Abstracts

Full-wave high-order FEM model for lossy anisotropic waveguides

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Anisotropic lossy waveguides are analyzed by applying the finite-element method with higher order interpolatory vector elements. The problem is formulated in terms of the electric field only. The transverse vector component of the electric field is numerically represented by higher order curl-conforming interpolatory vector functions, whereas the longitudinal component of the field is represented by higher order scalar basis functions. Due to the better interpolatory capabilities of the expansion functions, the metallic and material losses are modeled with a higher precision with respect to that provided by the other available numerical models. Furthermore, the use of higher order elements permits the correct modeling of the discontinuity of the normal field component at the interfaces between different materials.

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