Harris, D.A.: **Light Spectroscopy**. - Bios Scientific Publishers, Oxford 1996. ISBN 1 872748 34 1. 182 pp., GBP 18.95.

Spectroscopic methods belong to those most often used in photosynthesis research. The author of the reviewed book explains in nine chapters in a clear way the theory of these measurements and gives many practical advice and examples of analyses (often on photosynthetic objects).

Chapter 1 deals with the principles of spectrophotometry, with absorption and fluorescence spectra, their quantitation, and effects of radiation scattering. Chapter 2 deals with chromophores, fluorophores, effects of environment (solvents, electric field, presence of other compounds) on absorption and fluorescence, sensitivity and detection limits, with intrinsic and extrinsic probes (labelling methods), and indicator molecules (pH indicators, intracellular indicators). Chapter 3 is on the design of spectrophotometers (sources for continuous and pulsed sample irradiation), selection of wavelength ranges (monochromators), compartments for individual and parallel samples, cuvette types, detectors (photomultipliers), scanning, and capture of values. Chapter 4 explains the geometry and paths of radiation, beam splitting and other sources of error in absorbance measurements of very concentrated or turbid samples. Single beam, double beam, dual wavelength, and special (ratio, microplate, diode array, fibre optic) spectrophotometers are explained here. Second part of the chapter deals with spectrofluorometers and dual wavelength fluorometers, sources of error in fluorescence measurements, and with analyses of opaque samples (reflectance spectrometers).

Chapter 5 deals with instrument calibration, choosing the proper cuvette, and sample preparation (medium, uniformity, clarity, stirring, and temperature). Chapter 6 shows the details of absorption spectrum measurement; it includes spectra interpretation, work in an inert atmosphere, at low temperature (as an example, deconvolution of spinach chloroplasts' spectrum into eight peaks is shown), dual wavelength (cytochromes) and derivative (chloroplasts) spectroscopy, *etc.* Chapter 7 explains in detail how to measure fluorescence emission spectra (examples are on chloroplast ATP synthase, coproporphyrins, and chloroplast suspension). Chapter 8 deals with measurements at a fixed wavelength and with quantification of nonabsorbing materials using colour development, dye binding, and enzyme essays (two ways of determining ATP concentration are shown), measurement of enzyme rates, *etc.* Chapter 9 deals with environmentally sensitive chromophores (*e.g.*, ligand binding to proteins), with measuring ion concentration inside cell compartments, intravesicular pH (*e.g.*, fluorescence of acridine dyes in photosynthetic vesicles), transmembrane potential (in chromatophores from photosynthetic bacteria), *etc.*

Appendices contain a glossary, a list of suppliers, and a list of books and articles for further reading. A good subject index is supplemented. The text is fully understandable to researchers without a special background in physics. It does not go into many details, but brings in full the necessary information. In some places the chapters partially overlap. Illustrations are clear and explain much. I agree with the text on back cover of the book that it "is...an indispensable guide for advanced undergraduates, postgraduates, researchers and technicians in biology and medicine".

Z. ŠESTÁK (*Praha*)