

cannot be completely discussed, since current theories of nuclear structure are entirely omitted, as mentioned above. For the same reason, the section on inelastic scattering cannot be considered to be adequate. Moreover, for a text which has as its main point of view the "use of nuclear reactions in order to understand nuclear structure," it is hard to see how reactions involving isobaric analog states can be omitted, since these have done more to accomplish this goal than perhaps any other reactions.

In summary, I believe that the book will not serve as a general textbook for a nuclear theory course, but can serve as a reference text for a course in nuclear reactions. The reader can find some topics in the treatment of nuclear matter and nuclear reactions which are not included in other texts. The survey of the application of nuclear reaction theories will be especially useful to experimentalists.

Professor Leonard S. Kisslinger has been at Case Western Reserve University since receiving his PhD (University of Indiana) in 1956, except for periods spent at the Bohr Institute in Copenhagen, at the Weizmann Institute, and at MIT. He has been a visiting physicist at Brookhaven, Oak Ridge, and Lawrence Radiation Laboratories, and a consultant to Los Alamos Scientific Laboratory. His fields of research include nuclear models and structure, particle physics, and the many-body problem.

SOURCE BOOK FOR PLASTICS TESTING

Title The Properties and Testing of Plastics Materials
Authors A. E. Lever and J. A. Rhys
Edition Third, 1969
Publisher John Wright & Sons, Bristol, England
Pages ix + 445
Price \$22.75
Reviewer Albert Lightbody

As stated in the Preface, this book is a source or reference for

those who test plastics. As such the book does not list the properties of plastics nor the details of the testing of plastics material. Instead, the new materials now on the market are listed with descriptions that give clues for possible utility.

The extensive use of the second edition and the changes that have occurred since it appeared in 1962 fully justify this third edition. The practical rather than theoretical features of plastics testing are emphasized. The point is consistently made that the performance of a plastic molding depends as much on the design and the molding conditions as on the materials used.

The >4000 references cited draw heavily from testing methods widely accepted in the United Kingdom and the United States. There are references from practically all standards agencies although the list is heavily weighted, as one might expect, by the American Society for Testing Materials Specifications, US Government Reports, and British Standards. A list of the standards organizations throughout the world is given.

The quality of the definition and description of each subject discussed in the text is excellent. These subjects are clearly and succinctly defined with the limitation of the tests clearly stated, and the text is well written.

Some space might have been devoted to the determination of the glass transition temperature of polymers and the importance of this property to the physical behavior of plastics. This subject is covered in many of the references cited but is not mentioned in the text. The authors may have considered this of more interest to the academician than to the engineer.

The comparative results of many of the properties of the materials are tabulated.

The high quality of this work should make this book valuable to all who are interested in the properties and uses of the many types of plastics materials. Its scope is broad enough to be of interest to all engineers, and especially those responsible for evaluating materials.

Albert Lightbody, Chief of the Chemistry Research Department of the US Naval Ordnance Laboratory (NOL), White Oak, Silver Spring, Md.,

has been interested in plastics research and engineering since 1943. A past director of the Society of Plastics Engineers and now the Secretary of the Plastics Institute of America, he was instrumental in developing a specimen, known throughout the industry as the NOL ring, for testing of filament-wound composites. His PhD (physical chemistry) was earned from the University of Nebraska in 1933.

ELIMINATING AN ASTERISK

Title Project Icarus
Editor Louis A. Kleiman
Publisher The MIT Press, 1969
Pages xiv + 115
Price \$6.95
Reviewer Francis J. Jankowski

For several years MIT has been teaching Systems Engineering to graduate interdisciplinary classes. The success of this approach is evident in the enthusiasm of the students and faculty, in the adopting of this approach at other universities, and in the several successful solutions to large-scale problems attained by these classes.

Part of the pedagogical process has been the requiring of each class to prepare a final report and present it orally to a group of faculty, industry, and government people. This book is the final report of one class.

The problem presented to this class was a hypothetical one. Icarus is an asteroid having an elliptic orbit that intersects that of the earth. In June, 1968, it came within 4 000 000 miles of the earth—a near miss on the astronomical scale. This project postulated that Icarus and the earth, in the spring of 1967, were on collision courses, with but 70 weeks in which to design and effect a remedy. This book reports this design effort.

In this rapidly evolving field of Systems Engineering, such a text would be potentially valuable to engineering faculty, systems and project engineers, and engineers in a specialty related to the project reported.