

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.



Sunlight to Electricity (Photovoltaic Technology and Business Prospects), 2nd ed.

Author Joseph A. Merrigan
Publisher The M.I.T. Press (1982)
Pages 215
Price \$19.95
Reviewer Chihiro Kikuchi

A hint of levity in the title sent me to the library to check the author's professional credentials. I am happy to report that he indeed is listed in the *American Men and Women of Science*, and furthermore, the level at which the popular subject of solar electricity is presented makes clear that the author is a respected member of the technical community. The monograph is recommended reading for all nuclear engineers, especially for those in public relations. The comments on p. 30, namely,

... If this scenario is fulfilled over the next 20 years, the US electrical utility business will amount to \$170 billion in 1980 dollars. Capture of a small fraction of this business is a considerable incentive for entrepreneurs in the solar cell business. . .

effectively set the tone for the discussion of a wide range of technical issues pertinent to photovoltaic technology. Although most nuclear engineers are familiar with the materials presented in Chap. 1 on "Energy Use in the United States," the contents of Chaps. 2 and 3 on "Solar Energy as a Resource" and "Principles of Photovoltaic Energy Conversion" should prove informative to those wanting to learn about the fundamentals of this technology.

The last three chapters, which give engineering details and the economics of photovoltaic devices and systems, are veritable gold mines of information, which otherwise would need to be gleaned from a great volume of technical literature. The chapter titles, "State of the Art in Photovoltaic Conversion Technology," "Projected Developments in Photovoltaic Solar Conversion Systems," and "Business Opportunities in Photovoltaic Energy Conversion Systems,"

are suggestive of the information that readers can expect to find. In the Bibliography, there are 19 pages of references; these are in addition to those indicated at the end of each chapter.

One minor criticism is that there is no discussion of energy costs, particularly of electricity, paralleling those of dollar costs. Those who know are aware that photovoltaics is an electricity-intensive technology; unfortunately this fact is too often overlooked by the nontechnical advocates. Possibly in the next edition, the author will see fit to include comments from such sources as the 1979 American Physical Society report on *Solar Photovoltaic Energy Conversion* and/or S. Baron's article on "Solar Energy—Will It Conserve Nonrenewable Resources?" in *Public Utilities Fortnightly* (Sep. 28, 1978).

Chihiro Kikuchi, Professor Emeritus of Nuclear Engineering at the University of Michigan, worked in research programs that focused on the use of electron spin resonance as a solid-state research tool, the R&D of the ruby maser, and radiation effects in insulators and semiconductors.

More recently, he has been active in the public acceptance of nuclear power and related energy issues.

Measurement and Detection of Radiation

Author Nicholas Tsoulfanidis
Publisher Hemisphere Publishing Corporation, New York (1983)
Pages 571
Price \$32.00
Reviewer Gerald A. Schlapper

The purpose of this text, as stated by the author, is to provide an introduction to the subject of detection and measurement of ionizing radiation. While there is some introductory material, this book would be best utilized as a text