There is rather comprehensive coverage of the myriad of techniques used in surface science so that the reader is exposed to the spectroscopic methods currently available and their typical applications. Necessarily, the discussion of the large number of topics is somewhat superficial. A student who would actually use one or more methods would most certainly need to read more broadly. While the bibliography serves as a good starting point for more in-depth reading, it is not comprehensive because of the large number of topics discussed in the book. Only selected examples are referenced on a given topic, e.g. the study of activated adsorption using molecular beam techniques. Therefore, if the reader or instructor of a course wishes to go beyond the text, an independent review of the literature will be necessary in many cases.

The text is also a useful overview of the developments in the field of surface chemistry for experienced researchers in surface physics and related fields. Results of experiments performed over the past two decades are synthesized into a general framework. The overview serves as a conceptual basis for the vast research encompassed in the area of surface physics and induces one to cast current work within this framework.

Overall, *Physics at Surfaces* is an excellent introduction to the emerging and developing field of surface science from which both students and experienced researchers will benefit.

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Metallic Superlattices—Artificially Structured Materials. Edited by *T. Shinjo* and *T. Takada*. Elsevier, Amsterdam 1987. xii, 271 pp., bound, DFl 240.00.—ISBN 0-444-42863-1

Advances in ultrahigh-vacuum deposition techniques have made possible the sequential monolayer-by-monolayer deposition of artificially layered materials including semiconductors, metals, etc. This volume 49 of the series "Studies in Physics and Theoretical Chemistry" is a collection of review papers on artificially layered metal structures presented by several principal investigators. The majority of the authors (five out of eight) are university professors in Japan, so that the book has a somewhat eastern asian flavor, although the research activities in this field are equally spread all over the industrialized world. However, with the recent rapid growth of activity on artificially layered materials and the concomitant dramatic increase in the number of published papers, finding a book that can serve as a comprehensible text for an introductory course is particularly important. This book addresses that purpose very well, and it is to be highly recommended for that use, as well as to the individual reader seeking an introduction to one of the special topics discussed in five of the chapters.

The book consists of seven chapters: 1. Overview of metallic superlattices (*T. Shinjo*), 2. X-ray diffraction studies on metallic superlattices (*Y. Fujii*), 3. Neutron diffraction studies on metallic superlattices (*Y. Endoh, C. F. Majkrzak*), 4. Mössbauer spectroscopic studies on superlattices (*T. Shinjo*), 5. NMR studies on superlattices (*H. Yasuoka*), 6. Superconductivity in superlattices (*V. Matijasevic, M. R. Beasley*), 7. Theories on metallic superlattices (*K. Terakura*). Much credit must be given to the editors for providing an extensive list of element combinations used in layered metallic structures and a comprehensive bibliography in the appendix.

In the areas covered this fine book is close to being a state-of-the art summary of current research.

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High-Resolution Solid-State NMR of Silicates and Zeolites. By *G. Engelhardt* and *D. Michel*. John Wiley & Sons, Chichester 1987. xiv, 485 pp., hardcover £ 55.00.—ISBN 0-471-91597-1

For many years solid-state NMR spectroscopy was regarded merely as a tool for specialists in the shadow of the more important magnetic resonance applications to the liquid state. This changed after novel sophisticated high-resolution techniques such as magic angle spinning (MAS) and multi-pulse experiments were developed for solid materials. Nowadays multinuclear high-resolution solid-state NMR spectroscopy is attracting increasing interest in chemistry, materials science and many other domains. The new book by *G. Engelhardt* and *D. Michel* gives a survey of one of the most important applications, i.e. that to silicates, aluminosilicates, zeolites and silicate sorbents. It is an excellent introduction to high-resolution solid-state NMR spectroscopy in general, and gives an overview of current research activities in silicate and zeolite science in particular.

The text is organized in seven chapters beginning with a short introduction to the historical background. Chapter 2 treats the basic principles of high-resolution NMR of solids. The nuclear spin interactions affecting the spectral features are described in the irreducible tensor notation, and the most important experimental techniques (MAS, cross-polarization, dipolar decoupling, multi-pulse methods) are briefly discussed. The peculiarity of adsorbed molecules is emphasized. Since detailed information about the structure of species containing silicon has been obtained from studies of the liquid state, the third chapter of the book is completely devoted to ^{29}Si NMR of silicate solutions.

The next two chapters deal with general aspects and applications of ^{29}Si and ^{27}Al NMR studies of silicates, aluminosilicates and zeolites. Experimental methods, general features of the spectra, spectral parameters and correlations with structure are discussed in Chapter 4, whereas Chapter 5 summarizes the large amount of data that have already been accumulated from studies on natural and synthetic silicate and aluminosilicate materials and zeolites. In addition to crystalline materials and especially zeolites, other materials included are glasses, layer silicates, silica polymorphs and tectoaluminosilicates.