

Asymmetric Synthesis – The Essentials. Second, Completely Revised Edition, M. Christmann and S. Bräse (Eds.), Wiley-VCH: Weinheim, 2007, softcover, 355 pp, € 89, ISBN 978-3-527-32093-6

Last year, Mathias Christmann and Stefan Bräse edited the book *Asymmetric Synthesis – The Essentials*, which has recently been published in its second, completely revised edition (for a book review of the first edition, see: A. Zimmermann, M. Oestreich, *Synthesis* 2007, 957). This bestseller summarizes the immense and still increasing research area of asymmetric synthesis in unique form; in almost sixty concise essays, each approximately six pages long, an illustrious group of protagonists outlines their own areas of research. This approach is not only conducive to quality but also personalizes the contributions. So, this brief compendium has more the character of a ‘best-of’ compilation, rather than that of a scholarly and comprehensive textbook.

All contributions are structured into a short introduction providing useful background information, the essence of the author’s contribution to the topic, and a conclusion. Further perspectives and a *curriculum vitae* of all authors complete each essay. In addition to this arrangement, a unified glossary of abbreviations and separate indices for (named) reactions and general subjects give the book consistency. Possibly owing to the large number of authors, the drawings are somewhat non-uniform and, unfortunately, in course of the revision, a few schemes have been rotated or even spread onto different pages. That is, along with occasional mistakes, clearly detrimental to the joy of reading the overall very well-written articles.

The book is subdivided into five parts, commencing with the use of *Chiral Auxiliaries in Asymmetric Synthesis*. Its historical background is soundly covered by its pioneers David A. Evans, Günter Helmchen and Dieter Enders, just to mention a few. Several contributions on reagent-controlled processes, e.g. allylation chemistry, excellently reviewed by Reinhard W. Hoffmann, complement this chapter. Section two, the largest part of the book, is dedicated to *Metal-catalyzed Asymmetric Synthesis* and the editors again won many main players over whose chemistry has already earned their places in modern text books. Although it seems impossible to grasp the *essentials* of this vast research area in about twenty individual mini-reviews, a potpourri of C–O-bond-forming reactions, including epoxidations or Baeyer–Villiger reactions, and

C–C-bond-forming processes as, for example, conjugate addition, cross-coupling reactions, allylic substitution or aldol reactions, gives along with several articles about prominent ligand classes or ring-closing reactions a nice overview. It seems, though, that the contributions by Dieter Hoppe and Markus Kalesse dealing with (–)-sparteine-mediated lithiation in homoaldol reactions and substrate-controlled vinylogous Mukaiyama aldol reactions, respectively, might be accidentally placed in this and not in the former section. Several articles, for example those by Karl A. Jørgensen, Gregory C. Fu or Steven V. Ley, underscore the enormous impact of organocatalysis (part three) on current organic chemistry. Notably, this section also offers highly scholarly essays on nonlinear effects and autocatalysis by Henri B. Kagan, Donna G. Blackmond and Kenso Soai. As a part of enzyme-catalyzed transformation, Manfred T. Reetz reports on the emerging field of directed evolution of enzymes. From the beginning, application in total synthesis (part four) is putting stereoselective transformations to the test. The chapter commences with an excellent introduction by K. C. Nicolaou focusing on those asymmetric reactions that have found broadest application in complex molecule synthesis. Distinguished experts highlight either a prominent total synthesis or an important methodology used in overcoming a long-standing synthetic challenge. Naturally, asymmetric catalysis, whether metal-, bio- or enzyme-catalyzed, also found its way into industrial processes. The significant progress in all of these areas is the focus of the final section that rounds off the book. This part is particularly enhanced by the contributions of Nobel laureates William S. Knowles and Ryoji Noyori.

In conclusion, the topical book gives a nice overview of many *essential* facets of asymmetric synthesis and addresses therefore a broad audience. Although the second, revised edition still has a few ‘teething troubles’, ambitious students will certainly find it to be stimulating reading and a useful addition to classic text books. Experienced researchers from academia and industries will also enjoy leafing through it.

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