Molding the flow of Terahertz radiation using plasmonic metamaterials

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ABSTRACT:
Controlling the flow of terahertz (THz) radiation has become a critical challenge in the path towards electronics and photonics convergence at the nanoscale. In this talk, we present our recent findings on how electromagnetic fields at THz frequencies can be tailored using plasmonic metamaterials. Specifically, we consider a novel class of metamaterial in which the constituent meta-atoms are single subwavelength apertures tailored to work as nanoresonators in the THz frequency regime [1]. In addition, we present some on-going work on how simple structures formed by deep-subwavelength metallic barriers embedded in single THz nanoresonators offer a rich playground for studying fundamental wave phenomena at nanometric length scales.
[1] M. Bahk, H.R. Park, K.J. Ahn, H.S. Kim, Y.H. Ahn, D.S. Kim, J. Bravo-Abad, L. Martin-Moreno, and F.J. Garcia-Vidal, Physical Review Letters 106, 013902 (2011).