state of the art. The danger is that the book is intended for advanced undergraduates who, two or three years later, will be pursuing graduate research where state-of-the-art methods are essential to their research progress. The book lacks warnings such as, for example, that fixed-step-size integration methods for ordinary differential equations are likely to fail when applied to realistic problems and a realistic computer budget.

Cavils aside, the core of the book is full of such nice physics ideas (along with good exercises) that it bears reading by anyone who teaches physics to undergraduates. The book's weakness can be understood in the context of its being, in spirit, a rough-and-ready laboratory manual for a numerical-laboratory course. That course looks like such fun to teach that many of us will, as the result of this book, soon be knocking on the doors of our department chairs, with new course proposals in hand.

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Fundamentals of Superconductivity

Vladimir Z. Kresin and Stuart A. Wolf
Plenum, New York, 1990. 231 pp. $42.50 hc
ISBN 0-306-43474

High-temperature superconductivity has dominated solid-state physics during the last four to five years. Hence it is not surprising to find many books on the subject. Even conference proceedings are published with a fanfare. A few edited books—such as *Physical Properites of High Temperature Superconductors* by D. M. Ginsberg (World Scientific, Teaneck, N. J., 1989) and *High Temperature Superconductivity* by J. W. Lynn (Springer-Verlag, New York, 1990)—and a single author book—*The Physics of High-T_c Superconductors* by J. C. Phillips (Academic, San Diego, Calif., 1989, reviewed in PHYSICS TODAY, November 1990, page 82)—are of some use to the beginner. Thus a book on superconductivity that is written for "a very broad audience, including students, engineers, teachers, scientists, and others who are interested in learning about this exciting frontier of science" is worthy of some interest.

This book covers conventional, not high-T_c, superconductors although the last chapter (about 15 pages long) is devoted to the cuprate superconductors. The presentation, which has a qualitative nature, has an expected order: BCS theory, BCS predictions, the Josephson effect and Ginzburg–Landau theory. There are interesting discussions of strong-coupled BCS and non-phonon mechanisms, which are unusual in an introductory book. Then follows a few chapters that include applications and discussion of an interesting if somewhat random collection of topics (organic superconductors, the bronze process, J_c measurements, ^{3}He and many more).

I cannot recommend this book for the audience suggested by the authors. Essentially every part of the book contains confusing statements, incorrect equations, inadequate diagrams and bewildering figure captions. One of the Ginzburg–Landau equations contains four errors, yet it is written correctly only four pages before. The superconductor $NbC_{0.1}N_{0.9}$ is written as such in one sentence and then as NbCN in the very next sentence; and the diagram of its structure (which should be the NaCl structure) is completely incorrect. These are random examples: The book has a huge number of similarly confusing sentences and paragraphs.

I had looked forward to the chapter on high-T_c superconductors, but here too the confusion continues. For example, a picture of $LaCuO_3$ with the perovskite structure is shown and described as the superconductor discovered by J. Georg Bednorz and K. Alex Müller. A second figure corrects the first figure (I guess) except that the lanthanum atoms and some of the oxygen atoms look identical. The other structure diagrams are of no use and the rest of the chapter does little to help the reader.

Only those with a knowledge of superconductivity can exercise caution and "read past" the confusing or incorrect parts. I might suggest this book to such scientists, as they could enjoy the range of topics that are covered.

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Introduction to Polymer Dynamics

Pierre Gilles de Gennes
Cambridge U. P., New York, 1990. 57 pp. $34.00 hc
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Polymer physics developed quite a bit later than did solid-state physics, and quite naturally much of the foundation was laid down by chemists from the 1930s through the 1950s. Then during the 1960s, while many physicists were occupied solving myriad