

Chirality in Transition Metal Chemistry: Molecules, Supramolecular Assemblies and Materials (Inorganic Chemistry: A Textbook Series)

By Hani Amouri, Michel Gruselle

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Chirality in Transition Metal Chemistry is an essential introduction to this increasingly important field for students and researchers in inorganic chemistry. Emphasising applications and real-world examples, the book begins with an overview of chirality, with a discussion of absolute configurations and system descriptors, physical properties of enantiomers, and principles of resolution and preparation of enantiomers. The subsequent chapters deal with the the specifics of chirality as it applies to transition metals.

Some reviews of *Chirality in Transition Metal Chemistry*

"...useful to students taking an advanced undergraduate course and particularly to postgraduates and academics undertaking research in the areas of chiral inorganic supramolecular complexes and materials." *Chemistry World, August 2009*

"…the book offers an extremely exciting new addition to the study of inorganic chemistry, and should be compulsory reading for students entering their final year of undergraduate studies or starting a Ph.D. in structural inorganic chemistry."
Applied Organometallic Chemistry Volume 23, Issue 5, May 2009

"…In conclusion the book gives a wonderful overview of the topic. It is helpful for anyone entering the field through systematic and detailed introduction of basic information. It was time to publish a new and topical text book covering the important aspect of coordination chemistry. It builds bridges between Inorganic, organic and supramolecular chemistry. I can recommend the book to everybody who is interested in the chemistry of chiral coordination compounds ."
Angew. chem. Volume 48, Issue 18, April 2009

About the Series

Chirality in Transition Metal Chemistry is the latest addition to the Wiley ***Inorganic Chemistry Advanced Textbook*** series. This series reflects the pivotal role of modern inorganic and physical chemistry in a whole range of emerging

areas such as materials chemistry, green chemistry and bioinorganic chemistry, as well as providing a solid grounding in established areas such as solid state chemistry, coordination chemistry, main group chemistry and physical inorganic chemistry.

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Editorial Review

Review
?This book on chirality in transition metal chemistry is the first to give specialized treatment on the subject since Alex von Zelewsky's 1996 work, *Stereochemistry of Coordinatino Compounds*.? (*Book News*, September 2009)

?Overall this book will be useful to students taking an advanced undergraduate course and particularly to postgraduates and academics undertaking research in the areas of chiral inorganic supramolecular complexes and materials.? (*Chemistry World*, August 2009)

"The book offers an extremely exciting new addition to the study of inorganic chemistry, and should be compulsory reading for students entering their final year of undergraduate studies or starting a Ph.D. in structural inorganic chemistry.? (*Applied Organometallic Chemistry*, May 2009)

"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.... I can recommend the book by Amouri and Gruselle to everybody who is interested in the chemistry of chiral coordination compounds." (*Angewandte Chemie International Edition*, April 2009)

"A comprehensive inorganic textbook that explains the fundamentals of chirality and then approaches the specifics of the structure and properties of chiral transition metal compounds.... The authors do not apply any specific focus; rather, they use good examples to open up a multitude of fascinating areas of application." (*Organic Chemistry*, February 2008)

From the Back Cover
Chirality in Transition Metal Chemistry show how transition metal chirality has an important role in coordination, organometallic and supramolecular systems, and discusses applications in organic synthesis, materials science, and molecular recognition.

The book begins with an overview of chirality,with a discussion of absolute configurations and system descriptors, physical properties of enantiomers, and principles of resolution and preparation of enantiomers. the subsequent chapters deal with the specifics of chirality as it applies to transition metals, including examples of:

- chirality at metal half sandwich compounds including Brunner and Gladysz chiral compounds
- chiral-at-metal complexes in organic synthesis, including Davies and Liebeskind chiral complexes
- homogenous catalysis by chiral complexes
- chiral Ferrocene ligands in asymmetric catalysis
- chiral recognition in coordination compounds
- introduction to DNA discrimination by chiral octahedral metal complexes
- chirality in supramolecular coordination compounds
- the new field of chiral materials, including chiral metal conductors and chiral networks based on optically active bricks

Chirality in Transition Metal Chemistry is an essential introduction to this increasingly important field for students and researchers in inorganic chemistry.

Inorganic Chemistry Advanced textbook
This series reflects the pivotal role of modern inorganic and physical chemistry in a whole range of emerging areas, such as materials chemistry, green chemistry and bioinorganic chemistry, as well as providing a solid grounding in established areas such as solid state chemistry, coordination chemistry, main group chemistry and physical inorganic chemistry.

About the Author
Hani, Haniel Amouri, was born in Anapolis Goias (Brazil) and obtained his Ph.D. degree (1987) in chemistry from Universite Louis Pasteur Strasbourg (France), with Professor John A. Osborn, on the subject of homogeneous catalysis (hydrogenation). In 1988 he spent one year at Gif-sur-Yvette (France) as a post-doctoral fellow with Dr Hugh Felkin where he studied C-H activation of saturated hydrocarbon with transition metal polyhydrides. In 1992-1993 he spent one year at UC-Berkeley (USA) with Professor K. Peter C. Vollhardt and was working on the synthesis of oligocyclopentadienyl metal complex and their behaviour as electron transfer reagents. He is a Research Director in CNRS and is currently the director of the 'ARC' group (Auto-assemblage, Reconnaissance et Chiralite) of the IPCM at Universite Pierre et Marie Curie Paris-6. His main research interests are chirality, organometallic and coordination chemistry, and he has had over 90 research papers and reviews published in international scientific journals.

Michel Gruselle was born in Decazeville (France) and obtained his Ph.D. degree (doctorat d'Etat) in the CNRS laboratory of Thiais, a suburb of Paris, in 1975 with Dr Daniel Lefort where he worked on stereochemical problems in radical chemistry. In 1974 he joined Bianca Tchoubar's group and started working on nitrogen activation by organometallic complexes, and he spent some time collaborating with Prof. A.E. Shilov in Moscow. he is a Research Director in CNRS at Universite Pierre et Marie Curie Paris-6 and was the director of the ARC group (Auto-assemblage, Reconnaissance et Chiralite) at the IPCM from 1996-2000. His main research interests a4re enantioselective synthesis in coordination chemistry and in material science and he has had over 110 research papers and reviews published in international scientific journals.

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