While I fully realize that it is unreasonable to expect a full theoretical treatment in a book of this kind, a concise and coherent summary of theoretical results would have rendered the reading more profitable, efficient and enjoyable. Unfortunately, the summaries, when given, are often too sketchy, unorganized and not very informative. This will turn out to be a major weakness of this book. The book does not contain problems, and it generally suffers from a dearth of illustrative diagrams, facts that detract from its adoption in the classroom.

On balance, this is a work written by applied physicists whose efforts for taking the time to report on a very interesting and rapidly expanding area in applied physics should be applauded. The well prepared and motivated reader will find the 441 pages between the covers a veritable storehouse of information on semiconductor materials.

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Solid State Physics, Advances in Research and Applications, Vol. 28. H. Ehrenreich, F. Seitz, D. Turnbull, eds. 430 pp. Academic, New York, 1973. $27.50

Thermophysical Properties Research Literature Retrieval Guide, Supplement I. (Covering the years 1964–70) Y. S. Touloukian, J. K. Gerritsen, W. H. Shafer, eds. 6 volumes: **Vol. 1, Elements and Inorganic Compounds,** 736 pp., $90.00; **Vol. 2, Organic Compounds and Polymeric Materials.** 264 pp., $45.00; **Vol. 3, Alloys, Intermetallic Compounds and Cermets,** 390 pp., $50.00; **Vol. 4, Oxide Mixtures and Minerals,** 242 pp., $45.00; **Vol. 5, Mixtures and Solutions,** 298 pp., $45.00; **Vol. 6, Coatings, Systems, and Composites,** 270 pp., $45.00. IFI/Plenum, New York, 1973. Price for 6-volume set, $275.00

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