MODERN TECHNIQUES OF SURFACE SCIENCE

This fully revised, updated and reorganised Third Edition provides a thorough introduction to the characterisation techniques used in surface science and nanoscience today. Each chapter brings together and compares the different techniques used to address a particular research question, including how to determine the surface composition, surface structure, surface electronic structure, surface microstructure at different length scales (down to submolecular) and the molecular character of adsorbates and their adsorption or reaction properties. Readers will easily understand the relative strengths and limitations of the techniques available to them and, ultimately, will be able to select the most suitable techniques for their own particular research purposes.

This is an essential resource for researchers and practitioners performing materials analysis and for senior undergraduate students looking to gain a clear understanding of the underlying principles and applications of the different characterisation techniques used in the field today.

D. PHIL WOODRUFF is Professor of Physics at the University of Warwick. He has more than 40 years' experience in the development and application of surface science techniques, resulting in more than 500 publications. He has also worked at Bell Laboratories in the USA and spent 13 years in collaboration with the Fritz Haber Institute in Berlin. He is the recipient of several prizes and awards in the UK, USA and Germany, and in 2006 became a Fellow of the Royal Society.

"For more than three decades, the first two editions of Phil Woodruff's text have been a key reference for surface scientists: simple, comprehensive, authoritative, and extremely helpful as a first step for graduate students and junior researchers. The fast evolution of the field required a general update, and this was done in a masterful way. But this new edition goes well beyond: the strategy of the presentation has changed radically to reflect the present situation of the field, becoming a "user-oriented" instrument. As such, it is even more useful than the past editions, and therefore highly recommended."

Giorgio Margaritondo, EPFL

"This is an excellent textbook for introducing students and new researchers to the most important characterization techniques used in surface analysis and adsorption studies, which are of ever-increasing importance in a wide range of chemistry, materials science and nanotechnology research. It is logically organized and very well written for facile understanding by non-experts, yet refers to the best literature sources with more detailed information when needed for the next level of mastery of each method. It is impressive in its in-depth and up-to-date coverage of the most important aspects of this broad range of techniques, all within a moderate-size text. The author is a true expert and pioneer in this field, and it shows in this valuable new contribution."

Charles Campbell, University of Washington

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