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Positions for physicists trained in electron and nuclear spin resonance for basic and applied research programs. Programs involve the use of these basic techniques, together with such techniques as nuclear quadrupole resonance, ferromagnetic resonance absorption, electron microscopy and diffraction, X-ray diffraction and fluorescent spectroscopy, etc. for studies of the solid and liquid states, biomedical research, radiation effects studies, chemical synthesis and analysis, effects of high temperatures, and the development of special quality and process controls. M.S. or Ph.D. required. Knowledge of solid state physics, physical chemistry, organic chemical processing, electronics are desirable but not required. Above positions offer opportunity to combine research activities with specialists in several fields of physics, chemistry, electronics and biomedicine. Laboratories well equipped for both chemical and physical analytical measurements.

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Nonetheless, I recommend that anyone to whom vacuum is a subject of concern, or who is contemplating entering a field such as electron physics where vacuum is a bread and butter staple, at least glance over this volume. Vacuum technology, despite the efforts of Dushman, remains an art, and worse, almost exclusively an orally transmitted art. This symposium is an excellent place to begin to learn the present state of that fast developing art. The wealth of practical material to be found in R. N. Edwards and J. F. Lawley's paper on design criteria for accelerator vacuum systems is a case in point. For here is collected information which is otherwise widely scattered.

The Pergamon Press and the editor are to be congratulated on succeeding in making a volume of this size available within a year of the symposium. It is regrettable that this speed could not have been achieved without the inclusion of inverted illustrations and other obvious misprints. Otherwise, the book is nicely bound and printed and the figures a model of clearness.

Theory of Dielectrics (2nd Revised Edition). By H. Fröhlich. 192 pp. Oxford U. Press, New York, 1958. \$4.80. Reviewed by A. Maradudin, University of Maryland.

The second edition of this excellent book differs from the first edition only through the addition of three appendices. The first of these contains an extension of the general theorems of Section 7 for the static dielectric constant of dielectric substances which are not permanently polarized. In the second appendix a controversial point, related to the reaction field, which arises in this generalization is clarified with the aid of a simple model. The third appendix contains a very brief discussion of recent results of Sack and Gross on an extension of the theory of dielectric relaxation for special models.

Professor Fröhlich's expressed aim in writing this book was to present a systematic discussion of the theory of the dielectric constant for the applied scientist which would require a minimum of mathematical background and no quantum mechanics, and he has admirably accomplished his aim. Yet it does seem a pity that in preparing a new edition of this book the restriction to nonquantum mechanical systems was not relaxed, since the lack in books on the subject of any discussion of the dielectric properties of quantum interacting systems is regrettable. Such a discussion presented with Professor Fröhlich's skill would be welcome indeed, particularly in view of a recent vogue of discussing properties of quantum mechanical systems of many interacting particles in terms of a dielectric constant for the system, the derivation of which is usually comparatively straightforward.

This is a minor point, however, and perhaps inappropriate here if one subscribes to the view that a book should be criticized on the basis of what it is rather than what it could have been. The presentation

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is admirable for its clarity, although a more complete bibliography would be very useful, and Oxford Press has done its customary fine job in printing the book. All in all, it remains a masterly treatment of an engrossing subject.

Proceedings of the Seventh Japan National Congress for Applied Mechanics (U. of Tokyo, Sept. 1957). Sponsored by Science Council of Japan. 432 pp. Association for Science Documents Information, Tokyo, Japan, 1958. Paperbound. *Reviewed by E. H. Dill, University of Washington.*

The number of papers presented (34 in elasticity, plasticity, and soil mechanics; 27 on hydrodynamics, aerodynamics, hydraulics, and lubrication; 3 on heat transfers; 26 on vibration, computation, and automatic controls) make it prohibitive even to list the titles. Within each category the papers vary widely in subject matter and level of mathematical presentation; therefore, some papers will be of interest in applied physics and applied mathematics although others are of interest only to the practicing engineer. There is too often a lack of reference to recent publications and little effort to correlate with other existing work.

The reproduction is apparently a photo-offset of typewritten and hand-lettered copies just as they were submitted; in some cases the printing is almost illegible and the photographs are poorly reproduced, although most of the equations and figures are clear and distinct even when in quite fine print. Almost all of the papers are in English with a few in German. The only usefulness which seems to be served by this volume, as was also performed by its six predecessors, is to present to Western readers in relatively fast and cheap form a complete picture of the latest research by Japanese workers in the field of applied mechanics. As such it will only appeal to specialists in the fields covered.

Advances in Catalysis and Related Subjects. Vol. 10. Edited by D. D. Eley, W. G. Frankenburg, V. I. Komarevsky. 326 pp. Academic Press Inc., New York, 1958. \$11.00. *Reviewed by Henry Wise, Stanford Research Institute.*

A decade has gone by since the appearance of the first volume in the series *Advances in Catalysis and Related Subjects*. The objective of this publication is the presentation of "new scientific theories and methods which promise to become valuable for a better understanding of catalytic phenomena". The contents of Volume 10 fit well within this framework. As for experimental methods, the seven contributed articles by different authors contain descriptions of such interesting techniques as magnetic susceptibility, field-emission microscopy, crystal-face inspection, and infrared spectra of surface-adsorbed molecules. As for new scientific theories, this volume reflects some of the