

Abstract Submitted
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Terahertz Transmission Through Aperiodic Arrays of Subwavelength Apertures¹ AMIT AGRAWAL, ECE Dept., University of Utah, TATSUNOSUKE MATSUI, VALY VARDENY, Physics Dept., University of Utah, AJAY NAHATA, ECE Dept., University of Utah, ECE DEPT., UNIVERSITY OF UTAH TEAM, PHYSICS DEPT., UNIVERSITY OF UTAH TEAM — The recent surge of interest in the field of surface plasmon polaritons (SPPs) resulted in part following the initial demonstration of extraordinary optical transmission (EOT) through periodic arrays of subwavelength apertures. Ensuing experimental and theoretical studies on these and associated structures were focused primarily on *periodic* structures. In this submission, we demonstrate that aperture *periodicity* is not crucial for obtaining strong EOT resonances. We demonstrate this phenomenon by measuring the EOT of *aperiodic* array of subwavelength apertures fabricated on free standing metal films in the terahertz spectral range. We observed sharp resonances in the transmission spectra at frequencies matching the aperture array ‘structure factor’. The *aperiodic* structures were designed using a general numerical approach for patterns in which no associated geometrical tiling rules exist.

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Amit Agrawal
University of Utah

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