Essentials of Nuclear Medicine Physics

Rachel A. Powsner and Edward R. Powsner

Oxford, UK: Blackwell Science, Inc., 1998, 199 pages, $39.95

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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Page 1 of 1 Start overPage 1 of 1. This shopping feature will continue to load items when the Enter key is pressed. In order to navigate out of this carousel please use your heading shortcut key to navigate to the next or previous heading.Â This Third Edition of Essentials of Nuclear Medicine Physics and Instrumentation expands the finely developed illustrated review and introductory guide to nuclear medicine physics and instrumentation. Along with simple, progressive, highly illustrated topics, the authors present nuclear medicine-related physics and engineering concepts clearly and concisely.Â Rachel A. Powsner, MD, is Head of the Nuclear Medicine Section at the Veterans Administration Boston Healthcare System, and an Associate Professor of Radiology at Boston University. by. Powsner, Rachel A. Publication date. 1998.Â Blackwell Science. Collection. inlibrary; printdisabled; internetarchivebooks.Â Associated-names. Powsner, Edward R., 1926-. Boxid. IA1809414. Rachel A. Powsner/Matthew R. Palmer/Edward R. Powsner. ISBN: 0470905506. 32 study materials. Get started today for free. All Documents from Essentials of Nuclear Medicine Physics and Instrumentation (Blackwell's Essentials Series). nuc 110 chapter 3 2013-10-25. steves' exam 1 2013-12-02. steves' exam 2 2013-12-02. nuc study guide (2013-14 dial) 2014-05-07. nuclear medicine physics 2016-03-08. nuc 126 thyroid scan 2014-02-25.

INTERNATIONAL ATOMIC ENERGY AGENCY, Nuclear Medicine Physics, , IAEA, Vienna (2015). Download to: EdNote BibTeX *use BibTeX for Zotero. Close. Description. This publication provides the basis for the education of medical physicists initiating their university studies in the field of nuclear medicine. The handbook includes 20 chapters and covers topics relevant to nuclear medicine physics, including basic physics for nuclear medicine, radionuclide production, imaging and non-imaging detectors, quantitative nuclear medicine, internal dosimetry in clinical practice and radionuclide therapy. Modern medicine benefits tremendously from nuclear physics, both for diagnosis and for therapy. Therefore NuPECC initiated this report â€œNuclear Physics for Medicineâ€, with its three main sections: hadrontherapy, medical imaging and radioisotope production â€“ topics that are actively and widely pursued in Europe and abroad. Following the successful model of previous NuPECC reports, conveners were engaged by NuPECC members and Working Groups were set up for the three topics. Physics of Nuclear Medicine. Yao Wang Polytechnic Institute of NYU, Brooklyn, NY 11201 Based on J. L. Prince and J. M. Links, Medical Imaging Signals and Systems, and lecture notes by Prince. Figures are from the textbook. Lecture Outline. â€¢ Atomic structure â€¢ Radioactive Decay â€¢ Decay modes â€¢ Exponential decay law â€¢ Statistical properties of decay â€¢ Radiotracers. EL5823 Nuclear Physics. Yao Wang, Polytechnic U., Brooklyn. 2. What is Nuclear Medicine. â€¢ Also known as nuclide imaging. â€¢ Introduce radioactive substance into body. Nuclear Medicine Physics (Essentials) - Free download as PDF File (.pdf), Text File (.txt) or read online for free. nuclear medicine.Â The nucleus has a spin value equal to the sum of the nucleon spin values. A simple but useful model of the nucleus is a tightly bound cluster of protons and neutrons. Protons naturally repel each other since they are positively charged; however, there is a powerful binding force called the nuclear force that holds the nucleons together very tightly. Figure 1-12 Nuclear binding force is strong enough to. overcome the electrical repulsion between the positively charged protons. This Third Edition of Essentials of Nuclear Medicine Physics and Instrumentation expands the finely developed illustrated review and introductory guide to nuclear medicine physics and instrumentation. Along with simple, progressive, highly illustrated topics, the authors present nuclear medicine-related physics and engineering concepts clearly and concisely.Â She is a practicing nuclear medicine physician, radiology faculty member at Boston University, and an author of the first two editions of this text. Matthew R. Palmer, PhD, is the Nuclear Medicine Physicist at the Beth Israel Deaconess Medical Center and Assistant Professor of Radiology at Harvard Medical School in Boston, where he teaches in the nuclear medicine residency training program.

Nuclear medicine is a medical specialty involving the application of radioactive substances in the diagnosis and treatment of disease. Nuclear medicine imaging, in a sense, is "radiology done inside out" or "endoradiology" because it records radiation emitting from within the body rather than radiation that is generated by external sources like X-rays. In addition, nuclear medicine scans differ from radiology, as the emphasis is not on imaging anatomy, but on the function. For such reason, it is Essential Nuclear Medicine Physics provides an excellent introduction to the basic concepts of the daunting area of nuclear physics. Logically structured and clearly written, this is the book of choice for anyone entering the field of nuclear medicine, including nuclear medicine residents and fellows, cardiac nuclear medicine fellows and nuclear medicine technology students. The text is also a handy quick-reference guide for those already working in the field of nuclear physics. This new edition provides a basic introduction to nuclear physics and the interactions of radiation and matter. The This Third Edition of Essentials of Nuclear Medicine Physics and Instrumentation expands the finely developed illustrated review and introductory guide to nuclear medicine physics and instrumentation. Along with simple, progressive, highly illustrated topics, the authors present nuclear medicineâ€“related physics and engineering concepts clearly and concisely. Included in the text are introductory chapters on relevant atomic structure, methods of radionuclide production, and the interaction of radiation with matter.