Abstracts

Multiple scattering among vias in planar waveguides using SMCG method

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Large scale full-wave solution of multiple scattering among cylindrical vias in planar waveguides is modeled using Foldy-Lax equations. Solution of the Foldy-Lax equations with large number of unknowns is done efficiently using the sparse-matrix canonical-grid method. In the method, interactions among vias are decomposed into strong interactions part and weak interactions part where the calculation can be carried out using 2D-FFT after the locations of the vias have been translated onto the uniform grids. The final solution of the Foldy-Lax equations is calculated by iterative method with matrix-vector multiplication speeded up by the 2D-FFT operation. The results show O(NlogN) CPU efficiency and O(N) memory efficiency and make large scale via problem possible for computer simulation.

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