

## Review -- An Introduction to the Physics of Nuclear Medicine

by P. Goodwin and D. Rao

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It is indeed an ambitious undertaking to write a textbook in a field that is changing as rapidly as nuclear medicine is today. With the number of scientists, physicians, and technicians becoming involved with this expanding discipline there is an obvious need for texts which cover the fundamental physical concepts upon which the more detailed specialized applications are built. Drs. Paul Goodwin and Dandamudi Rao in their An Introduction to the Physics of Nuclear Medicine have written a text intended to fulfill this need. Unfortunately, they have failed in several respects.

In their attempt to keep the presentation descriptive and brief (the entire text is only 150 pages) they have over-simplified some of the basic concepts and even misrepresented some. For example, to say that the Bohr atom "with minor changes is still in use today" does not do justice to the evolution of modern atomic theory. Regardless of how conveniently simple the concept of a planetary atom (p.10) may be, it is clearly not acceptable as a viable model for the atom. Also, the SALT talks with the Soviet Union would certainly be easier if, as the authors state, fission "can only be performed in a nuclear reactor" (p.18).

On page 97 there appears to be a contradiction in referring to the masses of the products of binary fission. In one sentence it is stated that the two nuclei are of approximately equal mass, while further down the page a statement appears that the two elements have masses in a ratio of about 0.6.

In a text that is intended to introduce a subject and to be used for self-study, I would prefer to see more references to outside reading or to original sources. Of the twelve chapters only two have suggestions for further

reading. This is especially troublesome considering the brief discussions given to such complex topics as nuclear decay processes, interaction of radiation with matter, and statistics of radiation measurements.

The text also appears to have not been proof-read. In Chapter 9 four references are made to the process of "eluding" a column or that the column was "eluded." The correct spelling of the verb "to elute" was used on p.101. Also, on p.85,  $\gamma$ -rays are said to be emitted "isotopically", when the authors meant "isotropically." This could cause difficulty for the beginning student.

I am a strong advocate of simplicity in conveying the meaning of words and concepts. Failing to do so usually ends in confusion. A case in point is found on p.20 where the unit of disintegration rate, the Becquerel, is described as being "equal to the second to the power minus one."

Even if these particular errors were not present, the book as a whole is less than satisfactory for introducing people to the field of the physics of nuclear medicine by way of the physical concepts involved. The chapters dealing with scanning and gamma cameras are the best; however, some material is superfluous and the remainder is too brief.

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