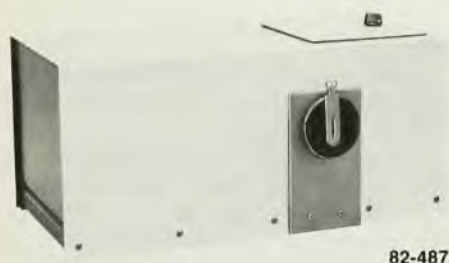


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swers supplied in an Appendix); one can hope that the teacher using this text will include these as illustrations in lecture rather than as homework assignments. Figures in the text tend to be abstract generalities rather than presentations of actual physical data on specific materials.

The material in the expanded chapters is particularly broad and helpful. In the semiconductor-device chapter the reader finds descriptions of the tunnel diode, varactor diodes, field-effect transistors, charge-coupled devices, the Gunn effect and microelectronic circuits. The authors also include examples of practical laser systems and of laser applications in that chapter. Magnetic bubbles are briefly treated in the magnetism chapter. On the other hand, optical properties are not explicitly discussed, and although these are sections on "Photo-diodes and lamps" and "Infrared detectors," neither luminescence nor fluorescence is mentioned in the Index. In addition, the only entries under "Optical" are optical fibers and "Optical Darwinism," the authors' term for mode competition in lasers. The authors label electrophotography "the Xerox process" and include it in the chapter on dielectrics.

Every author has his or her own way of treating a particular subject. This book presents a sprightly and readable version that is bound to be helpful to a variety of readers.

RICHARD H. BUBE
Stanford University

Statistical Physics, Part 1 (Third Edition)

L. D. Landau, E. M. Lifshitz
578 pp. Pergamon, Elmsford, N. Y., 1980.
\$50.00 hardbound, \$20.00 paperbound

Since the English version of the book *Statistical Physics* by Lev. D. Landau and E. M. Lifshitz first appeared in 1959, it has become a modern classic in the field of statistical mechanics. It contains an especially clear and simple discussion of a variety of equilibrium phenomena including subjects not readily found in other texts. In particular, the discussion of equilibrium phase transitions is unexcelled anywhere for its depth and clarity. Much of the discussion on phase transitions is based on original work by Landau and the book as a whole reflects his deep insight into the workings of physical phenomena. This book has now been revised by E. M. Lifshitz and L. P. Pitaevskii, and the new Third Edition has been divided into two parts. Part I is an expanded version of the second edition but with the sections on quantum fluids removed. Part II, which has

yet to appear in English, will be devoted to quantum fluids and diagrammatic techniques.

In the Part I of the Third Edition, the chapters on thermodynamics, the Gibbs distribution, ideal and nonideal gases, solutions, chemical reactions fluctuations and surface phenomena remain almost unchanged from the previous edition. However, some reordering and rewriting has been done, and these chapters are more readable than before. The major changes occur in the chapters on condensed matter, symmetry of crystals and second-order phase transitions. The emphasis of the chapter on condensed matter has been changed from quantum liquids to solids and new sections on phonons and lattice vibrations have been added. The chapter on symmetry of crystals contains six new sections devoted primarily to symmetry properties of lattice vibrations and liquid crystals. The chapter on second-order phase transitions has seven new sections that deal with the effects of external fields at the critical point, the concept of critical indices and fluctuations at the critical point. The new sections in the Third Edition are written in the same clear style as older sections and serve to strengthen and modernize the book in some of the areas where it has become dated.

The format of the Third Edition, Part I, remains unchanged from that of older editions. It is a book devoted almost exclusively to equilibrium phenomena and contains no kinetic theory and little discussion of the microscopic foundations of thermodynamic phenomena. The book assumes that the reader is familiar with statistical concepts. One of the strengths of the book is a large number of worked problems. However, the book contains no unworked problems, which is a disadvantage if one wishes to use it as a text. Also, the material on basic thermodynamics is presented in a manner that requires a firm grounding in thermodynamics on the part of the reader. However, the Third Edition, Part I, as is true of the earlier editions, remains a delight to read and is a book that every student of statistical mechanics, young and old, should have on his bookshelf.

LINDA E. REICHL
University of Texas at Austin

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Astronomy, Cosmology and Space Physics

Astrophysics from Spacelab (Papers presented at a meeting, Trieste, Italy, Fall 1976). P. L. Bernacca, R. Ruffini, eds. 670 pp. Reidel, Hingham, Mass., 1980. \$47.50