

rized in a single formula, and the quantitative effects of this formula on transport coefficients are calculated. A third example is the article by A. H. Kritz, G. V. Ramanathan, and G. Sandri, in which the defects of the usual Bogoliubov treatment of the two-body correlation function are convincingly demonstrated and amended—without recourse to three body effects. Of course not all of this material is new, and one suspects that much of what is new will later be published elsewhere. But one also suspects that, misprints aside, many of the articles in *Kinetic Equations* appear in a uniquely intelligible form.

This is an interesting and readable book.

RICHARD HAZELTIN
University of Texas
Austin

Tunneling in Solids

C. B. Duke
353 pp. Academic, New York,
1969. \$16.00

This book deals with the process known as the tunnel effect whereby electrons are transferred through ultra-thin insulating films. This ubiquitous effect has been of great interest to solid-state physicists from a wide range of experimental and theoretical viewpoints, and it ranges from the study of field emission into a vacuum to the semiconductor tunnel diode invented by Leo Esaki. It also includes the many-faceted superconducting tunnel effects that flowed from the pioneering efforts of Ivar Giaever. C. B. Duke has attempted to embrace the major aspects of this interesting field in a single volume. I believe he has achieved a high degree of success in his endeavor.

A major goal of the book was to serve as a source for a unifying view of this rather diverse field. One of the key problems the author faced was the establishing of criteria for the critical examination of the literature in this field. Somewhat arbitrary decisions are obviously required to accomplish this, but I tend to agree with his handling of the problem. In any case he was able to make tractable his task of organizing the subject matter and this has yielded an excellent bibliography of the experimental and theoretical papers in tunneling.

The book treats the subject with sufficient breadth so that it will be useful to physicists with varying theoretical and experimental background. One can begin to discuss tunneling using the idealized models of potential bar-

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riers that one finds in basic quantum mechanics texts and Duke uses this as the starting point for the understanding of a variety of experiments involving elastic tunneling with non-superconducting electrode materials. Various modifications of barrier potentials and density of states are discussed and the relation to experiment is analyzed. This area comes under Duke's heading of the independent electron theory of tunneling. The other major area treated involves the more complex aspects of tunneling, which include superconductivity, inelastic effects, magnetic interactions and self-energy effects. The treatment is quite extensive and contains detailed discussions of the more advanced theoretical approaches. Duke's own contribution to the advanced theoretical structure is quite well known so that it is appropriate that this area be emphasized.

This volume is a supplement to the Solid State Physics series that is so well known to solid-state physicists and it is a timely and valuable addition to the series. Those wishing to know more about the field will find it to be an excellent central source. Research workers in the field of electron tunneling should have this book at hand.

JOHN LAMBE
*Ford Motor Company
Dearborn, Michigan*

Laser Interaction and Related Plasma Phenomena, Vol. 2

H. J. Schwarz, H. Hora, eds.
583 pp. Plenum Press, New York, 1972. \$27.50

This volume represents the proceedings of the Second Workshop, held at Rensselaer Polytechnic Institute during the early autumn of 1971. It is composed of the unedited papers given at that colloquium covering such subjects as high-density lasers, laser-induced gas breakdown, plasma diagnostics and special interaction processes, laser-produced plasmas interacting with gases in magnetic fields, the theories of high-intensity laser interaction with plasmas and fusion neutrons from laser-irradiated high-density plasmas. In all there are 43 papers reproduced in their original typescript form with a brief summary of the discussions after each major section of the workshop.

The First Workshop, held under the same auspices in 1969 and also edited by Helmut Schwarz, who is a professor of physics, and Heinrich Hora, adjunct associate professor of physics, at Rensselaer Polytechnic Institute, provides