Abstracts

A high-accuracy realization of the Yee algorithm using non-standard finite differences

J.B. Cole. "A high-accuracy realization of the Yee algorithm using non-standard finite differences." 1997 Transactions on Microwave Theory and Techniques 45.6 (Jun. 1997 [T-MTT]): 991-996.

New nonstandard second-order finite differences (FD's) are introduced, which when substituted into the Yee algorithm, reduce the solution error by a factor of 10/sup -4/ on a coarse computational grid. Using /spl lambda//h (grid spacings per wavelength)=8, one achieves the same accuracy as the standard Yee algorithm does at /spl lambda//h=1140. In addition, greater algorithmic stability allows a reduction in the number of iterations needed to solve a problem.

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