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Title:Hybrid SRRs design and fabrication for broadband terahertz metamaterials

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Abstract:Hybrid metamaterials comprising split-ring resonator (SRR) structures with different gap dimensions are fabricated on polyethylene naphthalate (PEN) films by parallel laser micro-lens array (MLA) lithography and a liftoff process. The unit cell of hybrid metamaterials consists of four SRRs with the same SRR core side length but different gap sizes. The different-gap-size SRRs in each unit cell correspond to different but successive resonance dips, which are coupled to form a significantly broader band with enhanced resonance. The hybrid SRRs design is numerically and experimentally demonstrated, showing a much broader bandwidth to cover all narrowband induced by each SRR and enhanced resonance as compared with a uniform SRR design. © 2012 IEEE.

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Uncontrolled terms:broadband - Broadband terahertz - Gap size - Lift-off process - Micro-lens arrays - Narrow bands - Polyethylene naphthalate - Side length - Split-ring resonator - Splitring resonators - Tera Hertz - Unit cells

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