

# JNMT Bookshelf

## **RADIOACTIVITY AND ITS MEASUREMENT**

W.B. Mann, R.L. Ayes, and S.B. Garfinkel, Pergamon Press, 1980, 282 pp, \$12.50 softcover, \$26.00 hardcover.

This book is a basic physics text that in eight chapters covers the physics and mathematics of radiation and its detection. The first five chapters are written from a historical point of view and cover the discovery of radiation and its interactions with matter. The last three chapters comprise over half of the book; they cover detectors, electronic instrumentation, and radioactivity measurements, respectively. The book is well written and contains very few editorial errors. The diagrams are done in a very sparse and precise manner, and complement the text handsomely. Each chapter is well referenced; a general reference is included at the end of the book. The authors' style is nonpretentious and readable.

Because this is a physics text the authors use quite a bit of mathematics including some calculus and relativistic mechanics. I feel that this would preclude the book from being of much direct usefulness to the general nuclear medicine technologist yet it would be a good reference book for technologists. I think this book would be most useful to those in the health physics profession. I found the chapter on electronics to be the most interesting and the book had very informative discussions on semiconductors and on scintillation detectors. The last chapter has a long discussion on statistics, which some technologists might find helpful if they have a strong background in mathematics.

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## **MANAGEMENT OF PERSONS ACCIDENTALLY CONTAMINATED WITH RADIONUCLIDES**

NCRP Report No. 65. National Council on Radiation Protection and Measurements, Washington, DC, 1980, 205 pp.

With the ever increasing use of radionuclides in research, medical applications, nuclear power, and industrial processes, there coexists the probability of an increase in the number of human exposures to internally-deposited radionuclides. The NCRP has reviewed the scientific literature and selected information that represents the state of the art in the management of contaminated individuals.

The NCRP has purposely directed its attention and recommendations toward the physician who must assume responsibility for the medical management of these patients. Sections of this report would be quite helpful

to such paramedical personnel as ambulance attendants and rescue squads. The report contains information of sufficient value that hospital emergency room personnel would benefit from it as well.

Contained within this report is an extraordinary wealth of information concerning the initial management of these patients, diagnostic techniques to measure radioactive contamination, a conceptual basis for treatment decisions, a resume of experience with several important radionuclides, and therapy procedures and drugs.

Of particular value, since most exposure of this type occurs accidentally and the need for immediate treatment is evident, is the "Quick Reference Information" section printed on yellow paper, which can be rapidly referenced. The first four sections of this part consist of check lists to gather information rapidly in order to focus on early treatment options. The next two sections summarize treatment considerations and provide information on selected radionuclides that can be used to assess the immediate and long-term consequences of an exposure.

The NCRP intends this report to serve only as a guide for those called upon to manage an accident case in its initial stages; it is not intended to substitute for medical management decisions made by primary physicians.

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## **LIQUID SCINTILLATION COUNTING: RECENT APPLICATIONS AND DEVELOPMENT**

Chin-Tzu Peng, Donald L. Harrocks, and Edward L. Alpen, eds., Academic Press, 1980, 409 pp, (Vol. I, Physical Aspects), \$27.50.

This is the first volume of a two-part book containing the proceedings of the International Conference on Liquid Scintillation Counting, Recent Applications and Developments, held August 21-24, 1979, at the University of California, San Francisco. It contains 37 of the 77 papers presented at the conference and deals mostly with the physical aspects of liquid scintillation science and technology. Volume II deals with sample preparation and applications. The contents of Volume I are somewhat esoteric for the average nuclear medicine practitioner, most routine in-vitro assays having been adapted to crystal scintillation counting techniques. Topics included are scintillation physics and scintillators, quenching, radioactivity standards, advances in instrumentation, alpha counting, Cerenkov count-

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ing, and a special discussion on the disposal of liquid scintillation wastes. The book would not serve as a practical source book except for those intently involved in liquid scintillation applications, but with over 125 internationally renowned contributors, the book is a wealth of state-of-the-art knowledge and experience. Information dealing with liquid scintillation applications in industry, environmental, and nonbiomedical areas of research are beyond the scope of the average nuclear medicine department. However, the student can obtain a broad overview of the principles and multiplicity of applications of liquid scintillation counting and from this standpoint the book has a place on the nuclear medicine library bookshelf.

