

Chirality in Transition Metal Chemistry

The book *Chirality in Transition Metal Chemistry* by Hani Amouri and Michel Gruselle has been written not only for students of chemistry but also for newcomers and experts in the field. Both basic and specialized aspects are the focus of attention. Therefore, this book can be considered as a textbook that is also of interest as a reference book for specific problems. The balancing act between basic knowledge and timely research is well performed by the authors.

Twelve years after the appearance of Alexander von Zelewsky's book *Stereochemistry of Coordination Compounds*, it was high time to publish a new and modernized textbook in the rapidly developing field of stereochemistry of coordination compounds. Alexander von Zelewsky has contributed a foreword to this successor of his own work.

In the first chapter, Amouri and Gruselle present general aspects and definitions of stereochemistry, with a special focus on topics related to the stereochemistry of coordination compounds. The reader is made familiar with the basic knowledge that is required for understanding the following more specialized chapters, which introduce modern aspects of the stereochemistry of coordination compounds. A central part deals with chiral metal complexes in catalysis and organometallic chemistry. Although this topic has already been important for more than 30 years, the early empirical approaches to new catalysts for asymmetric reactions have recently been increasingly replaced by rational design. In order to do this, it is crucial to possess a sound fundamental understanding of the chirality of the active metal complex catalysts. The present book introduces the reader to the important basics.

The chirality of supramolecular coordination compounds was already a major topic in von Zelewsky's book. In the new textbook, more recent examples that were published during the last decade are included. Molecular containers are discussed, in addition to the well-known helicates,

catenanes, and knots. One chapter is devoted to chemical transformations that take place in the interior of metallosupramolecular "flasks".

The most obvious difference between the old and the new textbook is the discussion of chiral enantiomerically pure molecular materials. This topic did not have a significant impact ten years ago, but has developed dramatically during recent times, parallel to the rapidly growing field of nanosciences. Molecular conductors, metallomesogens, coordination networks, and molecular magnets are described. In this context the stereochemistry of two-dimensional chiral networks on surfaces is introduced as "stereochemistry in two dimensions". Starting with achiral ("prochiral") building blocks, chiral structures can be obtained by spontaneous self-assembly processes on a surface.

In conclusion, this book gives a wonderful overview of the topic. It is helpful for anyone entering the field, through the systematic and detailed introduction of basic information. However, it leads further by discussing recent research topics and relevant problems in a vivid manner. The subject is illustrated by a number of classical as well as very recently published examples. Many graphics help to understand the sometimes complicated systems.

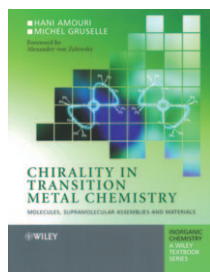
I can recommend the book by Amouri and Gruselle to everybody who is interested in the chemistry of chiral coordination compounds. Students will get a nice introduction into stereochemical problems of complexes. In addition, different aspects of modern coordination chemistry are of value for the expert in the field, and the wide-ranging collection of references makes it possible to find an entry into specific topics.

It was time to publish a new and topical textbook covering this important aspect of coordination chemistry. It builds bridges between inorganic, organic, and supramolecular chemistry.

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