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<<电磁学>>

图书基本信息

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作者：Gerald L Pollack

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前言

This is an intermediate-level textbook on electricity and magnetism. It is intended to be used for a two- or one-semester course for students of physics, engineering, mathematics, and other sciences, who have already had a one-year introductory physics course with calculus. The book is flexible enough to be used in several ways: (1) The traditional two-semester course would cover electrostatics and magnetostatics in the first semester using Chapters 1-8; and then magnetic materials and time-dependent fields in the second semester using Chapters 9-15. (2) An instructor teaching a one-semester course could cover all the basic principles of electromagnetism by using Chapters 1-3 and 6-11; there might also be time for a few examples from Chapters 4 and 5. (3) An interesting alternative approach in a two-semester course would be to go over the basic principles of Chapters 1-3 and 6-11 in the first semester, and then applications and advanced topics in the second semester based on Chapters 4, 5, and 12-15. The total material in the book is more than could be realistically covered by any instructor, even in two semesters. Instructors are encouraged to pick and choose based on their own judgment of what is important. Electricity and magnetism is a wonderfully interesting subject, but to students at the intermediate level its phys-ical concepts are non-intuitive, and the associated mathematical techniques are new and challenging. Therefore its important in teaching this subject to avoid the kind of heroic pace which will tire out all but the strongest students and instruc-tors. The general principle that in teaching its better to uncover a little than to cover a lot, applies to this subject of course. The order of presentation of subjects is the traditional one: electrostatics first, then magnetism, electrodynamics and Maxwells equations, relativity, and radia-tion. Chapter 2 is an introductory treatment of vector calculus, which should help students acquire the necessary mathematical armamentarium. Our experience in teaching this subject is that at the outset of the course most students do not know vector calculus well enough to study electromagnetic field theory, so its impor-tant to help them gain the necessary mastery. Chapter 2 is sophisticated in places, and it is not necessary to comprehend all of it before starting on Chapter 3; the student can return to Chapter 2 when additional mathematical skill is needed. Stu-dents might also read a specialized book on vector calculus (e.g., one of the two references at the end of Chapter 2) while studying Chapter 2.

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内容概要

本书是在美国大学使用比较广泛的一本为本科生编写的电磁学教材。
虽然在总体上，该教材仍然是一本比较传统的教材，但作者仍然在如何能帮助学生更好的学习电磁学课程做了不少努力。
例如，提供不少和实际联系比较紧密的例子，讲解详细的例题以及提供了不少使用计算机解决问题的算例。
这些内容对于学生理解电磁学内容，应用所学知识都有很好的帮助。
另外，该教材的习题难度适中，并有不少提示，对于巩固学习内容也有很好的帮助。
　　本书的难度和国内教学要求比较接近，可作为物理类专业电磁学课程的教材，尤其适合开展双语教学的学校，对于有志出国深造的人员也是一本必不可少的参考书。

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作者简介

作者:(美)波拉克、斯顿普

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