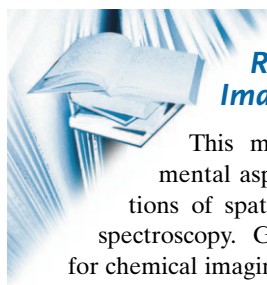


The book is particularly suitable for readers who want to enter a modern field of polymer chemistry. It presents the basics, but also gives a snapshot of current research. It should appeal primarily to postgraduate students and research groups working in this area. Considered as a student textbook, it contains many parts that are well suited for undergraduate teaching or as a reference source for undergraduate students.

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Infrared and Raman Spectroscopic Imaging

This monograph covers instrumental aspects and various applications of spatially resolved vibrational spectroscopy. Generally, these methods for chemical imaging do not require external staining agents, since they rely on intrinsic sample contrast by probing molecular vibrations. From the spatially and spectrally resolved data, false color images can be generated, in which spectral intensities are encoded in colors: this makes it possible to visualize the concentrations and spatial distributions of different functional groups and molecular species. In this way, the methods of infrared and Raman microspectroscopy, which combine microscopy with vibrational spectroscopy, can be universally applied in all areas of analytical chemistry where the spatial distribution of chemical components must be determined

qualitatively, or even quantitatively. The many applications include biomedical diagnostics and the micro-scale analysis of polymers and pharmaceutical products.

Advances in instrumentation and software, in particular commercially available microspectrometer configurations in combination with multivariate data processing techniques, have led to a considerable growth of interest in and work on these methods during the last 10 to 15 years. Many groups in academia and industry are now working on the development of IR and Raman microscopy methods and on applications. Review articles and monographs published up to now have concentrated on partial aspects, such as instrumentation for FT-IR microspectroscopy or applications in biomedical diagnostics. This book fills a gap by covering all aspects comprehensively, ranging from instrumentation to data processing software and to many different applications in academic and industrial research.

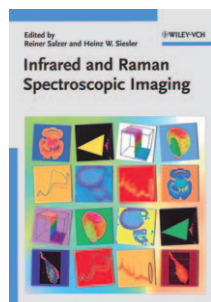
An especially positive aspect of the book is the strong emphasis on practical relevance in the chapters. For example, the reader is provided with a good survey of the instrument manufacturers and their products. This information is particularly useful for laboratory and group leaders who are considering buying a (usually very expensive) IR and/or Raman microspectrometer.

Overall, there is a good balance between instrumentation and applications. This monograph is therefore recommended both to method developers and to applications practitioners in academic and industrial laboratories.

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