

# BOOK REVIEWS

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



## **Nuclear Reactor Instrumentation (In-Core)**

*Author* James F. Boland

*Publisher* Gordon and Breach Science Publishers

*Pages* 229

*Price* \$12.50

*Reviewer* Charles N. Jackson, Jr.

Because the nuclear industry and in-core instruments in particular have advanced gradually and irregularly for many years, this book serves a very useful purpose of identifying progress achieved. The 11 chapters treat a broad range of parameters and disciplines associated with measurement of nuclear flux, temperature, pressure, flow, etc. The initial chapters introduce the general problems encountered in the extremely hostile environment of the in-core instrument. The subject treatment employs a vigorous systematic analysis of each instrument type, one of the strong features in the author's presentation. The description and development of theory, accompanied by identification of specific components, and assessment of strengths and weakness provide valuable information to the designer or developer. Each chapter includes an excellent bibliography for those desiring to delve further into specific areas.

An in-core instrument presents an extremely challenging problem. Success for a measurement system requires ambitious, skillful effort.

Mr. Bolan brings these circumstances into sharp focus after initially acquainting the reader with the effects of nuclear radiation on materials and broadly characterizing the problem areas.

The book helps bridge an important gap in this field between the initial beginning and the eventual time when sufficient information would be available for documentation in a handbook. It points out important limitations and characteristics gleaned from review, evaluation, and projection based on information that is widely scattered in the available literature. His summarization of performance data in some cases from several sources provides solid, efficient use of available information. Comparison between various measurement techniques very effectively brings the various methods into focus. The information should save needless expense for installing costly inadequate in-core components.

The book makes a valuable documentation and thought-provoking presentation of in-core instrumentation, augmented by an excellent bibliography. Workers in the nuclear field from the transducer manufacturer to the plant manager and especially the instrumentation and control engineer will find this book extremely valuable.

*Charles N. Jackson, Jr. (MS, nuclear engineering, University of Cincinnati, 1959; BS electrical engineering, Clarkson College of Technology, 1948) has engaged in instrumentation research and development as a principal investigator in neutron radiography and neutron de-*

*tectors. A regenerative coating development, employing a fertile-fissile mixture increased the useful life of an in-core fission detector by a factor of 10. He has published or presented 14 technical papers describing his present work and prior efforts with nuclear nondestructive testing equipment. Other work involved development of radiation-hardened electronic circuits and student engineering assignments in electric meters, steam turbines, and electrical switch gear. Professional affiliations include membership in the American Nuclear Society, the Institute of Electrical and Electronics Engineers, and registration as a professional engineer. He presently works for WADCO Corporation, a subsidiary of Westinghouse, as a senior development engineer.*

## **Techniques in Fast Reactor Critical Experiments**

*Authors* W. G. Davey and W. C. Redman

*Publisher* Gordon and Breach, Science Publishers, Inc.

*Pages* 320

*Price* \$20.40

*Reviewer* R. J. Neuhold

This book discusses principally

1. the design of fast reactor critical facilities
2. measurements made and techniques used in fast reactor critical facilities