Abstracts

Some Problems in the Theory of Guided Microsonic Waves

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The wave equation for elastic waves in an isotropic solid is solved generally in Cartesian and in circular cylindrical coordinates. The solutions are applied in the study of a variety of guiding structures of circular and rectangular symmetry. In general, the wave functions do not satisfy the boundary conditions, but in special cases they do. From a study of these special cases it is possible to arrive at some useful results and to general principles which give some insight into the behavior of waveguides in general. The results and observations obtained are compared and where appropriate, with corresponding results for electromagnetic waveguides.

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