

Network Folding Strategies for Concurrent Electromagnetic Field Mapping

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A number of concurrent algorithms for dynamic field mapping based on the two-dimensional lumped circuit analogies of Maxwell's equations are presented. Large networks of lumped equivalent circuits are mapped onto arrays of transputers to provide a computational advantage over classical sequential techniques. Different network folding and unfolding strategies are proposed to solve these large networks. Diakoptic methodologies in concurrent form are used throughout. The method presented is general and can be applied to any orthogonal coordinate system with non uniform elemental quantization and boundary conditions placed at infinity. Results are presented for a rectangular waveguide problem.

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