There are also some lapses in the text of the book; for example, instead of the ratio of two quantities their product is given (p. 186). On some diagrams the notation is missing to which there are references in the text; there are also some other deficiencies.

However, it should be noted that the materials of the school which took place in July 1985 were already published in 1986 and have become accessible to the readers. And this is, perhaps, much better than a carefully published book whose publication is so long delayed that it already becomes obsolete.

Low-energy electron diffraction

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M. A. Van Hove, W. H. Weinberg, and C. M. Chan. *Low-Energy Electron Diffraction: Experiment, Theory, and Surface Determination*, Springer-Verlag, Berlin; Heidelberg; New York; London; Paris; Tokyo; 1986, pp. 603 (Springer Series in Surface Sciences, V. 6).

Low-energy electron diffraction (LEED) is the principal method used to determine the surface position of atoms. Crystallography of the surface plays a fundamental role in the study of physical and chemical properties of the surfaces of solids. The determination of the structure of the surface on an atomic scale is of great interest for microelectronics, catalysis, corrosion prevention etc.

The first chapter of the book under review emphasizes the importance of studying the crystallography of the surface (the electron and lattice properties of the surface, and also the structures of atoms and molecules adsorbed on the surface), and provides a historical review of the development of LEED.

In Ch. 2 a discussion is given of the apparatus required for studying LEED, and it also contains a review of the experimental methods for measuring different parameters, in particular the Debye temperature.

Chapter 3 is devoted to a general description of the structures of surfaces, to superlattices on the surface, and also to the interpretation of the results of LEED.

In Ch. 4 the kinematic theory of LEED is presented, scattering processes and the influence of temperature are examined, and limitations on the use of the kinematic theory of LEED are indicated.

Chapter 5 describes the dynamic theory of LEED (taking multiple scattering into account). In particular, the transition matrix is evaluated for a number of layers of a periodic lattice.

Chapter 6 is devoted to the application of the kinematic and dynamic theory of LEED to the crystallography of surfaces. A discussion is given on the accuracy of determining a structure with the aid of LEED.

In Ch. 7 results are collected of structural analysis carried out with the aid of LEED (clean restructured surfaces, restructured surfaces, adsorbed layers of atoms and molecules).

In Ch. 8 two-dimensional order–disorder transitions are examined, in particular the interaction of hydrogen with metal surfaces.

Chapter 9 is devoted to the study with the aid of LEED of chemical reactions (for example, between hydrogen and oxygen), occurring on metal surfaces.

In Ch. 10 the formation of islands on the surface is studied with the aid of LEED. The nature of the origin of islands and their ordering is investigated. As an example the formation of CO islands on the (001) surface of Ru is discussed.

Chapter 11 is devoted to the prospects of further development of LEED from the theoretical and experimental points of view, to possible new directions, and to progress in the determination of structures, and also of the connection of LEED with different methods of studying surfaces (scattering of ions, neutron diffraction, electron and scanning vacuum microscopy and other methods).

The book is written in a clear language, can be easily read, is richly illustrated, and contains a sufficiently complete bibliography. On the whole it provides a good idea of the present state of the problem under discussion. The book will be useful to a large number of specialists in solid state physics.
