Abstracts

Development of an improved two-dimensional finite-element code for cylindrically symmetric eigenmodes

K. Masuda, K. Yoshikawa, M. Ohnishi, Y. Yamamoto, H. Toku, M. Sobajima and J. Kitagaki. "Development of an improved two-dimensional finite-element code for cylindrically symmetric eigenmodes." 1998 Transactions on Microwave Theory and Techniques 46.8 (Aug. 1998 [T-MTT]): 1180-1182.

A new two-dimensional finite-element (FE) eigenmode solver has been developed, which is suitable for calculating cylindrically symmetric modes. The quantity H/sub /spl theta///r is used in the code to describe the electromagnetic fields instead of H/sub /spl theta// or rH/sub /spl theta//, which is preferentially used in the existing codes, and the new formulation with H/sub /spl theta///r is found to show higher accuracy and smoother convergence with respect to the number of mesh points. Comparison is also made between linear and quadratic elements, resulting in remarkably higher accuracy by the latter.

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