



Solid State Physics, 2nd Edition

By J. R. Hook, H. E. Hall

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This Second Edition is aimed at students taking a first course in this subject, although it will also be of interest to professional physicists and electronic engineers requiring a grasp of the fundamentals of this important area of physics. Basic concepts are introduced in an easily accessible context: for example, wave propagation in crystals is introduced using one-and two-dimensional geometries. Only when these basic ideas are familiar are generalisations to three dimensions and the elegant framework of the reciprocal lattice made. Extensively rewritten, the Second Edition now includes new and expanded coverage of semiconductor devices, the quantum Hall effect, quasicrystals, high temperature superconductors and techniques for the study of the surfaces of solids. A chapter on dielectrics and ferroelectrics has also been added. Solid State Physics, Second Edition features:

- A carefully written and structured text to help students fully understand this exciting subject.
- A flow diagram allowing topics to be studied in different orders or omitted altogether.
- Optional "starred" and highlighted sections containing more advanced and specialised material for the more ambitious reader.
- Carefully selected problems at the end of each chapter designed to assist learning. Solutions are provided at the end of the book.



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Editorial Review

From the Publisher

Reorganized and simplified to make it more accessible to undergraduates and to acknowledge and incorporate important developments in the field since publication of the first edition. Beginning with simple one- and two-dimensional systems, it moves gradually toward more difficult formal frameworks. Changes include the introduction of mobile electronic states in solids through the free electron theory of metals. Topics treated in new chapters examine low dimensional systems, the Quantum Hall Effect and electric properties of insulators. Sections on quasicrystals, high Tc superconductors and the use of electronics to probe surfaces have also been added.

From the Back Cover

The Manchester Physics Series General Editors: D. J. Sandiford; F. Mandl; A. C. Phillips Department of Physics and Astronomy, University of Manchester Properties of Matter B. H. Flowers and E. Mendoza Optics Second Edition F. G. Smith and J. H. Thomson Statistical Physics Second Edition F. Mandl Electromagnetism Second Edition I. S. Grant and W. R. Phillips Statistics R. J. Barlow Solid State Physics Second Edition J. R. Hook and H. E. Hall Quantum Mechanics F. Mandl Particle Physics Second Edition B. R. Martin and G. Shaw The Physics of Stars A. C. Phillips Solid State Physics, Second Edition is aimed at students taking a first course in this subject, although it will also be of interest to professional physicists and electronic engineers requiring a grasp of the fundamentals of this important area of physics. Basic concepts are introduced in an easily accessible context: for example, wave propagation in crystals is introduced using one-and two-dimensional geometries. Only when these basic ideas are familiar are generalisations to three dimensions and the elegant framework of the reciprocal lattice made. Extensively rewritten, the Second Edition now includes new and expanded coverage of semiconductor devices, the quantum Hall effect, quasicrystals, high temperature superconductors and techniques for the study of the surfaces of solids. A chapter on dielectrics and ferroelectrics has also been added. Solid State Physics, Second Edition features:

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