JNMT Bookshelf

PHYSICS IN NUCLEAR MEDICINE
Second Edition

James A. Sorenson, PhD and Michael E. Phelps, PhD, Grune and Stratton, Orlando, Florida, 1987, 590 pp, $47.50.

For a number of years our physics group has recommended the first edition of this book as a basic physics text for our residents in nuclear medicine, and we have used it as a base for our didactic lectures in physics. That first edition was published in 1980, so it is hardly surprising that it has developed some minor deficiencies in discussing a technology that has expanded rapidly since that time. The second edition has corrected those deficiencies by including material directed toward some of the more recent developments.

The page content has been increased almost 50%, and the bulk of that additional material is contained in four new chapters entitled "Nuclear Medicine Tomography: Principles," "Nuclear Medicine Tomography: Systems and Devices," "Digital Image Processing in Nuclear Medicine," and "Tracer Kinetic Modeling," thereby bringing the total chapter count to 23. A couple of extra appendices have also been added on "SI Unit Conversions" and "Convolution."

Perhaps the appendix on SI unit conversions reflects my most serious criticism of this book, which is still using "conventional" units. Is it too much to expect that the rest of the world will one day manage to drag the United States kicking and screaming into the 20th century?!

In addition to the new chapters other new sections have also been added and some small amounts of material omitted. For example, the chapter dealing with Anger camera performance characteristics now includes a brief section on nonuniformity correction techniques. This is not significantly different than the material on the same subject in the first edition, but is treated as a separate section. On the other hand, some material on statistical tests in the chapter on counting statistics is completely new, whereas the section dealing with propagation of errors has been reduced. Other sections and chapters have also been modified.

The four new chapters tend to cover their subjects broadly without going into too much detail. The chapters on tomography, for instance, include material on the seven-pinhole collimator, the Anger tomo-scanner, the rotating camera, and positron emission tomography (PET), but make little mention of the quality assurance requirements for the most popular of these—the rotating camera. The chapter on tracer kinetics is comprehensive and presents many of the algorithms we use in quantitative analysis of dynamic studies.

This second edition is a welcome addition to the ever growing library of nuclear medicine texts. In attempting to be comprehensive in coverage it tends to be somewhat lacking in depth, but that does not detract from its value as a well-rounded basic text that can be recommended to nuclear medicine residents, trainee physicists, and technologists. The first edition was good. The second edition is more of the same and our group will certainly be encouraging our new residents to use it.

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