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Title

Study on the broadband terahertz metamaterial absorber

Source

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Abstract

Using the transmission line model of the metamaterial absorber, its broadband absorption behavior in the terahertz (THz) regime was studied with CST simulating software. The results show that the THz electromagnetic wave absorption of the metamaterial absorber mainly comes from the LC resonance of the split-ring resonator (SRR). Two methods are proposed to make the metamaterial absorber achieve broadband THz absorption. The first method is to increase the equivalent resistance R in the LC resonance, which extends the absorption bandwidth to 100 GHz above. The second method is to shorten the distance between two absorption peaks and make them overlap through optimizing the structure of the absorber with two absorption peaks, making the bandwidth in which the absorption rate is above 99% reach 243 GHz. (11 References).