

Attenuated Total Reflectance Spectroscopy of Polymers: theory and practice, by Marek W. Urban, 216 pages, 107 figures, 14 tables, American Chemical Society: polymer surfaces and interfaces series, 1996, hardcover, ISBN 0-8412-3348-9

Modern information about Attenuated Total Reflectance (ATR) Spectroscopy is hardly to get in a compact form. Most books about infrared spectroscopy just describe the very rough principles of ATR while most of the publications in scientific journals usually do not deal with the theoretical background of ATR at all.

Marek W. Urban's book fills this gap. Being divided into three sections, the book gives an excellent introduction to the basics of ATR-spectroscopy, a detailed discussion on the theory of quantitative ATR-analysis and a presentation of an interesting choice of ATR-experiments on polymers.

The introduction into ATR starts with the very first principles of optics and thus even meets the requirements of an absolute beginner. Nevertheless, it leads directly to the understanding of the evanescent waves

and the upcoming of the ATR-spectra. In the same excellent didactical manner, the Kramers-Kronig transform and quantitative surface depth profiling is explained in the second section. The corresponding algorithms are mainly presented by flowcharts. Additional explanations are few but just sufficient. The third section gives a rough impression on the experimental potential of ATR for polymer research. The presentation of more experimental details may have been desirable and, especially, interpretations of actual spectra are sparse. So, for a more detailed insight into the field of ATR, one must make use of the impressive number of references that are given in the book.

Urban's book completely fulfills the needs that one expects for a good introduction into a modern field of spectroscopy: it is written in a compact and comprehensive way, it makes use of clear drawings and of step-by-step mathematical transformations. Every general question is answered and sufficient publications about the specific details are referenced.

H. Skupin (Leipzig)

Dielectric Spectroscopy of Polymeric Materials, James P. Runt, John J. Fitzgerald (Eds), American Chemical Society, Washington DC 1997, ISBN 0-8412-3335-7, 461 pages, hardcover, US\$ 124.95.

This book provides a comprehensive discussion of the fundamental principles in dielectric spectroscopy. It examines methods used in data modelling and some speciality techniques such as high-frequency dielectric measurements and thermally simulated currents. It also discusses applications of dielectric spectroscopy in polymer solutions, polymer blends, polymeric liquid crystals, and other polymeric systems. This book is intended for industrial, academic, and government polymer chemists and chemical engineers, materials chemists, and materials scientists, or analytical chemists working with polymers.

F. Kremer (Leipzig)