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Title

Dual-band Terahertz Left-handed Metamaterial with Fishnet Structure

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Abstract

We present the design of a dual-band left-handed metamaterial with fishnet structure in the terahertz regime. Its left-handed properties are described by the retrieved effective electromagnetic parameters. We introduce an equivalent circuit which offers a theoretical explanation for the left-handed behavior of the dual-band fishnet metamaterial, and investigate its losses receiving higher figure of merit. The design is beneficial to the development of frequency agile and broadband THz materials and devices. The dual-band fishnet metamaterial can be extended to infrared and optical frequency ranges by regulating the structural parameters. (17 References).