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Title:Terahertz composite right-left handed transmission-line metamaterial waveguides
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Abstract:We report terahertz metamaterial waveguides based on the concept of composite right/left-handed transmission-lines. The waveguides are implemented in a metal-insulator-metal geometry fabricated with spin-coated Benzocyclobutene and contact photolithography. Angle-resolved reflection spectroscopy shows strong resonant absorption features corresponding to both right-handed and left-handed (backward wave) propagating modes within the leaky-wave bandwidth. Tuning of the waveguide dispersion is achieved by varying the effective lumped element series capacitance. The experimental results are in good agreement with full-wave finite element method simulations as well as an intuitive transmission-line circuit model.
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