Abstracts

Computation of propagation characteristics of chiral layered waveguides

In this paper the authors present a systematic numerical method to analyze multilayered linear chiral waveguides. The Maxwell's equations are solved inside each layer and the transversal fields at the top and bottom of the whole layered medium are then related. This relation, together with the use of the proper transversal impedance matrices, makes it possible to obtain the dispersion relation of the waveguide. Since this technique is mainly numerical, the whole procedure is practically independent of both the number of layer and linear properties of the materials. In addition to the proper modes, the authors also show the behavior of the improper leaky modes of different chiral waveguides. In all the analyzed cases and for the considered ranges, the authors have found that the presence of chiral material does not substantially change the qualitative behavior of the dispersion relation, although it offers another parameter to control the propagation characteristics of the waveguide.

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