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Stopping of Ions in a Plasma Irradiated by an Intense laser Field HARCHYA B. NERSISYAN, IRadiophysics Ashtarak, CLAUDE DEUTSCH, LPGP UParis XI, STOPLASER COLLABORATION — The inelastic interaction between heavy ions and electron target plasma in the presence of an intense radiation field (RF) is investigated. The stopping power of the test ion averaged over a period of the RF is calculated assuming that RF frequency > plasma frequency. In order to highlight the effect of the RF we compare analytical and numerical results obtained for nonzero RF with those for vanishing RF. It is thus observed that RF may strongly reduce the mean energy loss of the slow ions while increasing it at high projectile velocity. More specifically, RF acceleration of the projectile ion is expected at high velocity and in the RF high- intensity limit, when quiver velocity of plasma electrons exceeds the ion projectile velocity [1].

[1] H.B. Nersisyan and C. Deutsch, Laser Part.Beams (to appear 2011)

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