Abstracts

Iterative application of boundary conditions in the parallel implementation of the FDFD method

The authors present an implementation of the finite difference frequency domain (FDFD) algorithm, based on extending the problem domain and iterative application of boundary conditions, which allows efficient parallel solution of the electromagnetic problems defined over irregular computational domains. The proposed approach, applied jointly with implicit representation of the operator matrix and spectral transformations, has been used to develop a parallel solver for the open resonator problem, characterized by a nearly optimal speedup of computations.

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