

Kostkowski, H.J.: **Reliable Spectroradiometry**. - Spectroradiometry Consulting, La Plata 1997. ISBN 0-9657713-0-X. 609 pp., USD 200.00.

The book is intended to be used as a handbook for spectroradiometric measurements at wavelengths from 100 to 2500 nm. Such measurements belong to the least reliable of all physical measurements. Errors of 10 % are commonplace and much greater errors occur under difficult measuring conditions.

Of course, there is a very small probability that the specialists in plant sciences will perform such measurements. On the other hand, from time to time the results of some not very successful attempts of this kind appear in various biological journals. Therefore, detailed information about the complicated procedures and sophisticated instrumentation of spectroradiometric measurements (and radiometric measurements at all) may be a matter of interest to specialists in the field of photosynthesis and ecology.

The book is divided into three parts and 22 chapters. The first seven chapters (Part I) introduce the reader step by step to the basic concepts, problems and solutions, especially in the extraordinary multidimensionality of spectroradiometric measurements (spectroradiometric quantities, measuring accuracy, nonlinearity, directional and positional effects, spectral scattering, spectral distortion, polarization effects, and size-of-source effect). Standards, instruments and radiation detectors are dealt with in nine chapters of Part II (spectral irradiance standards, spectral radiance standards, wavelength standards, fore-optics and monochromators, photomultipliers, silicon photodiodes, germanium photodiodes, lead sulphide detectors, multichannel detectors, readout, automation and positioning devices). The actual measurement process is described in detail in Part III (six chapters dealing with uncertainty, the measurement plan, instrument assembly and preliminary checks, characterising the spectroradiometer, measurement, and the uncertainty report). Figures in black, tables and references are arranged at the end of each of the chapters.

Seven appendices bring numerous important data: decimal multiples and SI units, useful equations, list of commercial suppliers, matrix operations, some basic programs for PC, wavelength tables, and list of commercial suppliers of spectral lamps or calibrations. The extensive contents list (10 pages) ensures rapid orientation in the text so that the relatively short index (5 pages) is adequate.

The author has worked in spectroradiometry for over 40 years and for the last ten years he has been concentrated on writing this handbook. He has not invited other specialists. Kostkowski had been working at the National Bureau of Standards (NBS - now called the National Institute of Standards and Technology or NIST) for 27 years as a project leader, section chief, and principal scientist. In 1981, he founded a spectroradiometric consulting firm. His handbook is at the moment without doubt the best one on this topic at all.

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