Nuclear Electronics. Proceedings of the Belgrade Conference of May 1961, sponsored by the International Atomic Energy Agency. Distributed by the National Agency for International Publications, Inc., 801 Third Ave., New York 22, N.Y.

Volume I—Scintillation and Cerenkov detectors, image intensifiers, photomultipliers, luminescent chambers, gas and liquid filled detectors, semiconductor radiation detectors. 610 pp. $11.00.

Volume II—Multichannel analyzers, data handling systems, amplifiers, coincidence circuits, etc. 468 pp. $8.00.

Volume III—Nanosecond circuits and systems, accelerators, health physics instrumentation, misc. 531 pp. $11.00.

Nuclear research and nuclear engineering depend on instrumentation, much of which is special. The IAEA has performed an important service in sponsoring symposia on instrumentation every two years or so. This meeting was directed primarily to instrumentation for research, though many of the papers will be of interest to anyone concerned with nuclear instrumentation. These three volumes will surely be very useful for references, and even though two years out of date, I still discover new ideas in them.

One cannot hope to review 150 papers in a reasonable amount of space. What I have tried to do is to give some idea of the scope and to call attention to some of the papers that seem to me to be of special interest.

Basic to nuclear instrumentation are the radiation detectors. The scintillation symposia in this country provide an up-to-date survey every two years. The 60 papers of Volume I devoted to this subject supplement the scintillation symposia. There are five basic papers on scintillators, five important papers on scintillation neutron detectors (including one in Volume III), and a couple of good papers on Cerenkov counters.

There is a fine collection of papers on track imaging systems, a variety of interesting spark chamber designs, and an assortment of unusual detectors including the flexible GM tubes developed by Richter and Ballard.

There is an excellent set of papers on semiconductor radiation detectors, many of which are still of interest in spite of the rapid developments in this field, e.g., the article by Heerschap and de Coninck on SiC for use in a reactor.

Much of the material on multichannel analyzers and data systems is becoming dated. However the section called "Classical Electronics" presents a number of very interesting circuit ideas and is to me the most stimulating part of the record. The nanosecond circuit papers presented an excellent survey of the field which is still reasonably up to date.

A few accelerator papers and a set of interesting papers on radiation monitors completes the list.

This was a well organized and very constructive meeting. It is too bad that it takes so long to get the papers published.

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(About the Reviewer: W. A. Higinbotham is a fellow of the American Nuclear Society and head of the Instrumentation Division, Brookhaven National Laboratory. He is also a fellow of the Institute of Radio Engineers, American Association for the Advancement of Science, and the American Physical Society. He is a past chairman of the Federation of American Scientists and has been active on international committees on Security, Disarmament, and Peaceful Uses of Atomic Energy.)

Nuclear Instruments and Their Uses, Vol. 1. Ionization Detectors, Scintillators, Cerenkov Counters, Amplifiers: Assay, Dosimetry, Health Physics. ARTHUR H. SNELL, ed. Wiley, New York,

Composing this book was a major project of the Subcommittee on Instruments and Techniques of the Committee on Nuclear Science of the National Academy. As a member of that subcommittee I must explain that our contribution was zero or negative. The results are entirely due to the authors and the editor.

Chapter 1, "Ionization Chambers and Proportional Counters," is the best treatment of this subject that I have seen. It is highly recommended to those who are about to use or are learning to use these detectors for careful measurements. The basic principles and the many specific problems are carefully explained. There is enough specific data on selection and purification of gases, on construction, etc. for most applications. And there is an excellent list of references. The authors are W. Franzen of B. U. and L. W. Cochran of the University of Kentucky.

There are available several good books and many articles on scintillation detectors. R. B. Murray's chapter is an excellent review and brings the subject up to date. Again there is a wealth of practical information and a current bibliography.

The other chapters are: "A Survey of Cerenkov Counters," by Burton Moyer, "Electrometers and Amplifiers," by Ed Fairstein, "Counting Methods for Assay of Radioactive Samples," by Ellis Steinberg, "Radiation Dosimetry," by Hurst and Ritchie, and "Health Physics Topics," by K. Z. Morgan. I have had a preprint of Fairstein's chapter for several years and it has been most useful to our group. It treats electrometers and vacuum tube pulse amplifiers and includes a lot of very useful data on tubes which were taken at Oak Ridge. I hope Ed will write a book on transistor pulse amplifiers soon. I also find the chapter on dosimetry very useful.

The book was directed toward the small and middle sized radiation laboratories. I am sure they will find it most useful and many will appreciate the Morgan chapter on health physics.

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(See previous book review for information about Reviewer)

Reactor Safeguards. By C. R. RUSSELL. A Pergamon Press Book, The Macmillan Company, New York, 1962. 390 pages, Approx. $15.00.

The present volume, concerned with safety practices of reactor location and design, is addressed to all who are interested in the subject of reactor safeguards. It will be a disappointment to the designer looking for a working handbook or a compilation of solutions to design problems for a practical reactor. Many controversial problems such as limits of heat flux, ductile-brittle transitions, radiation aging, to mention a few, are not found in the discussion.