

Generalized transverse resonance analysis of planar discontinuities considering the edge effect

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Mode-matching related techniques such as the Generalized Transverse Resonance Method (GTR) suffer from the relative convergence phenomenon. To reduce its influence, we present a technique consisting of the application of basis functions incorporating the singular behavior of fields at edges and an optimal modal ratio. We present the results obtained analyzing a uniform finline and a short-circuited finline which demonstrate the minimization of the relative convergence phenomenon, allowing a fast and accurate analysis on a low-cost personal computer.

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