Electromagnetically induced transparency in a plasmonic system comprising three metal-dielectric-metal parallel slabs: plasmon-plasmon interaction

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Abstract
In this paper, electromagnetically induced transparency (EIT) in a system consisting of associated arrays of parallel slabs (metal-dielectric-metal) is studied. The transmission coefficient, the reflection coefficient and the absorption coefficient as function of the incident light frequency by using the transfer matrix method is calculated and numerically discussed. Influence of the thickness of slab and the type of plasmonic metal on the induced transparency has been investigated. It is shown with decreasing the thickness of intermediate slab of length $L_2$ (dielectric slab), the induced transparency increases due to the strong plasmon–plasmon couplings.

Keywords: electromagnetically induced transparency, plasmon–plasmon coupling

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