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Title:Separated fractal antennas for improved emission performance of terahertz radiations

Authors:Diao, J.M. (1); Yang, F. (1); Nie, Z.P. (1); Ouyang, J. (1); Yang, P. (1)

Author affiliation:(1) Department of Microwave Engineering, School of Electronic Engineering, University of Electronic Science and Technology of China, Chengdu 611731, China

Corresponding author:Diao, J.M.(diaojunming@gmail.com)

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Abstract:We investigate the emission of terahertz (THz) radiation from two kinds of recently reported fractal photoconductive antennas by the method of separating antennas from transmission lines. A model for analyzing the separation design is presented. From the numerical simulations, the radiation power and center frequency of Sierpinski fractal photoconductive antenna are increased by $\sim 120\%$ and $\sim 25\%$, respectively. Meanwhile, the first peak frequency emission intensity of H-fractal photoconductive antenna is increased by $\sim 70\%$. Because of the stronger resonant effect of the emitting antenna, this method shows high potential applications to various photoconductive antennas.

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