Abstracts

Guided Modes on Open Chirowaveguides

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Surface wave modes on an open chiral rod and a planar chiral slab are studied. It is shown that the effect of chirality is to split each mode in the nonchiral case to a pair of modes, the cutoff frequencies of which are above and below that of the nonchiral case. The mode with the lower cutoff freqnency is dominantly right circularly polarized (RCP) mode while the mode with the higher cutoff frequency is dominantly left circularly polarized (LCP) mode near their respective cutoff frequencies. At sufficiently higher frequencies, all modes tend to become RCP (assuming a right handed chiral medium). Closed form expressions for modal cutoff frequencies on the planar chiral slab and chiral circular rod are derived. The surface wave modes are classified as HE and EH modes and a suitable definition for these mode types, that reduces to well known definitions in the nonchiral case, is proposed.

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