

Abstracts

Excitation and Scattering of Modes on a Dielectric or Optical Fiber

A.W. Snyder. "Excitation and Scattering of Modes on a Dielectric or Optical Fiber." 1969
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A technique similar to that of Kirchhoff is used to obtain an analytic expression for mode launching on a semi-infinite rod. The approximation is quasi-optical and only valid for small angles of incidence /spl theta/. When /spl theta/ = 0 only HE_{1M} modes are excited; however, for /spl theta/ << 1 many modes can be launched. The effect on HE₁₁ mode propagation of small imperfections in a dielectric waveguide is analyzed. At the frequency of interest for optical communication (cutoff for the TM₀₁ mode) the radiated power is 160 times larger than that scattered into the HE₁₁ mode.

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