Abstracts

Generalized Fresnel Power Transmission Coefficients for Curved Graded-Index Media

J.D. Love and C. Winkler. "Generalized Fresnel Power Transmission Coefficients for Curved Graded-Index Media." 1980 Transactions on Microwave Theory and Techniques 28.7 (Jul. 1980 [T-MTT]): 689-695.

When a tunneling ray passes through a turning point in a graded-index medium, a fraction of its power is transmitted into the optically less dense medium beyond the turning point. We determine a generalized Fresnel coefficient to describe the fraction of power transmitted when the stratification of the medium is of arbitrary shape, defined by the two principal radii of curvature at the turning point. It is also shown how to incorporate the effect of a step discontinuity in the graded profile. The core of the bent parabolic index fiber is used to illustrate the variation of power transmitted into the cladding with curvature and depth of tunneling.

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