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Nota di contenuto	The Finite Element Method for Electromagnetic Modeling; Table of Contents; Chapter 1. Introduction to Nodal Finite Elements; 1.1. Introduction; 1.1.1. The finite element method; 1.2. The 1D finite element method; 1.2.1. A simple electrostatics problem; 1.2.2. Differential approach; 1.2.3. Variational approach; 1.2.4. First-order finite elements; 1.2.5. Second-order finite elements; 1.3. The finite element method in two dimensions; 1.3.1. The problem of the condenser with square section; 1.3.2. Differential approach; 1.3.3. Variational approach 1.3.4. Meshing in first-order triangular finite elements 1.3.5. Finite element interpolation; 1.3.6. Construction of the system of equations by the Ritz method; 1.3.7. Calculation of the matrix coefficients; 1.3.8. Analysis of the results; 1.3.9. Dual formations, framing and convergence; 1.3.10. Resolution of the nonlinear problems; 1.3.11. Alternative to the variational method: the weighted residues method;

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Sommario/riassunto

Written by specialists of modeling in electromagnetism, this book provides a comprehensive review of the finite element method for low frequency applications. Fundamentals of the method as well as new advances in the field are described in detail. Chapters 1 to 4 present general 2D and 3D static and dynamic formulations by the use of scalar and vector unknowns and adapted interpolations for the fields (nodal, edge, face or volume). Chapter 5 is dedicated to the presentation of different macroscopic behavior laws of materials and their implementation in a finite element context: anisotrop
