

gramming System," provides a summary of the essential components and characteristics of today's mathematical programming systems. It includes a discussion of desirable control language facilities, input-output processor capabilities, and algorithm library contents, as well as consideration of linear programming problem size, program maintenance and debugging requirements, and the effects of multiprogramming and multiprocessing using current computer systems. Chapter 13 deals with solution strategy and the use of auxiliary controls. Here, as in Appendix B, the material presented is a distillation of the author's extensive experience in the field.

In conclusion, this book should find its place in the library of the analyst or user of today's mathematical programming systems and the computer scientist engaged or interested in the construction and development of such systems. It is not recommended as a course text or introduction to the field.

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MEDICAL ISOTOPES TABULATED

Title Radioatoms in Nuclear Medicine
Author P. H. Blichert-Toft
Publishers Rigmor Nilsson, 1968
Pages 78
Price Sw. Kr. 25:-
Reviewer Paul Fields

Radioatoms in Nuclear Medicine by P. H. Blichert-Toft is a 78-page paper-bound book describing the nuclear properties of 53 radioactive nuclides. One or more pages are devoted to each nuclide, depending on the amount of nuclear information

available. A decay scheme is given for each nuclide described in the book, but only the well-defined states with their spins, parities, and energies are included in the decay diagrams. The half-lives of excited state are indicated, and Q -values for the decay are given, and, if more than one mode of radioactive disintegration is known, then the corresponding Q -values are also listed. The absolute intensities of β^- , β^+ , and electron capture groups are given as percentages of the total parent disintegrations. The absolute intensities and energies of gamma transitions are listed below the decay schemes.

Of great value to medical users of this compilation is a class rating system that indicates the degree of accuracy to which dose calculations can be made, based on the given absolute intensities. Also listed are the half-life and the standard deviation adopted by the author, based on published values. The author made an attempt to evaluate the data, and, in cases where several accurate determinations were available, he averaged the results and listed the error in the average. Finally, the most probable method of producing the nuclide and the isotopic abundance of the suggested target is given. The literature sources for most of the nuclear properties are listed adjacent to the values quoted. One of the most important sections for each isotope is the general discussion, which includes a description of how the parent half-life, Q -values, and absolute intensities were obtained and also lists the references containing the most definitive work.

In my opinion, this tabulation is an excellent and concise summary of the radioactive properties of certain nuclides and should be quite useful to medical researchers and others interested in calculating dose rates from these substances. The information is presented in a very convenient manner so that pertinent information can be obtained at a glance. Unfortunately, the pamphlet probably will not find a broad application in nuclear chemistry and physics because of the limited number of isotopes reviewed.

Paul Fields, a senior chemist at Argonne National Laboratory, re-

ceived his BS in chemistry in 1941 from the University of Chicago. After three years with the Tennessee Valley Authority, he joined Seaborg's group at the Metallurgical Laboratory, University of Chicago. He left for one year, after the war, to work at Standard Oil Company (Indiana) and then returned. In 1946 he became a group leader in heavy element chemistry at the newly organized Argonne National Laboratory. His main research interests have been the nuclear and chemical properties of the transuranium elements, the electronic structure of lanthanide and actinide elements, nuclear reaction mechanisms, geochemistry, and applications of nuclear techniques to archaeology. He is a member of the AEC Transplutonium Element Advisory Commission and of the Editorial Advisory Board of Nuclear Applications.

THORIUM FUEL--A USEFUL REFERENCE

Title Fabrication of Thorium Fuel Elements
Authors L. R. Weissert and G. Schileo
Publisher American Nuclear Society, 1968
Pages ix + 208
Price \$10.00 ANS and ASM members; \$11.10 others
Reviewer Arthur A. Bauer

The book, *Fabrication of Thorium Fuel Elements*, will serve as a useful reference for persons interested in obtaining, under one cover, broad coverage of the various facets of the thorium fuel cycle along with detailed descriptions of thorium fuel-element fabrication experience. It is not intended as a source for new ideas and relies almost exclusively on published information for its content. Emphasis is placed on providing an account of fabrication methods which have been successfully applied in the manufacture of thorium-fueled cores or experimental fuel-element assemblies rather than on principles involved in their fabrication. As such,