

The last two sections are entitled 'Low Level Counting' and 'Errors in Liquid Scintillation Counting'. Although these papers are in general shorter than those in the previous sections, they are extremely relevant. L. A. Currie describes the sources of error to the measurement process, and formulates caveats whereby the merit of any number of alternative procedures can be simultaneously evaluated. Assessment of the significance of low count rates, errors in d.p.m. measurement with external standardization and temperature compensation are also discussed.

All in all, this book is very readable, well presented and edited, and the discussion contributions at the end of each paper add to its value. It should be on the reading list of every person involved with radioimmunoassay but is expensive at £16.

J. TYLER

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## Introduction to the Spectroscopy of Biological Polymers

D. W. JONES (Editor)

*Academic Press, London, 1976, pp. 328, £11.60*

Spectroscopy of various kinds has been an important tool in the armoury of the biochemist for many years. Whereas many of its successful applications are essentially empirical, there are clearly many others where an understanding of the underlying physics is required to make the most of the results. The aim of this book is to present the 'principles, limitations and scope' of a number of spectroscopic methods that have been applied to biological macromolecules. The book begins with a useful introductory chapter by the Editor on the general principles of spectroscopy. The techniques described in detail are infrared (Keighley), Raman (Koenig), far infrared (Manley), ultraviolet and visible absorption and fluorescence (Ainsworth), optical rotatory dispersion and circular dichroism (Dalgleish), nuclear magnetic resonance (Leigh), electron spin resonance (Keighley) and Mössbauer (Johnson). The final chapter, by the Editor, consists of a rather cursory survey of combined applications of various spectroscopic techniques to biochemical problems and of some newer spectroscopic developments.

The amount of detail provided varies widely from one chapter to another. The three chapters on vibrational spectroscopy (which together comprise almost half the book) give an excellent and clear exposition of the theory and instrumentation, and fairly detailed accounts of biological applications. On the other hand, although the short chapters on u.v. and visible absorption and fluorescence and on nuclear magnetic resonance give clear accounts of the physical principles, they give very little in the way of biological examples. In spite of the editorial disclaimer that the book does not purport to be a review of biological applications, this must surely make it difficult for the newcomer to these techniques to appreciate just what they can and cannot do. The chapter on electron spin resonance includes a good description of the physical principles, but the biological examples discussed are restricted largely to studies of radiation-induced free radicals in amino acids and proteins; only the briefest mention is made of electron-spin-resonance studies of metalloproteins or of 'spin-labelling', which are arguably of greater biochemical interest.

The book should certainly be intelligible to a final-year undergraduate, but the unevenness in the discussion of the various techniques makes the book difficult to recommend wholeheartedly for an undergraduate course. There are also an annoying number of (usually trivial) misprints.

G. C. K. ROBERTS

The introduction of optical light fibers has contributed to an enormous expansion of conventional NIR spectroscopy in terms of remote control, allowing a separation of the spectrometer and the sample measurement over several hundred meters, enabling analysis of process and reaction control. Further progress was made by the development of new, rapid-scan NIR monochromator systems without mechanically moved parts, such as acousto-optic tunable filters [1]. The synthesized polymers were characterized by Fourier IR spectroscopy, thermogravimetric analysis, and dynamic mechanical analysis, and their proton conductivity was measured. [Read more.](#) [Article.](#) [Biological Spectroscopy.](#) April 1985 • [Biochemical Society Transactions.](#) PETER KNOWLES. [Read more.](#) [Article.](#)