Abstracts

Rigorous Quasi-TEM Analysis of Multiconductor Transmission Lines in Bi-Isotropic Media -- Part I: Theoretical Analysis for General Inhomogeneous Media and Generalization to Bianisotropic Media

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The quasi-TEM approximation for multiconductor lines embedded in inhomogeneous bi-isotropic media is developed. It is shown that in the quasi-TEM limit a multiconductor line in bi-isotropic media can be represented by a coupled set of nonreciprocal and nonsymmetric circuit transmission lines. The effect on the circuit parameters of absence of losses, reciprocity and symmetry properties of the geometry and of the equations is investigated. Finally, the generalization to full bianisotropic materials is studied.

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