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Title:Compact multiband left-handed metamaterial at terahertz frequencies
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Abstract:We design and analyze a novel multiband left-handed metamaterial based on a fishnet-like structure at terahertz (THz) frequencies. The metamaterial exhibits simultaneous negative refractions around the frequencies of 0.48, 1.05, and 1.19 THz for the electromagnetic (EM) wave normal incidence, and around the frequencies of 0.20, 0.79, and 1.13 THz for parallel incidence. The simulated results verify the left-handed properties. A particularly important observation is the capability of the proposed metamaterial with a single geometrical structure to display multifrequency operations in a unit cell. The compact metamaterial is a major step toward the miniaturization of THz materials and devices suitable for multifrequencies.
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