Abstracts

Hierarchical multilevel potential preconditioner for fast finite-element analysis of microwave devices

Yu Zhu and A.C. Cangellaris. "Hierarchical multilevel potential preconditioner for fast finite-element analysis of microwave devices." 2002 Transactions on Microwave Theory and Techniques 50.8 (Aug. 2002 [T-MTT]): 1984-1989.

A robust hierarchical multilevel preconditioning technique is presented for the fast finite-element analysis of microwave devices. The proposed preconditioner is based on a hierarchical multilevel scheme for the vector-scalar potential finite-element formulation of electromagnetic problems. Numerical experiments from the application of the new preconditioner to the finite-element analysis of microwave devices are used to demonstrate its superior numerical convergence and efficient memory usage.

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