

## Book Review

*Introduction to Health Physics* 4<sup>th</sup> Edition  
by Herman Cember and Thomas E. Johnson

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*William P. Riley, CHP*

Most people who have studied health physics have had the opportunity to use *Introduction to Health Physics* by Herman Cember. Now, with the help of Thomas Johnson, an updated 4<sup>th</sup> edition is available. You may have used this text in class or to study for the certification exam or just to look up an equation, as this book has been a favorite of health physics professors and students alike for many years. Of course, it is expected that some of the technical and regulatory details associated with this type of textbook will change over time.

This latest update most definitely makes it a valuable resource to 21<sup>st</sup> century users. One particularly useful addition is the inclusion of more examples of real-world applications in each chapter in the text. And to the chagrin of students, the authors have also added additional homework problems. Students will also be interested to know that the authors are in the process of revising the solutions manual.

Other changes in the textbook include additional information on

machine-produced radiation, x-ray tubes, linear accelerators, and cyclotrons (refer to Chapter 4). This information is carried forward into Chapter 5 with the addition of a section on x-ray production and an example calculation. Chapter 8 discusses radiation safety guides including International Commission on Radiological Protection (ICRP) 30, ICRP 60, and the ICRP 66 lung model. This information reflects recent changes in U.S. regulations. And although 10 CFR 20 still uses the ICRP 30 methodology to calculate internal dose, the U.S. Department of Energy is transitioning to the newer ICRP methods in 10 CFR 835. The chapter on instrumentation (Chapter 9) includes new information on the optically stimulated luminescence (OSL) dosimeter.

The textbook has also been updated to include a discussion of National Council on Radiation Protection and Measurements (NCRP) 147 and NCRP 151, which describe methods for designing

shields for use in medical facilities. The textbook now discusses CT scanners, PET scanners, radiotherapy sources, and accelerators. This updated material also includes information on the hazards of accelerators, including neutron production and airborne contaminate production.

The final chapter, discussing nonionizing radiation, has been greatly expanded over the previous edition. During the review a mistake was noted in the text in Chapter 11. Table 11-3 contained values that do not match the respiratory protection factors provided in 10 CFR 20 Appendix A. The authors have acknowledged this error and are making efforts to correct the information in the next printing of this edition, which will have occurred by the printing of this review.

Overall this edition represents a great update from the previous edition and will most certainly continue to be a valuable resource for health physics students and professionals. ☒

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