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标题: Enhancement of Terahertz Pulse Emission by Optical Nanoantenna
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摘要: Bridging the gap between ultrashort pulsed optical waves and terahertz (THz) waves, the THz photoconductive antenna (PCA) is a major constituent for the emission or detection of THz waves by diverse optical and electrical methods. However, THz PCA still lacks employment of advanced breakthrough technologies for high-power THz emission. Here, we report the enhancement of THz emission power by Incorporating optical nanoantennas with a THz photoconductive antenna. The confinement and concentration of an optical pump beam on a photoconductive substrate can be efficiently achieved with optical nanoantennas over a high-index photoconductive substrate. Both numerical and experimental results clearly demonstrate the enhancement of THz wave emission due to high photocarrier generation at the plasmon resonance of nanoantennas. This work opens up many opportunities for diverse integrated photonic elements on a single PCA at THz and optical frequencies.
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