# Abstracts

## Chiral hard-surface waveguide mode transformer

*A.J. Viitanen. "Chiral hard-surface waveguide mode transformer." 2000 Transactions on Microwave Theory and Techniques 48.6 (Jun. 2000 [T-MTT] (Mini-Special Issue on the 1999 IEEE Radio and Wireless Conference (RAWCON))): 1077-1079.*

Field propagation in cylindrical axially corrugated waveguide filled with chiral medium is considered in this paper. The depth of the corrugation is a quarter-wavelength, making a hard-surface (HS) boundary. These eigenfields inside the chiral HS waveguide are circularly polarized. In a nonchiral HS waveguide, these eigenmodes are propagating with the same propagation factor. However, for small chirality values, there exists weak coupling between the eigenfields, which results in a change in polarization of the propagating field. This effect makes it possible to make mode transformers and phase shifters. Also, the chiral HS waveguide of a proper length can be used as a matching element between different kinds of circular waveguides.

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