Abstracts

Field Theoretical Characterization of Microwave Cavities

A cylindrical method of lines (CMOL) has been developed to calculate waveguide cavities with homogeneous and inhomogeneous media. The advantage of the CMOL is that only two out of three space variables need to be discretized, while for the third direction the Helmholtz equation can be solved analytically. The CMOL is especially suitable for the analysis and design of cylindrical/rectangular cavities filled with dielectric blocks of arbitrary shape. Results are presented for a variety of resonator structures. Of particular interest is the resonant frequency calculation of a dielectric rod of varying diameter within a rectangular cavity.

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