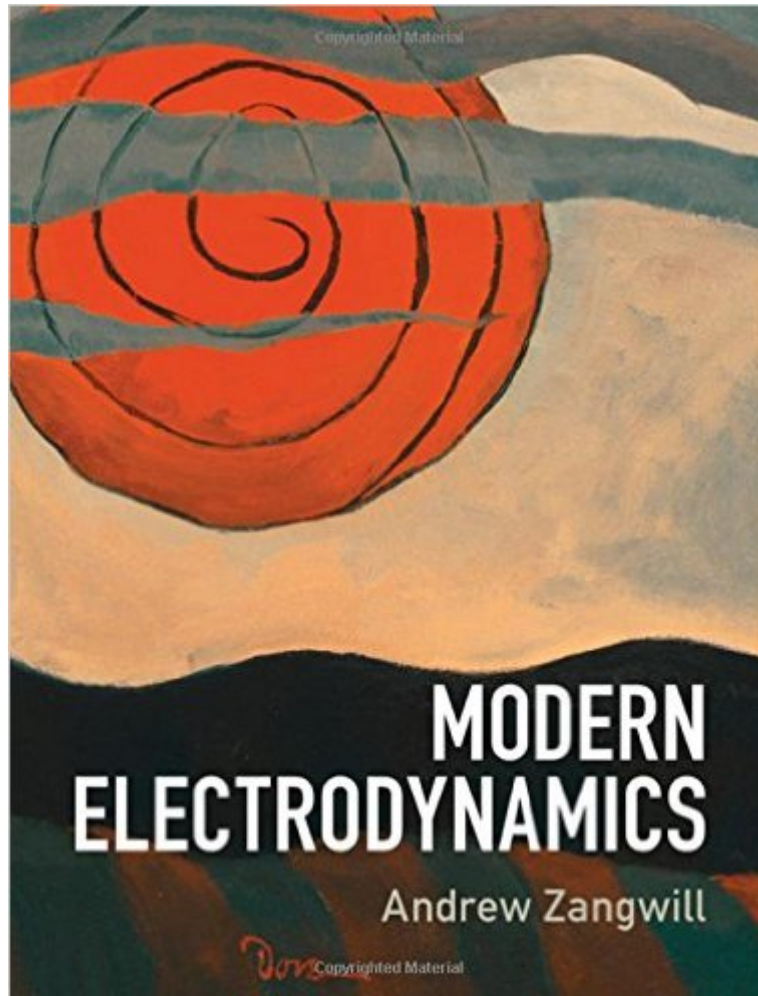


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# Modern Electrodynamics



## Synopsis

An engaging writing style and a strong focus on the physics make this comprehensive, graduate-level textbook unique among existing classical electromagnetism textbooks. Charged particles in vacuum and the electrodynamics of continuous media are given equal attention in discussions of electrostatics, magnetostatics, quasistatics, conservation laws, wave propagation, radiation, scattering, special relativity, and field theory. Extensive use of qualitative arguments similar to those used by working physicists makes Modern Electrodynamics a must-have for every student of this subject. In 24 chapters, the textbook covers many more topics than can be presented in a typical two-semester course, making it easy for instructors to tailor courses to their specific needs. Close to 120 worked examples and 80 applications boxes help the reader build physical intuition and develop technical skill. Nearly 600 end-of-chapter homework problems encourage students to engage actively with the material. A solutions manual is available for instructors at [www.cambridge.org/Zangwill](http://www.cambridge.org/Zangwill).

## Book Information

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## Customer Reviews

In Modern Electrodynamics Zangwill has produced an unusually well-thought-out graduate text on electromagnetism. It is user-friendly, both in terms of physics and in terms of layout. Let me begin with layout, whose effect on the reader should not be underestimated. Nearly every page seems to have some indication of not merely the chapter, but also of the section (and the sections are in small readable chunks). Examples are given within gray boxes. Comments are given within white boxes. Applications abound. Interesting and relevant quotations trumpet at the outset of each chapter. The

font is familiar and appealing. The problems, perhaps half of which are original, and which are more geared to physics than mathematics, are identified in boldface before the problem is stated. This book is easily navigated, and for that reason readers will find it useful later as a reference work. In terms of physics the book is reasonably complete without being exhausting (aficionados of particle detectors will lament the absence of transition radiation and energy deposition in matter, subjects once of great interest and still of great importance to particle physics). It is also well-organized. The author has clearly paid a great deal of attention to the modern literature on electrodynamics (hence the title?). This attention shows in some of the topics that are discussed: anapole moments (for the nuclear physics cognoscenti); the split-ring resonator, which can yield a negative magnetic permeability (for negative index of refraction and perfect lens application); the polarization of the cosmic microwave background; and the modern theory of dielectric polarization.

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