

[Methods of Molecular Analysis in the Life Sciences](#), Andreas Hofmann, Anne Simon, Tanja Grkovic and Malcolm Jones, Cambridge University Press, Cambridge, 2014, 225 pages, ISBN: 978-1107622760.

I saw a posting about this book on the CCP4 bulletin board and asked the poster to have the publisher send me a copy. The authors set out to provide a broad view of the numerous techniques available for analytical methods in the life sciences. They do a reasonably good job of providing an introduction to many of the available tools. Each chapter concludes with a section containing both references and web-based resources.

Chapter 1 reviews electromagnetic radiation and lasers. Chapter 2 covers “Spectroscopic methods” in and around the visible spectrum: atomic spectroscopy, UV/Vis spectroscopy, fluorescence spectroscopy, luminometry, circular dichroism, static and dynamic light scattering and, finally, Raman and IR spectroscopies. This is the longest and most detailed chapter in the book.

Chapter 3 reviews “Structural methods,” including electron paramagnetic and nuclear magnetic resonance, electron microscopy, X-ray crystallography, X-ray single molecule diffraction and imaging, and small angle scattering. The penultimate section on the FEL (free electron laser) is quite current and provides a good primer on the experiment.

Chapter 4 covers “Physical methods,” including centrifugation, mass spectrometry and calorimetry. The final chapter, “Surface-sensitive methods,” covers surface plasmon resonance, the quartz crystal microbalance, monolayer adsorption and atomic force microscopy.

There are some quirks in the text; for example, the authors say that the photon is “the elementary particle responsible for electromagnetic phenomena.” Then they go on to say that it “carries the electromagnetic radiation and has the properties of a wave, as well as of a particle, albeit having a mass of zero.” In my opinion this latter statement is a bit misleading – the photon is the electromagnetic radiation. Also, the formula for the calculation of R_1 has extra absolute value operators that make it incorrect. Because of this error, I did a random check of ten other formulas and found no more errors. There was one other issue that I found difficult – a purplish font for the captions. Between the smaller font and lower contrast color scheme I had to squint to read the captions.

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