

Abstract Submitted
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Electromagnetically induced transparency at Ion Acoustic Frequency in Dense Plasmas MAKOTO NAKAGAWA, RYOSUKE KODAMA, Graduate School of Engineering, Osaka University — Electromagnetically induced transparency (EIT) is a technique where an electromagnetic wave controls the refractive index of a plasma¹. It enables us to create a passband for low frequency electromagnetic wave in a dense plasma even if the plasma is opaque for the electromagnetic wave. This technique will be used to probe the ion acoustic wave since the ion acoustic frequency is lower than the plasma frequency. Then by using the EIT technique, we have investigated feasibility of electromagnetic radiation at THz region corresponding to the ion acoustic frequency from a dense plasma. Based on calculations, we demonstrate that a passband is created at about 10THz corresponding to the ion acoustic frequency in the plasma (10^{21} cm^{-3}) with a Ti:S laser (800nm, 10^{17} W/cm^2).

¹S.E.Harris, Phys. Rev. Lett. 77, 5357 (1996)

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