

371.

Accession number:20113314229668

Title:Engineering electromagnetic response of composite terahertz metamaterial with broken symmetry

Authors:Jin, Wei (1); Zhang, Yong-Liang (1); Dong, Xian-Zi (1); Duan, Xuan-Ming (1); Zhao, Zhen-Sheng (1)

Author affiliation:(1) Laboratory of Organic NanoPhotonics, Technical Institute of Physics and Chemistry, Chinese Academy of Sciences, 100190 Beijing, China; (2) Graduate University of Chinese, Academy of Sciences, 100190 Beijing, China

Corresponding author:Zhang, Y.-L.(ylzhang@mail.ipc.ac.cn)

Source title:Optics Communications

Abbreviated source title:Opt Commun

Volume:284

Issue:19

Issue date:September 1, 2011

Publication year:2011

Pages:4815-4819

Language:English

ISSN:00304018

CODEN:OPCOB8

Document type:Journal article (JA)

Publisher:Elsevier, P.O. Box 211, Amsterdam, 1000 AE, Netherlands

Abstract:We proposed and numerically investigated the influence of spatial symmetry on the terahertz frequency region response of composite planar metamaterials based on deformed split ring resonators. Compared with the original simple structures, the composite metamaterials with different spatial symmetries exhibited exotic electromagnetic properties. The electromagnetic response of a specific configuration with C<sub>4</sub> symmetry was identical to the structure with simple lattice. Especially, for configurations with broken symmetry, very sharp Drude-like resonances with high quality factor were observed. The electric field and current distribution associated the resonances were analyzed for deep understanding of the underlying physical properties.

Number of references:24