# Abstracts

## Concurrent Network Diakoptics for Electromagnetic Field Problems

*L.N. Merugu and V.F. Fusco. "Concurrent Network Diakoptics for Electromagnetic Field Problems." 1993 Transactions on Microwave Theory and Techniques 41.4 (Apr. 1993 [T-MTT]): 708-716.*

This paper presents a new modification to circuit based diakoptics equations which allows the efficient manipulation of equivalent circuit models which represent Maxwells equations. A new formulation of the diakoptics equations is given whereby torn subnetworks used to form the problem domain under consideration can be connected on a nearest neighbour basis. This formulation allows an algorithm to be written which is suitable for implementation on a parallel computer. In this work implementation is on a transputer array configured with two different topologies. The computational efficiency of each topology is appraised and considerable computational advantage demonstrated with respect to the classical sequential varient of the technique. The procedure is then applied to sample electromagnetic field problems in order to verify its utility. Finally it is used to compute the performance of a patch microstrip hybrid coupler.

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