

Tunneling Phenomena in Solids

Tunneling Phenomena in Solids

*Lectures presented at the
1967/NATO Advanced Study Institute at Risö, Denmark*

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Foreword

The aim of this volume is to provide advanced predoctoral students and young postdoctoral physicists with an opportunity to study the concepts of tunneling phenomena in solids and the theoretical and experimental techniques for their investigation. The contributions are primarily tutorial in nature, covering theoretical and experimental aspects of electron tunneling in semiconductors, metals, and superconductors, and atomic tunneling in solids.

The work is based upon the lectures delivered at the Advanced Study Institute on "Tunneling Phenomena in Solids," held at the Danish A.E.C. Research Establishment, Risø, Denmark, June 19–30, 1967. Sponsored by the Danish Atomic Energy Commission, the Nordic Institute for Theoretical Physics (NORDITA), and the Science Affairs Division of NATO, with the cooperation of the University of Copenhagen, the Technical University of Denmark, Chalmers Institute of Technology, and the University of Pennsylvania, the lectures were presented by a distinguished panel of scientists who have made major contributions in the field. The relatively large number of lecturers was, in part, made possible by the close coordination of the Advanced Study Institute with the Second International Conference on Electron Tunneling in Solids, which was held at Risø on June 29, 30 and July 1, 1967, under the sponsorship of the U.S. Army Research Office–Durham. We are indebted to I. Giaever, E. O. Kane, J. Rowell, and J. R. Schrieffer for advice and assistance in planning the lecture program of the Institute.

The Institute was made possible through the active interest of an organizing group consisting of H. Højgaard Jensen, A. Mackintosh, N. I. Meyer, M. Nielsen, and K. Saermark. The Danish Atomic Energy Commission supported the Institute financially and made available its facilities at the Risø Research Establishment. We take this opportunity to thank the Danish AEC officials for their gracious cooperation. In particular, we would like to express our gratitude to the Director of the Research Establishment, Professor T. Bjerger, for his kind interest and for being a generous and excellent host.

The heavy burden of making all the arrangements for the Institute

was very ably undertaken by M. Nielsen and by the Information Officer of the Research Establishment, Mrs. J. Starcke. Dr. Nielsen and Mrs. Starcke kept the secretariat running smoothly at all times and helped the Directors of the Institute, as well as the participants, in solving the many problems that arose. We would like to express our warmest thanks to them for their patient and efficient work in following as closely as possible our intentions along a rather winding course toward a successful end.

E. BURSTEIN, Director of the Institute

S. LUNDQVIST, Associate Director of the Institute

October 20, 1968

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