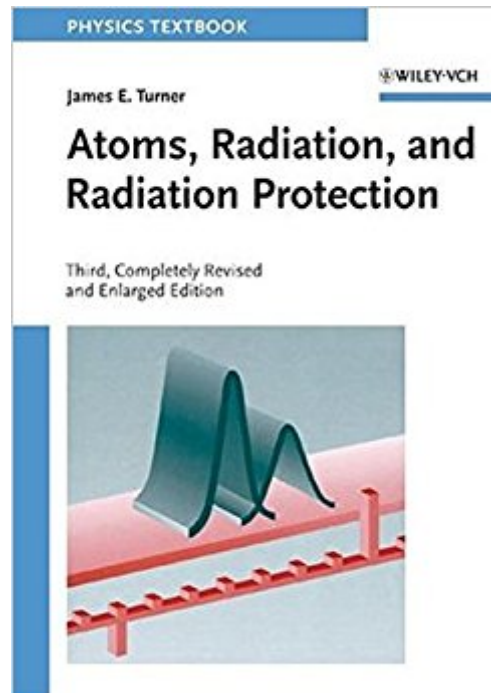




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# Atoms, Radiation, And Radiation Protection



## Synopsis

Atoms, Radiation, and Radiation Protection offers professionals and advanced students a comprehensive coverage of the major concepts that underlie the origins and transport of ionizing radiation in matter. Understanding atomic structure and the physical mechanisms of radiation interactions is the foundation on which much of the current practice of radiological health protection is based. The work covers the detection and measurement of radiation and the statistical interpretation of the data. The procedures that are used to protect man and the environment from the potential harmful effects of radiation are thoroughly described. Basic principles are illustrated with an abundance of worked examples that exemplify practical applications. Chapters include problem sets (with partial answers) and extensive tables and graphs for continued use as a reference work. This completely revised and enlarged third edition includes thorough updates of the material, including the latest recommendations of the ICRP and NCRP.

## Book Information

Paperback: 606 pages

Publisher: Wiley-VCH; 3 edition (June 18, 2007)

Language: English

ISBN-10: 3527406069

ISBN-13: 978-3527406067

Product Dimensions: 6.8 x 1.2 x 9.5 inches

Shipping Weight: 2.3 pounds (View shipping rates and policies)

Average Customer Review: 4.1 out of 5 stars 11 customer reviews

Best Sellers Rank: #93,487 in Books (See Top 100 in Books) #8 in [Books > Science & Math > Physics > Nuclear Physics > Particle Physics](#) #20 in [Books > Engineering & Transportation > Engineering > Energy Production & Extraction > Nuclear](#) #66 in [Books > Medical Books > Allied Health Professions > Radiologic & Ultrasound Technology](#)

## Customer Reviews

From Reviews of the Second Edition: "What can I say? The second edition of 'Atoms, Radiation, and Radiation Protection' is much better than the first edition, and the first edition was great. [...] It is [...] one of the finest graduate-level texts on radiation protection. For someone teaching a graduate course on radiation protection, this is a 'must have' book. [...] Everything you might want or need on the road to understanding radiation interaction is clearly and concisely handled. [...] Don't think this is a book for graduate students and teachers alone, however; it is a fine reference for anyone

working in radiation protection." *Physics Today* "The strength of the book lies in its unique analyses of fundamental particle track structure, including Monte Carlo computations, the detail of the important stochastic nature of the interactions, manifest in microdosimetry, and their consequences in radiobiological effects of setting up the criteria for radiation protection." *Radiation and Environmental Biophysics* "This book is an excellent text for graduate students in health physics, as it contains an appropriately detailed discussion about atomic and nuclear physics for such students. [...] Major strengths of the book are that it contains rigorous discussions about radioactive decay, interaction of radiation with matter, statistics of counting and methods for shielding calculations. *The Journal of Nuclear Medicine*

*Atoms, Radiation, and Radiation Protection* offers professionals and advanced students a comprehensive coverage of the major concepts that underlie the origins and transport of ionizing radiation in matter. Understanding atomic structure and the physical mechanisms of radiation interactions is the foundation on which much of the current practice of radiological health protection is based. The work covers the origin, detection, and measurement of radiation and the statistical interpretation of the data. The procedures that are used to protect man and the environment from the potential harmful effects of radiation are thoroughly described. Basic principles are illustrated with an abundance of worked examples that exemplify practical applications. Chapters include problem sets (with partial answers) and extensive tables and graphs for continued use as a reference work. This expanded Third Edition includes thorough updates of the material, including the latest recommendations of the ICRP and NCRP.

Most of the topics (basic radiation physics, detection, interaction with matter) in this book are covered in more depth in other texts (Krane, Knoll), but this book does a good job at covering the specific topics having more to do with human interaction. However, this is only ~1/2 of the whole book.

The book is outstanding. The problems are great. Do not need another book to understand this book.

Solid and practical, purchased for graduate course in radiation transport

I think this book it's a very deep and complete guide about the application of physics to medicine. I

recommend this book to the student and to the teacher .

great

This is a must have book if you work in the Health Physics world! RIP Jim Turner.

I haven't fully looked at the book yet, but so far it seems not bad

This text by James Earl Turner, Ph.D., M.S.(physics), M.S. (Industrial Hygiene), Certified by American Board of Health Physics), is a relatively concise but thorough treatment of the underpinning results of physics necessary for professional work in the field of protecting workers, the public, and the environment from harmful effects of ionizing or nuclear radiations. I have used this text as a secondary text to that of Herman Cember's text in other courses, and am now using it as the principal required reading for a course in Nuclear Environmental Protection (NEP520) in the Spring semester at The Catholic University of America, in Washington, DC, 2013. Dr. Turner, at his passing a couple of years ago, was probably the greatest theoretical physicist in the field of radiation protection at the time of his death, and also interested in teaching the practical information needed for the typical health physicist in performing duties related to the assessment of radiation doses and risks and providing protection against undue exposures. There is a 3rd edition that has been published. I am teaching from the second edition, so one should be sure which edition is desired and being purchased. Used 2nd editions should provide all the basics needed for adequate professional work. Sincerely, Allen Brodsky, Sc.D. Adjunct Professor, faculty of Catholic U, and Georgetown U in Washington, DC. January 27, 2013

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