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BOOK REVIEWS

Palladium in Organic Synthesis. Topics in Organometallic Chemistry, 14. Edited by Jiro Tsuji (Kamakura, Japan). Springer: Berlin, Heidelberg, New York. 2005. x + 332 pp. $299. ISBN 3-540-23982-0.

In the preface, Tsuji states that a number of recently discovered Pd-catalyzed processes have not yet been treated extensively in reviews or monographs as they deserve. This book, then, serves as a platform to introduce and discuss comprehensively a number of newly developed topics in organopalladium chemistry, with carbon−carbon bond forming reactions as the common theme. Various aspects of organopalladium chemistry are presented, including catalytic processes involving β-carbon elimination, methods of aromatic functionalization using palladium and norbornene as unique catalytic systems, arylation reactions via C−H bond cleavage, cross-coupling reactions of unactivated alkyl electrophiles with organometallic compounds, cycloaddition reactions of arenes, annulation of alkynes, two- or three-component cyclization of functionalized allenes, nucleophilic attack by palladium species, *N*-heterocyclic carbenes as ligands in palladium-mediated catalysis, and Pd(II) complexes as either Lewis acid catalysts or transition-metal catalysts. Each of the 10 chapters is written by researchers who have made major contributions to novel Pd-catalyzed reactions, and in most cases, they constitute thorough and well-organized reviews. The chapters are amply illustrated, and the catalytic cycles are, for the most part, clearly presented.

This book is timely, with references up to 2004, and illustrates the synthetic potential of organopalladium chemistry and the infinite number of catalytic processes that can be derived from the unique properties of this metal. It is a valuable resource that will be of particular interest to practitioners in this field. As only a few of the chapters introduce basic knowledge on organometallic processes, readers familiar with organopalladium chemistry will have a greater understanding and appreciation of the novel catalytic processes presented in this book. Nonetheless, this excellent monograph should be added to institutional libraries, since the prohibitive cost makes the book inaccessible to most faculty members and graduate students. An electronic version of Topics in Organometallic Chemistry is also offered, which allows access to individual chapters as pdf files.

Eric Fillion, *University of Waterloo*

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Chiral Diazaligands for Asymmetric Synthesis. Topics in Organometallic Chemistry, 15. Edited by Marc Lemaire (Unviersité Claude Bernard Lyon 1) and Pierre Mangeney (Université P. et M. Curie, Paris). Springer: Berlin, Heidelberg, New York. 2005. x + 302 pp. $299.00. ISBN 3-540-26064-1.

Unlike most previous monologs on diazaligands, this book does not restrict itself to a specific class of dinitrogen compounds; instead, it covers the synthesis and utility of a broad range of chiral dinitrogen ligands, including saturated diamines and their derivatives, bisoxazolines, and salens. Due to the size of this field, this concise volume is not comprehensive. Rather, a collection of well-chosen topical overviews of the important elements in the chemistry of chiral diazaligands has been assembled. The inclusion of traditional as well as modern uses of diazaligands illustrates the developmental trajectory and future potential of the field.

The presentation begins with several chapters on the conventional aspects of the chemistry of diazaligands, including a comprehensive overview of the synthesis of 1,2-diamines. Additional chapters review the use of the classic diamine sparteine and the predilection for using diazaligands in asymmetric Lewis acid catalysts. The discussions in the latter half of the book clearly show that there is much that can be accomplished beyond traditional applications of diazaligands. Several modern applications of chiral diazaligands are reviewed, including noncovalent immobilization, chiral diaminocarbene derivatives, diamine-derived chiral organocatalysts, and diamine-derived chiral-at-metal complexes.

Each chapter begins with an outline and a brief introduction highlighting the general considerations and continues with a detailed discussion of each area. The structures of the diazaligands are clearly presented throughout. In the sections on applications, the yields and selectivities are incorporated graphically to allow easy perusal of the material. This well-referenced text will be invaluable to any researcher utilizing chiral diazaligands in ventures with asymmetric synthesis.

Marisa C. Kozlowski, *University of Pennsylvania*

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