

عنوان مقاله:

Convertible Perfect Absorber with Single Ring Resonator: Tunable Single Band/Dual-Band Visible

محل انتشار:

مجله مدل‌سازی و شبیه‌سازی در مهندسی برق و الکترونیک، دوره 1، شماره 4 (سال: 1401)

تعداد صفحات اصل مقاله: 7

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خلاصه مقاله:

This study proposes a single and dual-band tunable and convertible perfect absorber in the infrared band, consisting of a dielectric layer and a metallic bottom film. Primarily a tunable single-frequency absorber in the infrared region had been introduced. Subsequently, with the change in geometric structure, the proposed structure can be converted from infrared single-band to visible double-band frequency. The numerical simulation results indicate that the absorption spectrum of the single-band resonator is tuned from ۳۳۷.۴ THz to ۲۱۰.۲ THz, ۲۲۷.۳ THz, and ۲۹۷.۷ THz by changing effective parameters: ring width, ring height, and dielectric height. Next, by the parametric study of the proposed absorber dimensions, the absorption rate is obtained ۹۹% more at the designed frequencies; lastly, the dual-band absorption with an average performance of ۹۹.۹۸% in the visible spectrum. The proposed plasmonic absorber in this research has a variety of applications, including sensing, imaging, wavelength-selective thermal emission, photodetectors, and so on.

کلمات کلیدی:

Metamaterial perfect absorber, Dual-band, Tunable, Infrared, Terahertz

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