

Abstract Submitted
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Lattice resonances in two-dimensional plasma photonic crystals: experiments and simulations. FABIO RIGHETTI, BENJAMIN WANG, MARK CAPPELLI, Stanford Univ — We describe the experimental verification of lattice resonances in two-dimensional photonic crystals constructed from an array of gaseous plasma columns. Enhancements are seen in the extinction of normal incidence transverse electric electromagnetic waves when the localized surface plasmon modes of the plasma columns are shifted into the vicinity of the photonic crystal Bragg resonances. Simulations and experiments are in reasonable agreement and confirm the appearance of a Fano-like profile with deep and broad extinction bands. The broadening of the spectra as surface plasmon modes come into coincidence with Bragg gaps suggest that the Bragg fields couple strongly into the radiating Mie dipoles to drive enhanced damping of the photonic crystal resonance.

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