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Title:A symmetrical dual-band terahertz metamaterial with cruciform and square loops
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Abstract:A symmetrical terahertz metamaterial for dual-band operation is designed and fabricated. The proposed metamaterial is composed of periodically arranged cruciform and square metal loops. Due to the symmetrical structure, this metamaterial is insensitive with the polarization of the incident wave. Transmission and reflection characteristics of the proposed structure are simulated using Ansoft HFSS, and the negative permittivity is figured out in 378-500 GHz and 626-677 GHz bands. The designed sample is fabricated on a gallium arsenide layer, and experiments are performed in Terahertz Time-Domain Spectroscopy. The experimental results agree well with the simulations.
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Main heading:Metamaterials
Controlled terms:Antennas
Uncontrolled terms:Ansoft HFSS - Dual-band - Dual-band operations - GHz band - Incident waves - Negative permittivity - Reflection characteristics - Square loop - Symmetrical structure - Tera Hertz - Terahertz time domain spectroscopy
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