BOOK REVIEW

Fundamental University Physics, by Marcelo Alonso & Edward J. Finn, Addison-Wesley Publishing Co. 1967. Vols. 1 & 2.

Price Vol. 1. $8·75, Vol. 2. $8·75

This is a new addition to the growing list of U. S. publications on integrated Physics Course for undergraduate students. However, there is a distinct departure from the conventional approach to Physics text book writing. During the past two decades or so, most authors of undergraduate Physics text books have tended to emphasize on the basic principles, rather than on details (which, unfortunately, is not so much the practices with Indian publication). The present volumes not only conform to this practice, but go further in trying to present the various physical principles from a unified point of view. According to the authors, the traditional division of physics into subjects like mechanics, heat, sound etc. no longer has any justification. Instead they have followed "a logical and unified presentation, emphasizing the conservation laws, the concepts of fields and the atomic view of matter".

The first volume deals with Mechanics (Part I) which includes the usual fundamental topics upto Dynamics of Rigid Bodies. This is followed by relativistic dynamics and a chapter on oscillatory motion. In all the chapters, the discussion of the fundamental principles is accompanied by illustrations from as diverse fields of Physics as possible. Thus, while dealing with the dynamics of a particle such topics as the momentum conservation in the collision between an α-particle and a proton, terminal velocity attained in falling through a viscous medium (useful in analysing Millikan's oil drop experiment), of the scattering of a particle under the action of a central field, are discussed. Again in the chapter on the dynamics of a system of particles, the basic concepts of the kinetic theory of gases are introduced by way of illustrating a many particle system. These are few of the many attempts made by the authors throughout the book in emphasising the applicability of the fundamental laws of nature in widely diverse fields of Physics.

The last Chapter in Vol. 1 deals with gravitational interaction which is actually the prelude to a comprehensive discussion on Interactions and Fields (Part 2) carried through in Vol. 2, the later half of which (Part 3) deals with waves. After presenting the fundamental ideas of electric and magnetic interactions, a useful discussion on the Lorentz transformation of the electromagnetic field and a revision of the principle of conservation of momentum is included. Atomic structure is also introduced at this stage Finally Maxwell's equations are formulated in the last chapter. Some of the more advanced concepts, such as the electromagnetic interactions between moving charges are introduced only in passing.

In Part 3, after deducing the differential equation of wave motion, different types of wave motion such as elastic waves in solids transverse waves in strings, surface waves in liquids, pressure in gases and finally electromagnetic waves are separately discussed. Much of the material usually covered under the headings of acoustics and optics are also included. The last chapter is on Transport Phenomena, the inclusion of which at this stage can probably be justified only by reference to the topics intended to be discussed in next volume which is not yet published.

So far as the Indian students are concerned, these two volumes will be very useful addition to their reference library, specially for undergraduate honours students. They do not however cover the entire syllabii of the undergraduate curriculum of most Indian Universities, which unfortunately abounds in absurd details even now.

The volumes are full of many highly interesting illustrative examples. Besides, large numbers of problems are included at the end of each chapter. An useful appendix of common mathematical relations and tables is included at the end of the first volume.

The authors have succeded to a large extent in the difficult job of presenting a comprehensive and unified view of the physical world to the undergraduate students. Not only would the serious undergraduate students in this country derive considerable benefit from these volumes, but the teachers in undergraduate Institutions will have the opportunity of looking at their subject from a considerably different and novel angle.

S. N. G.

Fundamental University Physics: Quantum and Statistical Physics v.3. Addison Wesley. Marcelo Alonso, Edward J. Finn.Â Physics For Computer Science Students With Emphasis On Atomic And Semiconductor Physics. Springer. Narciso Garcia, Arthur Damask, Steven Schwarz. Fundamental University Physics: Volume II, Fields and Waves (Addison Wesley series on Physics). Edward J. Alonso, Marcelo; Finn. 5.0 out of 5 stars 1. Hardcover. 7 offers from $46.62.Â I have read numerous introductory physics books. I have still to find a book which is written better than Alonso and Finn. New textbooks are written to impress with their colors and numerous photos which distract the reader from the text. They pay no attention to precision. The Breakthrough Prize in Fundamental Physics is awarded by the Fundamental Physics Prize Foundation, a not-for-profit organization dedicated to awarding physicists involved in fundamental research. The foundation was founded in July 2012 by Russian physicist and internet entrepreneur Yuri Milner. As of September 2018, this prize is the most lucrative academic prize in the world and is more than twice the amount given to the Nobel Prize awardees. This prize is also dubbed by the media as the "XXI Applied Physics of Carbon Nanotubes: Fundamentals of Theory, Optics and Transport Devices. Rotkin Slava V. , Subramoney Shekhar. 8.79 Mb.Â Instructor solutions manual Sears and Zemansky's University physics. Ford A.L. 4.90 Mb.