Book Review

Medical Imaging Physics, 4th ed. By William R. Hendee and E. Russell Ritenour. New York: Wiley-Liss, 512 pp., 2002. $125

The fourth edition of the now-classic *Medical Imaging Physics* provides residents and beginning medical physics students with an excellent introduction to the physics of medical imaging. Intended for use in either a radiology residency course or an introductory graduate medical physics course, this book meets its mark in terms of both content and pedagogy. In revising their book after a 10-year hiatus, Hendee and Ritenour have covered many new subjects in the rapidly changing field of imaging physics. New topics include flat-panel digital radiographic systems, helical CT, and functional MR imaging. These topics augment the thorough coverage provided in earlier editions, including radiation biology and radiation protection. This book is capable of standing alone when used in most residency courses.

The format of the fourth edition is significantly different from prior editions. The new edition has about 200 fewer pages than the last, yet it expands on the material; this has been accomplished through the use of a larger page format, a slightly higher print density, and wide margins with numerous margin notes. These margin notes signify a move by the authors to a more modern pedagogic style.

The margin notes enliven the text by providing extensive descriptions for numerous figures, anecdotal comments, and trivia, and they augment the text with concisely presented facts and data. More than 200 new figures have been added in this edition. Clear "road maps" of each chapter have been added in the form of a table of contents and a statement of objectives preceding each chapter. A concise summary, questions, and a reference section follow each chapter. The references are thorough and serve as a good starting point from which to initiate future reading.

In spite of these changes, the overall structure of the book is not significantly different from that of the third edition. In the new edition, the former chapter 15, on special imaging techniques, has been eliminated, with some of its topics being moved to other chapters. The introductory and concluding chapters have been completely revised. Otherwise, the chapter titles remain unchanged.

Residents preparing for their physics boards will find this text particularly attractive. The book completely covers the topics needed in terms of both scope and level of coverage. The summary at the end of each chapter is excellent for residents to review because it lists all major points of each chapter. The questions accompanying each chapter are germane, and most have answers provided. Moreover, the level of mathematics is correctly aimed at radiology residents. Although the number of equations initially appears overwhelming, most occur in examples and solved problems.

As with any undertaking of this size, *Medical Imaging Physics* is not without some flaws. A number of small errors were noted in the text and in figure legends. The image quality does not appear to be quite as good as it was in the third edition, but this is only noticeable when directly comparing figures that are common to both editions. These small deficits are outweighed by the improvements achieved with this revision of Hendee and Ritenour's classic text. *Medical Imaging Physics* is sure to be a favorite of residents, perhaps supplanting Christensen's *Introduction to the Physics of Diagnostic Radiology* (out of print) as the classic radiology residency physics text.

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