Olefin Metathesis
Theory and Practice
Edited by Karol Grela
OLEFIN METATHESIS
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Theory and Practice

Edited by

KAROL GRELA
Faculty of Chemistry, University of Warsaw, Warsaw, Poland

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Our goal is to create a comprehensive book that can be an everyday reference for synthetic chemists, with no prerequisite deep knowledge in inorganic and coordination chemistry, but at the same time providing the experts with a contemporary view on the theory and methods in the flourishing field of modern olefin metathesis.

The book comprises two major parts: the first one is devoted to the applications of metathesis (Targets), while the second one describes the metathesis Tools.

The most important types of the olefin metathesis reaction (cross metathesis (CM), ring-closing metathesis (RCM), enyne metathesis, ring-opening metathesis polymerization (ROMP), tandem processes, etc.) have been described in the first part of the book. This part also presents a short selection of the key applications of this methodology, for example, in the total synthesis of natural compounds, in the preparation of macromolecules and polymers, in medicinal chemistry, and in the conversion of renewable materials. The goal behind this part of the book is to present a detailed, yet clear description of all important flavors of the metathesis reaction.

The second part of the book describes the tools. A series of chapters introduce the most important classes of metal complexes that are active in metathesis, creating the user’s guide to the galaxy of known olefin metathesis catalysts. The same attention is paid to optimization of the reaction conditions, including discussion on effects of the solvent and additives, methods of catalysts immobilization and recovery, purification of the products, computational methods, and so on. This part of the book is used exactly similarily to the famous “The Hitch-Hiker’s Guide to the Galaxy,” a fictional travel guide, invented by the writer Douglas Adams. With “the words Don’t Panic inscribed in large friendly letters on its cover”(1), the second part of the book allows even the inexperienced end-user to select the most optimal catalyst and conditions for his or her important metathesis project easily and effectively.

I am delighted with the list of authors who have agreed to contribute, and I am honored to act as the editor. All chapters collected in this book come from the leading experts and practitioners in the area and nicely highlight the aspects mentioned above. I would like to thank all the authors for their excellent contributions. My personal wish is that the reader will savor the reading of this book as much as I personally enjoyed reading all chapters and editing the volume.

I want to give a special thanks to Polish artist, Ms. Katarzyna Felchnerowska (Effe.Fineart) who prepared the beautiful cover picture, presenting her personal idea of olefin metathesis—a change-your-partners dance (2). Last, but certainly not least, I want to thank the members of my research group who have reviewed the text at every stage of the editing process.

Altogether, I hope that this handy, one-volume book will take its common place on the desks and benches of researchers working in academic laboratories as well as in the industry.

Enjoy reading!

Karol Grela

REFERENCE


CONTRIBUTORS

Didier Astruc, ISM, UMR CNRS N°5255, Univ. Bordeaux, Talence Cedex, France

Michał Barbasiewicz, Faculty of Chemistry, Warsaw University, Warsaw, Poland

Olivier Baslé, Ecole Nationale Supérieure de Chimie de Rennes, Rennes Cedex, France

Christian Bruneau, UMR 6226 Institut des Sciences Chimiques de Rennes, Organométalliques: Matériaux et Catalyse, Université de Rennes 1, Rennes Cedex, France

Michael R. Buchmeiser, Lehrstuhl für Makromolekulare Stoffe und Faserchemie, Institut für Polymerchemie, Universität Stuttgart, Stuttgart, Germany; Institut für Textilchemie und Chemiefasern (ITCF) Denkendorf, Denkendorf, Germany

Luigi Cavallo, Dipartimento di Chimica, Università di Salerno, Fisciano, SA, Italy; KAUST Catalyst Research Center, Physical Sciences and Engineering Division, King Abdullah University of Science and Technology, Thuwal, Kingdom of Saudi Arabia

Catherine S. J. Cazin, School of Chemistry, University of St. Andrews, St Andrews, UK

Shawn K. Collins, Department of Chemistry, Université de Montréal, Montréal, PQ, Canada

Janine Cossy, Laboratorie de Chimie Organique ESPCI ParisTech, Paris Cedex, France

Isabelle Dez, Ecole Nationale Supérieure de Chimie de Rennes, Rennes Cedex, France

Steven T. Diver, Department of Chemistry, University at Buffalo-SUNY Buffalo, NY

Laura Falivene, Dipartimento di Chimica, Università di Salerno, Fisciano, SA, Italy

Keith R. Fandrick, Chemical Development, Boehringer Ingelheim Pharmaceuticals Inc., Ridgefield, CT

Tobias Fiedler, Department of Chemistry, Texas A&M University, College Station, TX

Cédric Fischmeister, UMR 6226 Institut des Sciences Chimiques de Rennes, Organométalliques: Matériaux et Catalyse, Université de Rennes 1, Rennes Cedex, France

