444.
Title: Photonic band anti-crossing in a coupled system of a teraherz plasmonic crystal film and a metal air-gap waveguide
Author: Lee, SG ; Kee, CS ; Lee, ES ; Jeon, TI
Source title: JOURNAL OF APPLIED PHYSICS
Volume: 110 Issue: 3
Publication year: AUG 1 2011
Abstract: We show that photonic band anti-crossing in a coupled system of a terahertz plasmonic crystal film and a metal air-gap waveguide can create frequency gaps where light propagation is forbidden. The forbidden frequency gaps have not been found in photonic crystals because they are not caused by the Bragg multiple-reflections to create conventional photonic band gaps. The position of the forbidden frequency gap depends on the ratio of the period of the plasmonic crystal and the air-gap size. The steep edges of the frequency gaps could be useful in sensing a chemical or a bio-chemical reaction in a terahertz wave range.