

BOOK REVIEWS

Selection of books for review is based on the editor's opinions regarding possible reader interest and on the availability of the book to the editor. Occasional selections may include books on topics somewhat peripheral to the subject matter ordinarily considered acceptable.



Thermoluminescence Dosimetry (Medical Physics Handbook 5)

Author A. F. McKinlay
Publisher Heyden & Son Inc., Philadelphia (1981)
Pages 170
Price \$28.00
Reviewer Atam P. Arya

Thermoluminescence Dosimetry is a concise, to-the-point, and very well written monograph (not a text) of about 170 pages, divided into seven chapters. The author has conveniently divided it into three parts—theoretical aspects, specific measurement applications, and the principles of designs of thermoluminescence dosimetry (TLD). The material presents detailed characteristics, in the forms of tables and plots, for most commonly used TLD substances. It also deals with the matter of practical importance, that is, the use of these detectors as applied to clinical, personal, and environmental situations using different types of radiations. The reader is further introduced to operation of TLD, practical problems, and their pitfalls. Furthermore, there are over 170 references included at the end.

There are too many topics covered in a small volume; hence, out of necessity it appears, the topics are discussed briefly. As claimed by the author, graduate students and scientists working in this field will have no trouble going through the book, while undergraduate students will need some background preparation. The material in the book and the references at the end, together, reveal the state-of-the-art. This should be very helpful to anyone who may be interested in doing any theoretical or experimental research work in the field of thermoluminescence dosimetry—in investigating the characteristics of TL materials or in designing detectors for various purposes in the fields of diagnostic and therapeutic radiation.

In addition the book contains materials on other relative topics, radiation rules, research status, and recommendations for future directions. Chapter 6 on TLD instruments is very brief and could have been expanded.

My overall reaction is that the book is one of the best, very well written, and compact books in the field. Anyone desiring to do research work in the field of thermoluminescence, or already using such detectors, will find it very useful to have this book for use and reference.

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spectroscopy and neutron physics. He has taught courses at all levels, graduate and undergraduate, including medical physics for the last three years. Dr. Arya is the author of several textbooks—modern, nuclear, atomic, and general physics.

The Physical Metallurgy of Steels

Author W. C. Leslie
Publisher Hemisphere Publishing Corporation, New York (1981)
Pages 396
Price \$29.50
Reviewer J. A. Shields, Jr.

Ferrous metallurgy is a major emphasis of any metallurgical curriculum, because of the importance of steels and iron-base alloys in engineering. No other class of alloys has found as wide a range of applications or has been developed to provide as broad a spectrum of properties as has the steel family. All too frequently though, the metallurgy of ferrous alloys has been taught piecemeal—a little hardenability here, a little corrosion resistance there, some theory of phase transformations in yet another area. The net result is a student who does not have an adequate grasp of the full story of steel metallurgy. The problem is even more severe for nonmetallurgists, who may take one or two courses at most in the general area of metallurgy before graduating.

Professor Leslie's book was written as a result of teaching a course in the physical metallurgy of steels at the University of Michigan, and its primary intent is clearly that of a textbook. However, it also provides a wealth of information which will be of use to the designers who must worry about materials selection. It will also serve as a highly useful reference to the practicing engineer who must understand steels and their application.

The book is organized roughly into two broad areas. The first deals with the metallurgy of pure iron and its alloys, as it relates to body-centered cubic metals in general. It includes chapters titled "Properties of High-Purity Iron," "Interstitial Atoms in Alpha Iron," "Substitutional Solutes in Alpha Iron," and "Interactions Between Solute Atoms in Iron." The second area deals with the metallurgy of specific classes of commercial iron-base alloys. It includes chapters titled "Carbon Steels," "High Strength, Low Alloy Steels," "Heat-Treated Steels," "Thermomechanical Treatment of Steels," "Steels of Very High Strength: Fracture