

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.



Radiation Effects on Solid Surfaces (Advances in Chemistry Series 158)

Editor Manfred Kaminsky
Publisher American Chemical Society (1976)
Pages 397
Price \$32.50
Reviewer J. M. Galligan

One of today's important technological subjects, of particular interest to readers of this Journal, concerns the interaction of radiation with atoms and molecules at and near the surface of a solid. For example, the integrity of the first wall of various versions of fusion reactors is of prime importance to the commercial feasibility of controlled thermonuclear reactors; a further example might be radiation-related chemical and physical processes, which may also be of importance to silicon solar cells. It is hard, then, to cover on both a long-term and a short-term basis the state-of-the-art, since today's state-of-the-art is quite transitory. As opposed to this view, reviews may also serve the purpose of introducing a nonspecialist to a subject, such that he can acquire some pertinent background material. The present book has an interesting mixture of articles that can serve both audiences without unduly restricting the major aims of the book. For example, some local graduate students felt they could read this book and know where to look for further background material if they wanted to pursue studies in the field. Thus, many of the articles in the book are reasonably self-contained and still written at a specialist level.

Some particular topics that may be of interest to *Nuclear Technology* readers include the articles by Thomas, Bauer, Mattern, and Granoff, and two separate articles by Kaminsky and co-workers. These articles, as a group, cover some studies of radiation-related damage produced by energetic particles, at and near surfaces. Other articles are clearly related to the exposition of particular techniques that can be used to establish the local chemistry involved in various processes at or near surfaces. These techniques

include positron annihilation, channeling studies, more classical x-ray studies involving x-ray emission, and electron spectroscopy for chemical analysis (ESCA) and Auger techniques. Finally, the distribution of various chemical elements, which may be introduced into the first wall by various nuclear reactions, are studied using atomic particles and nuclear reactions related to these atomic particles. All in all, the review serves the purpose of informing a wide audience of the range of problems involved in controlled thermonuclear reactors, but with very little in the direction of how to solve the problems. The book is of interest to many readers of this Journal.

J. M. Galligan is a professor of metallurgy at The University of Connecticut. His background is in physical metallurgy, and he has worked in a variety of fields, including in the areas of defects in crystals, plastic deformation, materials for nuclear reactors, and superconductivity. His experience has included work at academic and industrial facilities and at government laboratories. He has been a visiting scientist at the Max Planck Institute für Metallforschung in Stuttgart, as well as a keynote lecturer at a number of international conferences.

Introductory Physics of Nuclear Medicine

Author Ramesh Chandra
Publisher Lea & Febiger (1976)
Pages 185
Price \$12.00
Reviewer Dennis D. Patton, MD

In this book, Dr. Chandra has addressed the nuclear medicine community in an attempt to make a clear presentation of basic science fundamentals of the field. His success is uneven, for he is at times lucid, at times obscure. He shows the physicist's compulsion for completeness on the one hand, and on the other hand includes treatments