLOR INSTABILITY IN HIGH POWER LASER IRRADIATED TARGET IN PRESENCE OF MAGNETIC FIELD AND COMPRESSIBILITY

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Self generated magnetic field is produced due to high power laser interaction with material [1-2]. Similar situation may also arise in Inertial Confinement Fusion target (ICF). Compressibility also plays a key role in ICF. In this manuscript, we derive a set of nonlinear equations to explain the combined effect of magnetic field and compressibility on the growth rate of Rayleigh Taylor (RT) instability at the two fluid interface. We have considered density dependent magnetic field along the surface of separation. The relative effect of magnetic pressure and hydrodynamic pressure on RT instability through the variation of plasma parameter beta (β) has been investigated. Dynamics of the bubble and spike has been studied analytically and numerically and shown to be stable under these conditions which are conducive in ICF mechanism. The results are also applicable in Ia Supernova explosion [3].

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