DESCRIPTION

This book reflects the increasing interest among the chemical synthetic community in the area of asymmetric copper-catalyzed reactions, and introduces readers to the latest, most significant developments in the field.

The contents are organized according to reaction type and cover mechanistic and spectroscopic aspects as well as applications in the synthesis of natural products. A whole chapter is devoted to understanding how primary organometallics interact with copper to provide selective catalysts for allylic substitution and conjugate addition, both of which are treated in separate chapters. Another is devoted to the variety of substrates and experimental protocols, while an entire chapter covers the use on non-carbon nucleophiles. Other chapters deal with less-known reactions, such as carbometallation or the additions to imines and related systems, while the more established reactions cyclopropanation and aziridination as well as the use of copper (II) Lewis acids are warranted their own special chapters. Two further chapters concern the processes involved, as determined by mechanistic studies. Finally, a whole chapter is devoted to the synthetic applications.

This is essential reading for researchers at academic institutions and professionals at pharmaceutical or agrochemical companies.

ABOUT THE AUTHOR

Alexandre Alexakis is Professor of Organic Chemistry at the University of Geneva, Switzerland. He received his PhD from Paris VI University in 1975, and following a two-year postdoctoral at Johns Hopkins University, Baltimore, USA, joined the CNRS at
Pierre et Marie Curie University, where he was appointed Head of Research in 1985. In 1996 he became a full professor at Pierre et Marie Curie University, before moving to the University of Geneva in 1998. Professor Alexakis is a recipient of the Silver Medal of the CNRS, as well as the Novartis Lectureship Award, and has authored 300 articles. His research focuses on asymmetric synthesis and methodologies, using both metal catalysts, particularly copper reagents, and non-metallic catalysts.

Norbert Krause received his PhD from the Technical University of Braunschweig, Germany in 1986. After postdoctoral stays at the ETH Zürich and Yale University, he joined TU Darmstadt where he obtained his lecturing qualification in 1993. The following year he moved to the University of Bonn as an associate professor, before taking up his present position as a full professor at Dortmund University of Technology in 1998. He has been a fellow of the Japan Society for the Promotion of Science, a guest professor at the Université Catholique de Louvain, Belgium, the University of California, Santa Barbara, USA, and at the École Supérieure de Physique et de Chimie Industrielles de la Ville de Paris, France. Professor Krause has been on the editorial board of the European Journal of Organic Chemistry between 2006 and 2013. His research focuses on the stereoselective synthesis and transformation of functionalized allenes, taking advantage of coinage metal catalysis.

Simon Woodward is a Professor in Synthetic Organic Chemistry at Nottingham University, UK, and has authored over 120 publications in the areas of organic methodology, organometallic chemistry, and selective/ asymmetric catalysis. He has been Director of both the European Ligand Bank and an International Marie Curie PhD School in Catalysis of Organic Reactions incorporating the universities of Nottingham, Geneva, Sassari, and Dortmund. Professor Woodward also chaired the European Cooperation in Science and Technology Action D40 in Innovative Catalysis and is a member of related Action CM0903 in Biomass Utilisation. His research group is greatly enhanced by extensive collaboration with over 20 other groups, involved in the selective catalysis of organic reactions, throughout Europe and beyond.

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