

Abstract Submitted
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Terahertz Transmission Through Quasiperiodic Arrays of Sub-wavelength Apertures¹ TATSUNOSUKE MATSUI, Physics Dept., University of Utah, AMIT AGRAWAL, AJAY NAHATA, ECE Dept., University of Utah, Z. VALY VARDENY, Physics Dept., University of Utah — The extraordinary light transmission (EOT) through optically thick metallic films perforated with two-dimensional (2D) subwavelength hole array was originally explained in terms of resonant coupling to surface plasmon polariton (SPP) modes via grating coupling; and thus numerous EOT studies have been done on periodic hole arrays. Here we demonstrate terahertz EOT through 2D quasicrystalline array of subwavelength apertures that are not Bravais lattices, but, nevertheless of which structure factor shows discrete Fourier transform components. We found that such patterns also exhibit strong EOT bands indicating that SPP interaction also occur in quasiperiodic structures. This approach dramatically expands potential design parameters for aperture arrays and opens up exciting new avenues for optoelectronic devices, especially in the THz spectral range.

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