# Abstracts

## Reflection at a Curved Dielectric Interface -- Electromagnetic Tunneling

*A.W. Snyder and J.D. Love. "Reflection at a Curved Dielectric Interface -- Electromagnetic Tunneling." 1975 Transactions on Microwave Theory and Techniques 23.1 (Jan. 1975 [T-MTT] (Special Issue on Integrated Optics and Optical Waveguides)): 134-141.*

The reflection of a locally plane wave from a curved interface between two nonabsorbing dielectric media is investigated. Our analysis is applicable to an interface of general shape, defined at each point by the two principal radii of curvature. When the wave is incident from the denser medium at angles greater than the critical angle it is only partially reflected, due to a form of electromagnetic tunneling. Generalized Fresnel transmission coefficients and an extension of Snell's law are derived to account for this transmission into the less dense medium. Ray tracing can then be applied to determine such phenomena as the bending losses in optical slab waveguides, and the curvature loss of skew rays within straight optical waveguides of circular cross section.

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