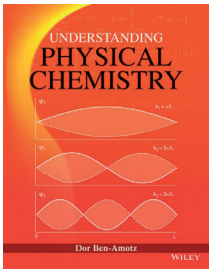

Understanding Physical Chemistry
By Dor Ben-Amotz. John Wiley & Sons, Hoboken, 2013. 416 pp., softcover, € 225.00.—ISBN 978-1118724491

Understanding Physical Chemistry

I welcome every attempt to arouse interest and enthusiasm in physical chemistry (PC) with a good textbook, because unfortunately PC lands well down the list of favorite topics of chemistry students. The subject matter is apparently too dry or difficult, because it is heavy on mathematical formulas, and the relevance of PC to other areas of chemistry is often underestimated.

Dor Ben-Amotz has set himself the goal of delivering new inspiration of the physical understanding of chemical phenomena. The choice of topics covered follows the personal interest of the author. This has for example the consequence that the fundamentals of kinetics are only fleetingly covered (Chapter 10) or that processes at interfaces (for example Marcus theory, heterogeneous catalysis) are not treated at all. The working principle and construction of a laser (for example population inversion, Einstein coefficients) are as lacking as important electrochemical processes (Debye–Hückel theory, fuel cells). This surprising discrimination of subject matter is apparent in the brief table of contents.

In contrast, fundamental insights into in modern computer simulations are given in unusual detail. In almost every chapter, detailed descriptions of the state of the art of modeling methods are given along with the usual experimental approaches, including a brief historical development and applications. This clearly shows the strengths (and personal preference?) of the author.

For a PC textbook, the almost literary-like format that has been chosen requires some getting used to: filled with citations, historical or mathematical footnotes, and numerous cross-references make the book captivating like a novel, and it shows the enormous enthusiasm of the author for his field. However, the chosen format often ranges from lengthy to confusing, because important insights and correlations are lost in long sentences and involved arguments or one cross-reference after another. Important formulas are usually highlighted separately (often without their derivation), but they also get lost in the flow of text, which can make finding a sought-for concept quickly quite difficult. Clear graphics are thinly spread in general, without even mentioning illustrative photographic figures. Apart from the numerous sample problems (with solutions) that support and complement the text, there are well-structured sets of questions at the end of each chapter for a deeper understanding of the subject matter; these are divided into basic conceptual exercises (without answers) and comprehension exercises (with solutions in Appendix A).

Even if the author makes specific suggestions for using his textbook as the basis for physical chemistry lectures, *Understanding Physical Chemistry* appears to me to only be of limited use as a standalone textbook owing to the limitations of its content. However, I would still recommend this book as a complementary work for students who wish to deepen their understanding of physical chemistry in an unusual but pleasingly fresh fashion.

Katrin F. Domke
Max-Planck-Institut für Polymerforschung
Mainz (Germany)

DOI: 10.1002/anie.201405473