Electromagnetic Phenomena in Matter: Statistical and Quantum Approaches

Igor N. Toptygin

Electromagnetic Phenomena in Matter: Statistical and Quantum Approaches

Igor N. Toptygin

Electromagnetic Phenomena in Matter: Statistical and Quantum Approaches Igor N. Toptygin
Modern electrodynamics in different media is a wide branch of electrodynamics which combines the exact theory of electromagnetic fields in the presence of electric charges and currents with statistical description of these fields in gases, plasmas, liquids and solids; dielectrics, conductors and superconductors. It is widely used in physics and in other natural sciences (such as astrophysics and geophysics, biophysics, ecology and evolution of terrestrial climate), and in various technological applications (radio electronics, technology of artificial materials, laser-based technological processes, propagation of bunches of charges particles, linear and nonlinear electromagnetic waves, etc.). Electrodynamics of matter is based on the exact fundamental (microscopic) electrodynamics but is supplemented with specific descriptions of electromagnetic fields in various media using the methods of statistical physics, quantum mechanics, physics of condensed matter (including theory of superconductivity), physical kinetics and plasma physics.
This book presents in one unique volume a systematic description of the main electrodynamic phenomena in matter:
- A large variety of theoretical approaches used in describing various media
- Numerous important manifestations of electrodynamics in matter (magnetic materials, superconductivity, magnetic hydrodynamics, holography, radiation in crystals, solitons, etc.)
- A description of the applications used in different branches of physics and many other fields of natural sciences
- Describes the whole complexity of electrodynamics in matter including material at different levels.
- Oriented towards 3-4 year bachelors, masters, and PhD students, as well as lectures, and engineers and scientists working in the field.
- The reader will need a basic knowledge of general physics, higher mathematics, classical mechanics and microscopic (fundamental) electrodynamics at the standard university level
- All examples and problems are described in detail in the text to help the reader learn how to solve problems
- Advanced problems are marked with one asterisk, and the most advanced ones with two asterisks. Some problems are recommended to be solved first, and are are marked by filled dots; they are more general and important or contain results used in other problems.

Download and Read Free Online Electromagnetic Phenomena in Matter: Statistical and Quantum Approaches Igor N. Toptygin

---

From reader reviews:

Ken Martin:

What do you concentrate on book? It is just for students because they're still students or the idea for all people in the world, the particular best subject for that? Simply you can be answered for that issue above. Every person has various personality and hobby for each and every other. Don't to be compelled someone or something that they don't desire do that. You must know how great along with important the book Electromagnetic Phenomena in Matter: Statistical and Quantum Approaches. All type of book would you see on many options. You can look for the internet solutions or other social media.

Lily Winstead:

The actual book Electromagnetic Phenomena in Matter: Statistical and Quantum Approaches has a lot of information on it. So when you check out this book you can get a lot of help. The book was written by the very famous author. This articles author makes some research previous to write this book. That book very easy to read you can find the point easily after scanning this book.

Larry Boggs:

Are you kind of hectic person, only have 10 or even 15 minute in your day to upgrading your mind proficiency or thinking skill actually analytical thinking? Then you are having problem with the book as compared to can satisfy your short space of time to read it because this all time you only find e-book that need more time to be read. Electromagnetic Phenomena in Matter: Statistical and Quantum Approaches can be your answer as it can be read by a person who have those short time problems.

Joel Wall:

Do you like reading a reserve? Confuse to looking for your preferred book? Or your book had been rare? Why so many query for the book? But almost any people feel that they enjoy intended for reading. Some people likes reading, not only science book but novel and Electromagnetic Phenomena in Matter: Statistical and Quantum Approaches or even others sources were given know-how for you. After you know how the good a book, you feel need to read more and more. Science guide was created for teacher or maybe students especially. Those textbooks are helping them to put their knowledge. In various other case, beside science guide, any other book likes Electromagnetic Phenomena in Matter: Statistical and Quantum Approaches to make your spare time much more colorful. Many types of book like this.

Read Electromagnetic Phenomena in Matter: Statistical and Quantum Approaches by Igor N. Toptygin for online ebook

Electromagnetic Phenomena in Matter: Statistical and Quantum Approaches by Igor N. Toptygin Free PDF d0wnl0ad, audio books, books to read, good books to read, cheap books, good books, online books, books online, book reviews epub, read books online, books to read online, online library, greatbooks to read, PDF best books to read, top books to read Electromagnetic Phenomena in Matter: Statistical and Quantum Approaches by Igor N. Toptygin books to read online.

Online Electromagnetic Phenomena in Matter: Statistical and Quantum Approaches by Igor N. Toptygin ebook PDF download

Electromagnetic Phenomena in Matter: Statistical and Quantum Approaches by Igor N. Toptygin Doc

Electromagnetic Phenomena in Matter: Statistical and Quantum Approaches by Igor N. Toptygin Mobipocket

Electromagnetic Phenomena in Matter: Statistical and Quantum Approaches by Igor N. Toptygin EPub