



Basic Theory of Surface States (Monographs on the Physics and Chemistry of Materials)

By Sydney G. Davison, Maria Steslicka

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The theory of surface states underlies our knowledge of the behavior of electrons at solid surfaces, which is of paramount importance in understanding the mechanisms by which solid-state devices operate and catalytic reactions proceed. In this work, the subject is viewed through the "theoretical eye" of a physicist, but the topics are treated in an elementary fashion. The main features of the presentation are its instructive, model-based approach; detailed step-by-step derivations of the equations; smooth progression through the simple wave-function matching techniques to the more sophisticated Green-function methods; and the historical theme, which traces the evolution of the subject from its founding by the Nobel Laureate Igor Tamm in 1932, through the invention of the transistor in 1947 by Schockley, Bardeen and Brattain, to recent developments. The book will appeal to both theoretical and experimental surface scientists from chemistry, materials science, and electronic engineering.

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'a welcome addition to the literature on Surface Science as it addresses the theoretical aspects of electronic surface states ... the authors have done an excellent job in presenting a complicated subject in a manner that is simple and easy to understand.' Raj Persaud, York University, Physics in Canada, July 1993

'an important contribution to the field.' Aslib Book Guide, vol.61, no.12, December 1996.

'It is an accessible, and already well-liked, monograph on an area of growing importance in physics. And a special feature in the book is the historical development of the field.' New Scientist, September 1996

About the Author

Sydney G. Davison is at University of Waterloo, Ontario. Maria Steslicka is at University of Wroclaw, Cybulskiego.

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