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Book review

The Chemical Physics of Surfaces; by S.R. Morrison, xiii + 415 pages. Plenum Press, New York and London. Price US\$47.40; £24.89.

There is no doubt that those aspects of surface science particularly concerned with the structural and electrical properties of metals, semi-conductors, metal oxides and so on have matured immensely over the past seven years from the application of new experimental and theoretical techniques. The surface physicist is happy to see the evolution of a more rigorous understanding of surface crystallography and electronic states; the surface chemist or chemical physicist is trying to hurry on to respectable descriptions of the chemisorption bond and the reactions of simple molecules at surfaces.

This book is certainly different from the majority which have become available recently: there is a choice and balance of material which is pleasantly surprising but whether the author will achieve his aim, of converting the "mature surface chemist" to an increased familiarity with surface physics and informing the surface physicist of more relevant chemistry, is not obvious. The author shirks, for example, setting down some of the quantum mechanical formalism that has evolved for the chemisorption bond, although surely the mature surface chemist knows enough about the tight binding and other approximations to follow through the quantitative arguments. Equally, I am not certain that the most significant chemical problems have been isolated for the purpose of educating surface physicists. There is some unevenness of treatment, from the simplicity of the Dewar—Chatt model for the metal—olefin bond to the complexities of active sites on oxidation catalysts.

But having expressed these reservations, one is still left with the impression of a more than useful addition to the literature. The bibliography is extensive and indexing accurate and informative; as an introduction to the more advanced primary and secondary literature, one could do far worse.

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