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标题: Sub-diffraction-limit semiconductor resonators operating on the fundamental magnetic resonance
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摘要: We demonstrate semiconductor terahertz (THz) resonators with sub-wavelength dimensions in all three dimensions of space. The maximum confinement is obtained for resonators with a diameter of 13 mu m, which operate at a wavelength of approximate to 272 mu m. This corresponds to a lambda(eff)/6 confinement, where lambda(eff) is the wavelength inside the material (or lambda/20, if the free space wavelength is considered). These highly sub-wavelength devices operate on the fundamental magnetic resonance, which corresponds to the fundamental oscillation mode of split-ring resonators and is usually inactive in purely optical resonators. In this respect, these resonators are another step towards the hybridization of optics and electronics at THz frequencies. As a proof of principle for cavity quantum electrodynamics experiments, we apply these resonators to THz intersubband polaritons. (C) 2012 American Institute of Physics. [http://dx.doi.org/10.1063/1.3697660]
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