Deryn E. Fogg, Centre for Catalysis Research & Innovation, Department of Chemistry, University of Ottawa, Ottawa, Ontario, Canada

Annie-Claude Gaumont, Ecole Nationale Supérieure de Chimie de Rennes, Rennes Cedex, France

Régis M. Gauvin, Unité de Catalyse et de Chimie du Solide (UMR CNRS 8181), Axe “Catalyse et Chimie Moléculaire”, Villeneuve d’Ascq Cedex, France
Subir Ghorai, Catalysis R&D, Sigma-Aldrich Chemical Co., Sheboygan Falls, WI
Yakov Ginzburg, Ben-Gurion University, Israel
John A. Gladysz, Department of Chemistry, Texas A&M University, College Station, TX
Karol Grela, Biological and Chemical Research Center, Department of Chemistry, Warsaw University, Warsaw, Poland; Institute of Organic Chemistry, Polish Academy of Sciences, Warsaw, Poland
Justin R. Griffiths, Department of Chemistry, University at Buffalo-SUNY Buffalo, NY
Stefano Guidone, School of Chemistry, University of St. Andrews, St Andrews, UK
Łukasz Gułajski, Apeiron Synthesis S.A., Wrocław, Poland
Anna Kajetanowicz, Institute of Organic Chemistry, Polish Academy of Sciences, Warsaw, Poland
Astrid-Caroline Knall, Institute for Chemistry and Technology of Materials, Graz University of Technology, Graz, Austria
Stefan Krehl, Institut für Chemie, Organische Synthesechemie, Universität Potsdam, Golm, Germany
N. Gabriel Lemcoff, Ben-Gurion University, Israel
Bianca J. van Lierop, Centre for Catalysis Research & Innovation, Department of Chemistry, University of Ottawa, Ottawa, Ontario, Canada
Bruce H. Lipshutz, Department of Chemistry, University of California, Santa Barbara, CA
Justin A. M. Lummiss, Centre for Catalysis Research & Innovation, Department of Chemistry, University of Ottawa, Ottawa, Ontario, Canada
Marc Mauduit, Ecole Nationale Supérieure de Chimie de Rennes, Rennes Cedex, France
Yohann Morin, Unité de Catalyse et de Chimie du Solide (UMR CNRS 8181), Axe "Catalyse et Chimie Moléculaire", Villeneuve d’Ascq Cedex, France
Andrew Nickel, Materia Inc., Pasadena, CA
Steven P. Nolan, School of Chemistry, University of St. Andrews, St Andrews, UK
Richard L. Pederson, Materia Inc., Pasadena, CA
Cezary Pietraszuk, Faculty of Chemistry, Adam Mickiewicz University in Poznań, Poznań, Poland
Albert Poater, Departament de Química, Institut de Química Computacional, University of Girona, Girona, Catalonia, Spain; Dipartimento di Chimica, Università di Salerno, Fisciano, SA, Italy
Pierre Queval, Ecole Nationale Supérieure de Chimie de Rennes, Rennes Cedex, France
Mathieu Rouen, Ecole Nationale Supérieure de Chimie de Rennes, Rennes Cedex, France
Cezary Samojłowicz, Institute of Organic Chemistry, Polish Academy of Sciences, Warsaw, Poland
Jolaine Savoie, Chemical Development, Boehringer Ingelheim Pharmaceuticals Inc., Ridgefield, CT
Bernd Schmidt, Institut für Chemie, Organische Synthesechemie Universität Potsdam, Golm, Germany
Chris H. Senanayake, Chemical Development, Boehringer Ingelheim Pharmaceuticals Inc., Ridgefield, CT
Krzysztof Skowerski, Apeiron Synthesis S.A., Wrocław, Poland
Christian Slugovc, Institute for Chemistry and Technology of Materials, Graz University of Technology, Graz, Austria
Jinhua J. Song, Chemical Development, Boehringer Ingelheim Pharmaceuticals Inc., Ridgefield, CT
Brice Stenne, Department of Chemistry, Université de Montréal, Montréal, PQ, Canada
César A. Urbina-Blanco, School of Chemistry, University of St. Andrews, St Andrews, UK

Georgios C. Vougioukalakis, Laboratory of Organic Chemistry, Department of Chemistry, University of Athens, Athens, Greece; Division of Physical Chemistry, IAMPPNM, NCSR Demokritos, Athens, Greece

Łukasz Woźniak, Institute of Organic Chemistry, Polish Academy of Sciences, Warsaw, Poland

Nathan Yee, Chemical Development, Boehringer Ingelheim Pharmaceuticals Inc., Ridgefield, CT

Grzegorz Zieliński, Institute of Organic Chemistry, Polish Academy of Sciences, Warsaw, Poland

Karolina Żukowska, Institute of Organic Chemistry, Polish Academy of Sciences; Biological and Chemical Research Center, Department of Chemistry, Warsaw University, Warsaw, Poland