Abstracts

A systematic approach to the derivation of constitutive parameters of a perfectly matched absorber

In this work, the constitutive parameters of a perfectly matched absorber are derived by imposing the condition that the fields decay within the absorber in a required manner, and it is shown that this absorber can be realized as a bianisotropic medium. This strategy is similar to that employed for the realization of perfectly matched layers (PML's), via the use of anisotropic media, and the imposition of certain conditions on the complex permittivity and permeability tensors. However, unlike the PML, the bianisotropic media are desirable candidates for physically realizable and passive absorbers. Furthermore, theoretically, such media have the potential of absorbing incident waves of arbitrary frequency and direction of propagation with no reflection.

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