

fluorescence, resonance Raman, nuclear magnetic resonance, electron spin resonance and photoacoustic spectroscopies. These chapters occupy more than one third of the book and are followed by a useful review, and three short accounts of processes initiated by activated oxygen.

Considerable space is then given to molecular and cellular mechanisms in photomedicine. A review of drug-DNA interactions and several lectures on furocoumarin photochemotherapy, particularly the application of a psoralen drug followed by UVA irradiation, examine photophysical and photochemical studies of singlet and triplet states and correlate photoadditions with photobiological and clinical effects. A second major group of substances relevant to photomedicine are the tetrapyrroles. A review on the photochemistry of porphyrins and bile pigments is followed by chapters relevant to both neonatal jaundice and porphyria diseases, but without doubt the most topical subject addressed in this part of the Institute's programme was the application of the photophysical properties of porphyrins to cancer phototreatment. Studies of detection of tumors by porphyrin fluorescence and of porphyrin-promoted photodynamic damage *in situ* are described at the molecular level. Cellular photosensitization by psoralens and porphyrins are contrasted, and the factors involved in the interaction of light with skin examined. The book ends with two short chapters on lasers in surgery and medicine and the action of sun filter and sun-block products.

The high density of presentation (about 500 words per page) rarely inconveniences the reader (the main irritations being equations and complex notation buried in the narrative) and allows a large amount of widely useful information to be contained in a single reasonably sized volume.

ROGER HILL

Advances in Luminescence Spectroscopy

edited by L. J. Cline Love and D. Eastwood; published by The American Society for Testing and Materials, 1985; 129 pp.; member price, £21.00; list price, £26.00

This slim volume represents written versions of papers presented at a symposium sponsored by ASTM Committee E.13 on Molecular Spectroscopy at Atlantic City, NJ, in March, 1983. Its publication in May, 1985, more than two years after the event renders some of the material out-of-date, since there are many fast-moving developments in the field. The stated aim of the book is to acquaint the scientific community with some of the most recent advances in fluorescence and phosphorescence research, and certainly some of the articles will achieve this aim.

The book is divided into three sections: Probes of the Chemical Environment, Coupled Phenomena in Luminescence, and Manipulation of Luminescence Observables.

The four papers grouped under the first heading are very diverse. The first is concerned with absorption, two-photon absorption and rotational

diffusion methods as probes of solvent interactions. Rotational diffusion samples long-term solvation structures, whereas the first two methods probe on a short time scale. The discussion on rotational diffusion is at an elementary level, and is very short, and is thus of limited usefulness. There could be applications of the probe molecules discussed in terms of understanding liquid chromatography retentions. The second short chapter is concerned with the use of 3-hydroxyflavone to trace hydrogen-bonding impurities in hydrocarbon solvents, since the intramolecular proton transfer process is extremely sensitive to ethers, alcohols, water and other hydrogen-bonding solvents, and produces an easily recognizable lower energy fluorescence from the tautomer.

There follows a simple elementary chapter on the use of fluorescence polarization to study global and non-global rotations in proteins, and a chapter on the comparison of techniques for generating room-temperature phosphorescence in fluid solution, including the use of surfactants.

The second section of the book is concerned with coupled phenomena in luminescence, and comprises a simple discussion of photoacoustic methods in luminescence spectroscopy by the late Gordon Kirkbright, to whom the whole volume is dedicated, and metal-ion sensors which are based upon immobilized fluorogenic liquids. Again, these two chapters are completely unrelated, and written at a low level.

For this reviewer, perhaps the most valuable section of the volume is the last, on the manipulation of luminescence observables. Here there is a chapter on synchronous excitation fluorescence, and one on pattern recognition enabling the rapid identification of low temperature luminescence spectra of hazardous chemicals.

A major criticism of the volume is thus that while many of the articles are of interest, they represent isolated studies from various corners of what is a large field of scientific endeavour. There is no attempt at a comprehensive overview of techniques or recent advances, although, to be fair, this would be a very major undertaking, and the companion volume "New Directives in Molecular Luminescence" (STP, 822 1983) fits the role. The present book must therefore be judged as an adjunct to the former volume. The book will be of most value to those interested in the analytical applications of luminescence spectroscopy. At £26.00 it is expensive for such (124 pages) contents.

DAVID PHILLIPS