Privileged Chiral Ligands and Catalysts

During the last decade, the field of asymmetric catalysis has continued to evolve at an accelerating pace. Despite significant advances, the field still lacks predictive tools that could facilitate the discovery and optimization of new reactions. It was in this very context that the term "privileged chiral catalysts" was first coined by Yoon and Jacobsen in 2003 in a *Science* viewpoint article (which has already accumulated over 350 citations!). In analogy with pharmaceuticals that are active towards specific biological targets, the expression refers to ligands and catalysts that are highly enantioselective for mechanistically unrelated catalytic asymmetric transformations. Because there is still no general recipe for the ab initio design of efficient chiral catalysts, the search for a new catalytic asymmetric reaction generally begins with an evaluation of these privileged or universal structures. The identification of a lead candidate from this pool of special molecules is then followed by further structural optimization.

The book *Privileged Chiral Ligands and Catalysts*, edited by Qi-Lin Zhou, provides an overview of a selection of 11 of the most often used privileged scaffolds for asymmetric catalysis. The book is divided into 11 independent chapters written by an impressive list of world-renowned experts. Each chapter is essentially devoted to an exhaustive description of the various catalytic asymmetric transformations for which a particular privileged chiral catalyst has been successfully applied. The originality of the book resides in the fact that the editor has chosen to present a series of results from the catalyst point of view rather than—as is usually the case in review articles—from the reaction point of view. Most (but unfortunately not all) chapters begin with a description of the historical context at the time of the discovery of the catalyst in question, followed by a brief presentation of the synthetic route(s) for its preparation. It should be particularly noted that Chapters 3 and 5 have been enriched with extremely instructive discussions of the structural aspects of transition metal complexes bearing Josiphos-type and Box-type ligands respectively. When appropriate, rationales based on intuition or experimental evidence are also provided for several catalytic transformations. It is striking to note the general lack of theoretical calculations performed so far in this context.

The editor's choice of the 11 ligands and catalysts presented in this book is, of course, inherently subjective, and some readers might have views about the arbitrary selection. However, perhaps it is more interesting to note the relatively low proportion of organocatalysts compared with ligands for transition metals (2 examples out of 11 structures), despite the emergence of the former as a highly competitive field of research in the last decade. Similarly, the absence of chiral N-heterocyclic carbene ligands (NHCs) may be indicative of the difficulty of adding new classes of privileged scaffolds to the current repertoire.

In conclusion, thanks to its well-organized structure, the book *Privileged Chiral Ligands and Catalysts* provides a rapid and innovative entry into the field of asymmetric catalysis, and will certainly be useful to both experts and novices, whether these are students or experienced academics. Worthy of note, from a didactic point of view, is the overall high quality of the text and the figures, and the exhaustiveness of the references, topped with an indispensable comprehensive index.

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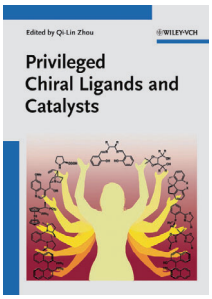
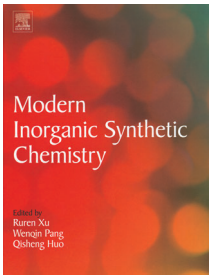
DOI: 10.1002/anie.201106819



Privileged Chiral Ligands and Catalysts
Edited by Qi-Lin Zhou. Wiley-VCH, Weinheim, 2011. 462 pp., hardcover, € 139.00.—ISBN 978-3527327041

Modern Inorganic Synthetic Chemistry

During the last few years there has been enormous progress in the development of modern synthetic methods and techniques for the preparation of new inorganic solids that exhibit advanced properties. Synthetic chemistry is in the main focus of chemists, and is the central tool for preparing materials to solve future challenges such as energy generation, energy storage, and energy conversion. The prosperity of mankind is directly related to progress in the synthesis and development of new and advanced materials. Review articles describing special synthetic methods appear quite frequently, but up to now there has not been a textbook presenting the various facets of the synthesis of inorganic solids in a comprehensive way. The book *Modern Inorganic Synthetic Chemistry* is an attempt to fill that gap. Ruren Xu, Wenqin Pang, and Qisheng Huo have edited a book that consists of 24 chapters in which various authors present and discuss modern synthetic methods and preparation techniques for inorganic solids. Most chapters include brief descriptions of the equipment needed for the preparations.



Modern Inorganic Synthetic Chemistry
Edited by Ruren Xu, Wenqin Pang and Qisheng Huo. Elsevier, Amsterdam, 2010. 610 pp., hardcover, € 230.00.—ISBN 978-0444535993