582.

Author

Shi,YL. Zhou QL. Liu W. Zhao DM. Li L. Zhang CL.

Tittle

Terahertz wave polarization rotation in bianisotropic metamaterials

Source

CHINESE PHYSICS B vol.20 no.9 094102 DOI: 10.1088/1674-1056/20/9/094102 SEP 2011

Abstract

Utilizing a polarization sensitive terahertz detection method where the detector is rotated by either 0 degrees or 90 degrees to measure the electric field E(p,s)(t) of each polarization component, we have characterized the properties of split ring resonators. The strong polarization dependence of the bianisotropic-circular-current-driven and linear-polarization-induced resonances is in excellent agreement with the simulation when the p-polarized terahertz transmission is measured. However, these electromagnetic responses vanish when the s-polarized terahertz transmission is measured. There is only a transmission minimum at 1.64 THz and the terahertz polarization rotation angle of about 90 degrees is observed. The polarized terahertz transmission amplitudes and spectra detected at orthogonal orientations show that these behaviours are probably attributed to the birefringent effect of the sample.