# Abstracts

## Theoretical Study of Variation of Propagation Constant in a Cylindrical Waveguide Due to Chirality: Chiro-Phase Shifting

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We discuss a conceptual idea for a reciprocal phase shifting using chiral materials. Such phase shifters, which can be called chiro-phase shifters, may, in principle, consist of a general cylindrical waveguide in which a thin chiral rod is inserted longitudinally. A standard commonly used perturbation technique is utilized to analyze theoretically the effects of a chiral rod's parameters (and in particular its chirality admittance) on propagation constants of guided modes in such waveguides. A simple expression relating the relative change of propagation constants to other relevant quantities such as polarization characteristics of unperturbed guided modes, material parameters of chiral rod, and location of the rod is presented, and the case of a circular metallic chiro-phase shifter is discussed in some detail. Physical insights into the results are also provided.

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