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Titolo	Introduction to Electromagnetic Theory and the Physics of Conducting Solids // by Costas J. Papachristou
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ISBN	3-030-30996-7
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Descrizione fisica	1 online resource (XII, 246 p. 96 illus.)
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Soggetti	Electrical engineering Electrodynamics Condensed matter Electrical and Electronic Engineering Classical Electrodynamics Condensed Matter Physics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Part A: The physics of conducting solids -- Atoms, molecules, and crystals -- Electrical conductivity of solids -- Distribution of energy -- Part B: Electromagnetic fields and waves -- Elements of field theory.- Static electric fields -- Electric current -- Static magnetic fields -- Static electric and magnetic fields in matter -- Time-dependent electromagnetic fields -- Electromagnetic waves -- Appendix A -- Appendix B.-Bibliography -- Index.
Sommario/riassunto	This book consists of two parts. Part A (Chapters 1-3) is an introduction to the physics of conducting solids, while Part B (Chapters 4-10) is an introduction to the theory of electromagnetic fields and waves. The book is intended to introduce the student to classical electrodynamics and, at the same time, to explain in simple terms the quantum theory of conducting substances – in particular, the solid ones. Excessive mathematical proof is avoided as much as possible, in favor of pedagogical efficiency at an introductory level. The theory of vector fields is briefly discussed in a separate chapter, helping the student cope with the mathematical challenges of Maxwell's theory.

The book serves as a primary source for a sophomore-level electromagnetics course in an electronics-oriented engineering program, but it can also be used as a secondary (tutorial) source for an intermediate-level course in electrodynamics for physicists and engineers. The content is based on the author's lecture notes for his sophomore-level Physics course at the Hellenic Naval Academy.

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