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3-3 CHARGE DENSITY AND CURRENT DENSITY AS COMPONENTS OF A FOUR-VECTOR3-4 THERE MUST BE A "MAGNETIC FIELD"| (THE REQUIREMENT OF LORENTZ INVARIANCE IMPLIES A VECTOR POTENTIAL); 3-5 THE ELECTRIC AND MAGNETIC FIELDS AS ELEMENTS OF A SECOND-RANK TENSOR; 3-6 MAXWELL'S EQUATIONS; 4 - Time-Independent Current Distributions;  Magnetostatics; 4-1 AN ELEMENTARY DERIVATION OF OHM'S LAW; 4-2 FINDING THE MAGNETIC FIELD THROUGH THE VECTOR POTENTIAL; 4-3 THE BIOT-SAVART LAW; 4-4 AMPERE'S LAW; 4-5 B AS THE GRADIENT OF A POTENTIAL FUNCTION; 4-6 MAGNETIZATION (M) AND THE H FIELD
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5-4 ELECTROMAGNETIC MASS

Sommario/riassunto

Unlike most textbooks on electromagnetic theory, which treat electricity, magnetism, Coulomb's law and Faraday's law as almost independent subjects within the framework of the theory, this well-written text takes a relativistic point of view in which electric and magnetic fields are really different aspects of the same physical quantity.Suitable for advanced undergraduates and graduate students, this volume offers a superb exposition of the essential unity of electromagnetism in its natural , relativistic framework while demonstrating the powerful constraint of relativistic invariance. It wil