

## Multilevel fast multipole algorithm for analysis of large-scale microstrip structures

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*Feng Ling, Jiming Song and Jian-Ming Jin. "Multilevel fast multipole algorithm for analysis of large-scale microstrip structures." 1999 Microwave and Guided Wave Letters 9.12 (Dec. 1999 [MGWL]): 508-510.*

An efficient algorithm combining multilevel fast multipole method and the discrete complex image method is presented for analyzing large-scale microstrip structures. The resulting algorithm has the memory requirement and the CPU time per iteration proportional to  $O(N \log N)$ , where  $N$  denotes the number of unknowns. Numerical results for microstrip antennas are presented to demonstrate the efficiency and accuracy of this method.

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