

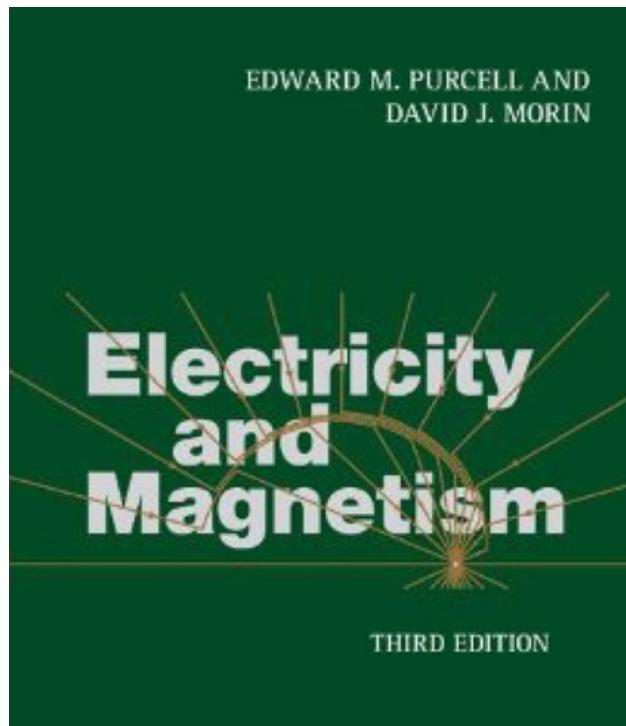
REVIEW

Book Review of Electricity and Magnetism, 3rd Edition, by E. Purcell & D. Morin

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This book is an excellent updated introduction to this classic 50 year old text for 1st and 2nd year undergraduate electromagnetism. Starting from the basic concept of electronic charge and building in neat sequential units, from electrostatics, through current and into magnetism, it provides an excellent introduction to Maxwell's equations. After introducing the derivation of the wave equation of light, the last two chapters of the book focus on two important aspects: polarization and its magnetic analogue, magnetization, by looking at how electric and magnetic fields interact with matter. A set of insightful appendices on key additional topics such as special relativity, superconductivity and magnetic resonance are particularly useful.

The manner in which the authors present the information is a feature that sets this textbook apart from many others. The format is extremely clear, with useful topic headings, an overview of the physics, key equations in boxes, and derivations with clear explanations. This clarity in a derivation is unique to this book: in other texts, authors generally assume a significant amount of knowledge when carrying out a complicated derivation and therefore the steps are not always obvious to the reader.

Given the book's succinct format, it would be perfect as an aid to exam revision. It would also prove useful to researchers and to postgraduate

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students as a reference book should they need to be reminded of the basic concepts or equations.

The only drawback, which may be the intention of the authors, is an absence of discussion of any recent research which links directly to the topics presented. One can't think of many current physics experiments where electromagnetism isn't crucial. This is neglected, and whilst providing longevity for the text, means that it does little to build on the

aspects of research-led teaching which are at the heart of many undergraduate courses in the topic; as an introductory reference text though it is excellent.

Overall this textbook is a worthwhile investment, particularly to physicists at undergraduate level, but also to more advanced physicists. It provides clear explanations of fundamental concepts, which is invaluable at all stages.