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Theoretical and numerical analysis of double-negative slab

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Keywords

double-negative slab, reflection and transmission coefficients, electromagnetic wave interaction

Abstract

Reflection and transmission analysis due to the interaction of electromagnetic waves with a frequency dispersive double-negative slab are investigated in detail. In particular, the reflection and the transmission coefficients are found and defined. The incident field is assumed to be a plane monochromatic wave of transverse magnetic polarization. Imposing the boundary conditions at the interfaces, the transmission and the reflection coefficients at each interface can be obtained. Numerical results are presented for both cases of transverse magnetic and electric waves to show the effects of the incidence angle, the frequency, and the structure parameters on the reflection and the transmission coefficients.



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