

# **Solution of the vector eigenmode problem for cylindrical dielectric waveguides based on a nonlocal boundary a condition**

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## **Abstract**

The original problem in an unbounded domain is reduced to a problem in a disk convenient for numerical solution. The problem thus obtained is a parametric eigenvalue problem with a nonlocal boundary condition nonlinear in the spectral parameter. The analysis of the problem is based on the spectral theory of compact self-adjoint operators. The existence of a spectrum of the problem is proven, and the properties of the dispersion curves are studied. Copyright © 2002 by MAIK "Nauka/Inrerperiodica".

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