

## FRESH AND EXCITING

*Title* Nuclear Structure

*Editors* Anwar Hossain, Harun-  
ar-Rashid, Mizanul Islam

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Sons, Inc., New York

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*Price* \$17.00

*Reviewer* Peter H. Rose

Seldom do the proceedings of a conference lead to an exciting book that can be recommended to a broad audience, as is indeed the case here. Perhaps the spirit of Al Mansur's Conference, referred to by Dr. Salam in his preface, did infect the first Symposium on Nuclear Science to be held in Pakistan. For myself, at any rate, the interest comes in being able to find in one place a series of intensive topical reviews by leading experts ranging from theory through instrumentation. Of course, a book composed of unconnected review articles cannot attempt to be complete, and this is not where the value lies. The book shows clearly the high level of sophistication that must be reached to contribute original work in the field of nuclear structure physics. As a supplement to text books on nuclear physics, the present volume will be invaluable because it is right up to the state-of-the-art. A student with a grounding in nuclear physics would see immediately, whether he be a theorist or experimentalist, the high standard required if he is to contribute to the growth of this field, and he would get a feeling for the continuing vitality of nuclear structure physics.

The book starts with an article on isospin mixing by Bohr, Damgård, and Mottelson and continues with a review of nuclear reaction theories by Huby, who makes it very clear that different theories have characteristic spheres of usefulness. While this conclusion would scarcely surprise anyone familiar with the field, it is instructive to examine some of the later sections which, like the articles by French, go into a particular theoretical problem,

e.g., sum-rule methods or rotational particle coupling, in some detail. In the middle of the theoretical chapters there is an article by Endt who reviews some beautiful experimental data on analog states. The book is really very evenly divided between reviews of theory and experimental techniques. The main examples of reviews of experiments and experimental results, in addition to that given by Endt, are contained in articles by Morinaga on  $\gamma$ -ray spectroscopy, and Starfelt on neutron capture. I was disappointed not to find a review of heavy ion interactions, which are of increasing importance, but in a conference of manageable length it is only possible to deal with a few of the many possible topics. One lack, in my estimation, is the omission of a summary discussion; in a field with so many workers it is difficult for many of us to keep up with what is new and important, so this would have been very useful.

The technical section of the conference ranges from an article on neutron time-of-flight techniques by Starfelt to a discussion of semiconductor detectors by Dearnaley. The latter gives a very clear description of the physical principles and methods of construction of these detectors, and I highly recommend it. The book ends with two articles by Alburger which show how an important program can be built around a modest accelerator using ingenuity and sophisticated experimental techniques. For example, Alburger discusses how two-dimensional analysis can be used to sort out the correlation between the data and the many kinematic possibilities in complicated interactions. I would like to end by commenting on the *tour de force* by W. D. Allen, who discusses tandem electrostatic generators, AVF cyclotrons, beam pulsing, and polarized ion sources. Allen, drawing on his own wide experience and with generous references to others, gives informative and up-to-date treatments of these topics. The physical descriptions are presented clearly and with enough detail to be extremely useful.

In the case of this book, I find it very easy to resist the small carpings so often the downfall of a reviewer. Any omissions are more than made up by the freshness of the articles. The editors of this book

and the organizers of the Dacca Conference should be congratulated for bringing together such a useful volume.

*Peter H. Rose is Director of Research of the High Voltage Engineering Corporation, one of the world's leading manufacturers of particle accelerators for nuclear structure research. While not a nuclear physicist himself, he is deeply involved in the experimental techniques and the underlying technology, having published many articles in the field of accelerator research. His PhD (physics, 1955) is from London University.*

## LET'S HAVE AN IRDEY

*Title* Formulation of Research Policies

*Editors* Lawrence W. Bass and  
Bruce S. Old

*Publisher* American Association  
for the Advancement of  
Science, 1967

*Pages* iv + 210

*Price* \$7.75 (\$6.75 AAAS members)

*Reviewer* Chalmers W. Sherwin

This book is a collection of papers given at a Gordon Research Conference in February 1966, the first held on a subject of this sort, reflecting the increasing concern of the scientific community with this area. In the introduction, the editors note that not only are there no exhaustive studies on the impact of science and technology on the economic growth of a region or a nation, there are also no detailed analyses of the return from investment in research and development by individual corporations. Nonetheless, some individual corporations have succeeded in developing R&D policies that start with company long-range objectives and resources and provide usable guidance to the research director. The objective of the conference, therefore, was to examine the development of science policy (including technology and development) at three levels—national, international, and individual organizations.