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**PERCEPTIONS OF RISK: PROCEEDINGS OF THE FIFTEENTH ANNUAL MEETING OF THE NATIONAL COUNCIL ON RADIATION PROTECTION AND MEASUREMENTS**

National Council on Radiation Protection and Measurements, Washington, DC, 1980, 191 pp.

This publication is a compilation of papers, lectures, and speeches documenting the theme "Perceptions of Risk" as presented at the 15th annual meeting of the National Council on Radiation Protection and Measurements held March 14-15, 1979, in Washington, DC.

This book is a kaleidoscope of past, present, and future approaches for the assessment of the risks and hazards of ionizing radiation and its perceptual values to the human race. It gives excellent insight into controversial issues related to ionizing radiation—for example, discussions on the cost, benefits, risks, and hazards of nuclear energy in medicine, industry, science, military applications, power, transportation, etc.

The contributing authors are clearly concerned about safeguards in the nuclear industry, and many offer their ideas on how to go about analyzing or developing new methods to better evaluate the risk/benefit uncertainty.

For example, instead of measuring benefits and hazards using monetary units as benefits, and fatality and morbidity as hazards, one scientist suggests that as an alternative, we should translate benefits into lives that have been extended or saved against hazards as lives lost.

It was interesting to note one particular contradiction in the text regarding the public's ability to perceive risks. One author notes that the public does have the ability to perceive such risks as x-rays and airline travel; another declares the public is not able to perceive risks until a time of crisis.

In addition to the material presented by its distinguished group of authors, this book includes a panel discussion with questions from other distinguished sci-

entists and guests, a scientific briefing session, reports from three selected scientific committee activities—Scientific Committee 1 on Basic Radiation Protection Criteria, Scientific Committee 39 on Microwaves, and Scientific Committee 40 on Biological Aspects of Radiation Protection Criteria—and finally, a lecture given by Lauriston S. Taylor, Honorary President of the National Council on Radiation Protection and Measurements, entitled "Organized Radiation Protection—The Past Fifty Years."

The book contains a great deal of history as it reviews the early attempts (1913-1979) by concerned scientists to establish protective codes for radiation workers. However, the basic contribution to its readers is centered around the current theories of risk versus hazards of the utilization of ionizing radiation. Anyone with an interest ranging from the litigation of contested applications of nuclear energy to its developmental processes in the laboratory would benefit by having a copy of this publication in his library. Students, scientists, physicians, and technologists should obtain a copy of this publication as it clearly illustrates the sincere efforts of dedicated scientists working together to make nuclear energy a more useful and acceptable tool for the needs of the future.

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**SINGLE PHOTON EMISSION COMPUTED TOMOGRAPHY AND OTHER SELECTED COMPUTER TOPICS**

Program Committee: Ronald R. Price, David L. Gilday, and Barbara Y. Croft, Society of Nuclear Medicine, New York, 1980, 244 pp, \$29.50 (\$20.50 SNM members)

This soft-bound text consists of 21 papers representing the proceedings of the Tenth Annual Symposium on the Sharing of Computer Programs and Technology in Nuclear Medicine, which took place in January 1980.

It provides an overview of single photon emission computed tomography as well as descriptions and evaluations of specific techniques and systems. Various types of collimators are discussed and compared, as are performance specifications of assorted instruments and computers.

In general, the text needs proofreading to remove typographical and syntactical errors (e.g., article 1) and to collate hand-written corrections (e.g., article 20). Also, the figure legends tend to blend into the text, making the reading of complex material more complex.

Nevertheless, technologists involved in this field will find this a valuable reference. Others will find parts of it interesting reading and indicative of future trends.

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