

Essentials of Nuclear Medicine Physics

Rachel A. Powsner and Edward R. Powsner

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Many primary and specialized textbooks present the physics of nuclear medicine. This soft-bound book presents not only the properties and structure of matter, radioactive decay, and the interaction of radiation matter but continues with a discussion of radiation detectors, imaging instrumentation, and quality control. As described in the preface, this book is intended for radiology residents, nuclear medicine and cardiology fellows, and nuclear medicine technologists. It may also serve as a review of nuclear medicine fundamentals for physicians who have been in the field for many years.

The chapters on basic physics, formation of radionuclides, and interaction of radiation with matter indeed serve as an introduction and review of the fundamentals of nuclear medicine. The unique quality of this book is the number of large, high-quality illustrations that make this introductory text easily understandable and a quick read. The chapters on detectors and imaging instrumentation are supplemented by 2 excellent introductions to SPECT and PET. Once again, many high-quality figures show the complex concepts associated with these imaging techniques. Unfortunately,

several topics, such as correction circuitry, are notably absent, and the discussion on some older information, such as pulse positioning circuitry, is too comprehensive. However, as an introduction, the text remains sound. Additional short chapters covering quality control of nonimaging and imaging devices, radiation biology, and radiation dosimetry and very briefly introducing radiation safety also convey helpful introductory information.

Unfortunately, a few errors, such as the mislabeling of order numbers on Butterworth filters and misquotations of collimator sensitivity, detract from the accuracy of the material. Overall, I do like this text, particularly as a primer for those just getting started in nuclear medicine. The clarity of the text and uniqueness of the figures provide newcomers with the fundamentals of nuclear medicine as well as insight into some recent instrumentation developments.

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