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2.3.3 Magnetic Media in Static Magnetic Field2.3.4 Boundary Conditions of Magnetostatic Field; 2.3.5 Boundary-Value Problem of Static Magnetic Field; 2.3.6 Summary of Equations of Magnetostatic Problem; 2.4 Summary; References; 3 Finite Element Analysis for the Magnetostatic Field; 3.1 Introduction; 3.1.1 Basic Concept of the FEM; 3.1.2 Basic Steps of the FEM; 3.2 Functional Construction for Static Magnetic Field; 3.3 Discretization and Interpolation Function of Solution Domain; 3.3.1 Principle of Selecting Subdivisions in the Domain; 3.3.2 Selection of Interpolation Function
3.3.3 Unified Expressions of Interpolation Function3.4 Formulation of System Equations; 3.4.1 Two-Dimensional Cartesian Coordinate System; 3.4.2 Three-Dimensional Cartesian Coordinate System; 3.4.3 Axially Symmetric Scalar Potential System; 3.5 Solution of System Equation for the FEM; 3.6 Applied FEM for Magnet Design; 3.6.1 Magnetic Field for a Superconducting Magnet with LTS and HTS; 3.6.2 Magnetic Field for a Superferric Dipole Magnet; 3.6.3 Force Characteristics of a Superconducting Ball in Magnetic Field; 3.7 Summary; References; 4 Integral Method for the Magnetostatic Field 4.1 Integral Equation of Static Magnetic Field4.2 Magnetic Field from Current-Carrying Conductor; 4.2.1 Magnetic Field Generated by Rectangular Conductor; 4.2.2 Magnetic Field of Arc-Shaped Winding; 4.2.3 Magnetic Field Generated by Solenoid Coil; 4.2.4 Magnetic Field of Elliptical Cross-Section Winding; 4.2.5 Parallel Plane Field; 4.2.6 Magnetic Field ofWedge-Shaped Current Block with Triangular Cross-Section; 4.2.7 Magnetic Field of Wedge-Shaped Structure with Rectangular Cross-Section; 4.3 Magnetic Field with Anisotropic Magnetization
4.3.1 Subdivision of Three-Dimensional Ferromagnetic Media

Sommario/riassunto

"Covers extensively the magnet design and computation aspects from theories to practical applications, emphasizing design methods of practical structures such as superconducting, electromagnetic and permanent magnet for use in various scientific instruments, industrial processing, biomedicine and special electrical equipments"--