Abstracts

Scattering Solution of Three-Dimensional Array of Patches Using the Recursive T-Matrix Algorithms

L. Gurel and W.C. Chew. "Scattering Solution of Three-Dimensional Array of Patches Using the Recursive T-Matrix Algorithms." 1992 Microwave and Guided Wave Letters 2.5 (May 1992 [MGWL]): 182-184.

The recursive T-matrix algorithms are used to solve for the vector electromagnetic scattering problem of a three-dimensional array of patches. The formulation uses only the E/sub x/ and E/sub y/ components of the electromagnetic field wherein the three-dimensional scalar addition theorem can be used. The coefficients for the scalar addition theorem is calculated with an efficient recurrence relation. This results in reduced memory requirement and computation time. When the addition theorem is violated, a generalized recursive T-matrix algorithm is used to mitigate the problem caused by the violation of the addition theorem. The scattering solutions are validated by comparison with the method of moments and the reduced computational complexity of the solution is demonstrated.

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