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ΔΙΑΛΕΞΗ

**“Observation of Electromagnetically Induced Transparency and
Autler-Townes Splitting in Doppler Broadened Molecular Systems”**

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Αίθουσα σεμιναρίων στο ισόγειο του ΕΙΕ

Abstract

We have demonstrated electromagnetically induced transparency (EIT) for two-color transitions in inhomogeneously broadened lithium and sodium dimer vapors. EIT has been observed via fluorescence detection in three systems of different energy level configurations (V , Λ , Ξ) by employing two continuous-wave single frequency lasers. The dependence of the transparency profile on the beam geometry (V -system), coupling laser intensity (Λ -system) and wavelength ratio of the applied fields (cascade system) has been investigated. Furthermore, in the 3-level molecular cascade system the inhomogeneous line broadening is accountable for an unexpected behavior in the Autler-Townes (A-T) splitting of the uppermost level. Our findings have been complemented by theoretical studies that trace the presence of EIT and AT at the density matrix level. These theoretical predictions agree well with the experimental results.