

# BOOK REVIEWS

Selection of books for review is based on the editor's opinions regarding possible reader interest and on the availability of the book to the editor. Occasional selections may include books on topics somewhat peripheral to the subject matter ordinarily considered acceptable.



## The Physical Principles of Heat Pipes

*Authors* M. N. Ivanovskii, V. P. Sorokin,  
and I. V. Yagodkin

*Publisher* Oxford University Press, New York (1982)

*Pages* 262

*Price* \$69.00

*Reviewer* Monte V. Davis

*The Physical Principles of Heat Pipes* is a basic text in heat pipes and heat pipe technology written in a lucid fashion and containing information on all phases of heat pipe design, construction, and operation.

The book is divided into five sections: Driving Forces, Hydrodynamics, Heat and Mass Transfer, Dynamics, and Methods of Calculation. Where it is necessary for clarity, there are good examples of operating systems to demonstrate a phenomenon or an effect. Throughout the book the authors assume that the reader has a good basis in mathematics and a good knowledge of engineering fundamentals, such as interfacial wetting forces, two-phase flow, gas flow at sonic velocities, capillary limitations to flow, and overall system dynamics.

As with most publications written in Russian, published, translated, and republished, the references are old (the latest date on any reference is 1976). Also there is a computer program for heat pipe calculations that is of little use with today's computers and computing methods.

Despite these criticisms the book is extremely useful and should be a valuable addition to the library of anyone working in the field of, or teaching about, heat pipes.

*Monte V. Davis (BA, Linfield College; MA and PhD, Oregon State University) is a professor in the School of Nuclear Engineering and Health Physics at the Georgia Institute of Technology. His interests are neutron physics, high-temperature materials, direct energy conversion, and the effects of ionizing radiation on organic materials. Professor Davis is a fellow of the American Nuclear Society.*

## Radioactive Waste Disposal (Vol. 1: The Waste Package)

*Author* Rustum Roy

*Publisher* Pergamon Press, Incorporated,  
Elmsford, New York

*Pages* 232

*Price* \$27.50

*Reviewer* Aaron Barkatt

In this volume, Rustum Roy sets out to fill a pressing need for a comprehensive overview of the current status of an important and rapidly developing area of nuclear science and technology. In general, the organization of this volume is well designed to survey this subject for the general scientific community. The various chapters give a concise coverage of the main aspects of waste package development, and each chapter is accompanied by a short synopsis, several sets of representative tabulated data, and a list of selected references. The use of complex symbols and equations is avoided. Detailed description of the properties of glassy and crystalline, mineral-based waste-form materials is given separately in two well-written appendixes at the end of the volume. A well-written chapter on radiation and transmutation effects (by E. R. Vance) is included.

Many state-of-the-art reviews covering large fields of technology consist of edited collections of articles by experts representing various research groups and various approaches. In this instance, however, the author relies almost exclusively on contributions by himself and by his co-workers at Pennsylvania State University. This has the advantage of having the material presented on a unified and structured basis. On the other hand, this policy can easily lead to an overemphasis on results and views of the author and his co-workers. Anybody who has studied, even superficially, the development of waste package materials must be familiar with the pioneering and extensive work done at Pennsylvania State University. In view of this, detailed discussions of the origin of certain proposed waste-form compositions, for instance, sometimes appear too specific for the general reader.