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2.4.1 Discretisation of the transmission line equations2.4.2 Determination of the field components; 2.5 FIELD AND IMPEDANCE/ADMITTANCE TRANSFORMATION; 2.5.1 Introduction; 2.5.2 Impedance/admittance transformation in multilayered and multisectioned structures; 2.5.3 Impedance/admittance transformation with finite differences; 2.5.4 Stable field transformation through layers and sections; 3 ANALYSIS OF RECTANGULAR WAVEGUIDE CIRCUITS; 3.1 INTRODUCTION; 3.2 CONCATENATIONS OF WAVEGUIDE SECTIONS; 3.2.1 LSM and LSE modes in circular waveguide bends; 3.2.2 LSM and LSE modes in straight waveguides
3.2.3 Impedance transformation at waveguide interfaces3.2.4 Numerical results for concatenations; 3.2.5 Numerical results for waveguide filters; 3.3 WAVEGUIDE JUNCTIONS; 3.3.1 E-plane junctions; 3.3.2 H-plane junctions; 3.3.3 Algorithm for generalised scattering parameters; 3.3.4 Special junctions: E-plane 3-port junction; 3.3.5 Matched E-plane bend; 3.3.6 Analysis of waveguide bend discontinuities; 3.3.7 Scattering parameters; 3.3.8 Numerical results; 3.4 ANALYSIS OF 3D WAVEGUIDE JUNCTIONS; 3.4.1 General description; 3.4.2 Basic equations
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4.2.5 GTL equations for r-direction

Sommario/riassunto

The Method of Lines (MOL) is a versatile approach to obtaining numerical solutions to partial differential equations (PDEs) as they appear in dynamic and static problems. This method, popular in science and engineering, essentially reduces PDEs to a set of ordinary differential equations that can be integrated using standard numerical integration methods. Its significant advantage is that the analysis algorithms follow the physical wave propagation and are therefore efficient. This is because the fields on the discretisation lines are described by generalised transmission line (GTL) equations.