Abstracts

Automatic generation of subdomain models in 2D FDTD using reduced order modeling

B. Denecker, F. Olyslager, L. Knockaert and D. de Zutter. "Automatic generation of subdomain models in 2D FDTD using reduced order modeling." 2000 Microwave and Guided Wave Letters 10.8 (Aug. 2000 [MGWL]): 301-303.

A new method combining a finite difference method and a reduced order model (ROM) algorithm is presented for two-dimensional (2-D) electromagnetic problems. The problem space is subdivided into subdomains of a generic type. By discretizing the spatial derivatives in a way similar to the finite-difference in time-domain technique (FDTD), the state equations are written down in each subdomain. From that, an FDTD-subdomain model is derived. Finally, the different subdomains are reconnected and the original problem is solved by a leapfrog time-stepping algorithm. Some numerical results are presented to illustrate the new approach.

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