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Autore	Bilbao Stefan D
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3.4.2 Other MD Elements

3.4.3 Discretization in the Spectral Domain3.4.4 Other Spectral Mappings; 3.5 The (1 + 1)D Advection Equation; 3.5.1 A Multidimensional Kirchhoff Circuit; 3.5.2 Stability; 3.5.3 An Upwind Form; 3.6 The (1 + 1)D Transmission Line; 3.6.1 MDKC for the (1 + 1)D Transmission Line Equations; 3.6.2 Digression: The Inductive Lattice Two-port; 3.6.3 Energetic Interpretation; 3.6.4 An MDWD Network for the (1 + 1)D Transmission Line; 3.6.5 Simplified Networks; 3.7 The (2 + 1)D Parallel-plate System; 3.7.1 MDKC and MDWD Network; 3.8 Finite Difference Interpretation

3.8.1 MDWD Networks as Multistep Schemes3.8.2 Numerical Phase Velocity and Parasitic Modes; 3.9 Initial Conditions; 3.10 Boundary Conditions; 3.10.1 MDKC Modeling of Boundaries; 3.11 Balanced Forms; 3.12 Higher-order Accuracy; 4 Digital Waveguide Networks; 4.1 FDTD and TLM; 4.2 Digital Waveguides; 4.2.1 The Bidirectional Delay Line; 4.2.2 Impedance; 4.2.3 Wave Equation Interpretation; 4.2.4 Note on the Different Definitions of Wave Quantities; 4.2.5 Scattering Junctions; 4.2.6 Vector Waveguides and Scattering Junctions; 4.2.7 Transitional Note; 4.3 The (1 + 1)D Transmission Line

4.3.1 First-order System and the Wave Equation4.3.2 Centered Difference Schemes and Grid Decimation; 4.3.3 A (1 + 1)D Waveguide Network; 4.3.4 Waveguide Network and the Wave Equation; 4.3.5 An Interleaved Waveguide Network; 4.3.6 Varying Coefficients; 4.3.7 Incorporating Losses and Sources; 4.3.8 Numerical Phase Velocity and Dispersion; 4.3.9 Boundary Conditions; 4.4 The (2 + 1)D Parallel-plate System; 4.4.1 Defining Equations and Centered Differences; 4.4.2 The Waveguide Mesh; 4.4.3 Reduced Computational Complexity and Memory Requirements in the Standard Form of the Waveguide Mesh

4.4.4 Boundary Conditions

Sommario/riassunto

Scattering-based numerical methods are increasingly applied to the numerical simulation of distributed time-dependent physical systems. These methods, which possess excellent stability and stability verification properties, have appeared in various guises as the transmission line matrix (TLM) method, multidimensional wave digital (MDWD) filtering and digital waveguide (DWN) methods. This text provides a unified framework for all of these techniques and addresses the question of how they are related to more standard numerical simulation techniques. Covering circuit/scattering models in electr