Abstracts

Guided Electromagnetic Waves in Gyrotropic Chirowaveguides

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The propagation characteristics of hybrid modes in the circular cylindrical and coaxial line gyrotropic chirowaveguides are studied using the technique of separation variables. First, the transverse components of electric and magnetic fieIds are expressed in terms of the longitudinal components of Bar over E and Bar over H. Then, numerical results are presented for the dispersion behavior and cut-off frequencies as well as the field distributions of hybrid EH/sub 0,1/ and HE/sub n,1/), with the effects of different electromagnetic parameters of gyrotropic chiral material taken into consideration. It is shown that the process of mode bifurcation also takes place in the gyrotropic chirowaveguides; this is similar to the cases of reciprocal chirowaveguides. But, gyrotropic chirowaveguides are nonreciprocal bianisotropic devices.

❑ Return to main document.