BOOK REVIEWS

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

Reactor Shielding for Nuclear Engineers

Editor	N. M. Schaeffer
Publisher	U.S. Atomic Energy Commission Office of Information Services (1973)
Pages	788
Price	$13.60
Reviewer	F. Eric Haskin

Reactor Shielding for Nuclear Engineers is intended to serve as a text for a two-semester sequence in reactor shielding at an advanced undergraduate or graduate level. In that the book does bring together under one cover a wealth of modern shielding concepts, methods, data, experiments, and designs, it should indeed prove valuable to students and practitioners alike. I recommend it both as a text and as a reference book for those engineers concerned with shielding design. Of course, as a first edition of a text with eight contributing authors, it suffers in places from a lack of uniformity, questionable emphasis, and plain old mistakes. The overall editorial effort is nonetheless to be commended.

The book is divided into ten chapters. Chapter 1 provides a brief, interesting history of reactor shielding and a guide to earlier texts and handbooks. I was pleased to find that Chap. 2, "Sources of Radiation," adequately treats differential distributions, flux and current, and directional characteristics. Similarly, Chap. 3, "Interactions of Radiation with Matter," covers cross-section concepts and radiation units in some depth. I was also pleased with Chap. 6, "Shield Attenuation Calculations," which discusses the practicality of applying the shield design methods introduced in Chap. 4, "Radiation Transport," and in Chap. 5, "Monte Carlo Methods for Radiation Transport." Chapter 7, "Albedos, Ducts, and Voids," basically incorporates the ORNL-RSIC-20, 21 publications into the book. Chapter 8, "Shield Heating, Air Transport, Shield Materials, and Shield Optimization," is (albeit for lack of space) too short to cover any of these topics in significant detail. For example, there is no discussion of heat transmission data or computational methods, nor are thermal stress analysis or criteria treated. Chapter 9, "Experimental Shielding," is entirely descriptive (e.g., not a single equation in the chapter) with specific facilities and experiments being discussed. Neither principles of experiment or detector design, nor analysis and interpretation of experimental data are treated in depth. Chapter 10, "Shield Design," is also descriptive (of Enrico Fermi, Dounreay, Agesta, Pathfinder, N. S. Savannah, and SNAP-10A). No commercial pressurized water reactors or gas-cooled reactors are discussed.

Extensive supplementary material is included in the text. Cited references are listed at the end of each chapter (20 to 70 per chapter). An extensive subject index and a separate author index are provided. Sixteen appendixes augment the text and set apart pertinent but lengthy tables and series of shielding graphs. To supplement Chap. 5 on Monte Carlo methods, appendixes on random number generators and a demonstration Monte Carlo program are included. It is noted that the prompt-fission gamma-ray spectra alluded to in Sec. 2.4.1 (b) fail to materialize in Appendix A. Only fission-product gamma-ray spectra are tabulated. Five to eight exercises are given at the ends of Chaps. 2 through 6, with solutions provided at the back of the book.

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Nuclear Energy: Its Physics and Its Social Challenge

Author	David Rittenhouse Inglis
Publisher	Addison-Wesley Publishing Co., Inc. (1973)
Pages	395
Price	$4.95 (paperback)
Reviewer	Richard M. Adams

Nuclear Energy: Its Physics and Its Social Challenge is a textbook—and a very unusual one. In the words of the author, "This volume attempts