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Abstract:We present a novel type of terahertz plasmonic cross resonant antenna capable of focusing light into a single deep subwavelength focal point at its resonance frequency, which consists of two perpendicular dipole antennas with a common feed gap and placed in a square aperture perforated into a metal film. We demonstrate that, on resonance, the antenna can obtain large electromagnetic field intensity enhancement in ranges of four orders of magnitude inside the gap. The simulations show that the resonance frequencies and field intensity enhancements can be flexibly tuned as by altering the geometry parameters of the antenna. Moreover, the near-field enhancement of this antenna is free from the polarization of the incident light.
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