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Special Issue Reprint

Transition Metal Catalyzed Cross-Coupling Reactions

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Transition metal-catalyzed cross-coupling reactions have proved to be powerful tools for carbon-carbon as well as carbon-heteroatom bond formation in the development of synthetic methodologies for applications ranging from pharmaceuticals to materials. This book, consisting of an editorial, two reviews and two articles, focuses on recent promising research and novel trends in the field of cross-coupling reactions, employing a range of different catalysts. A review by Kostas and Steele provides a survey of the research in the area of cross-coupling catalytic reactions with transition metal complexes based on the thiosemicarbazone unit and a discussion of the prospects for future developments. Another review by Polychronopoulou, Shaya and co-authors describes the progress made over the 21st century concerning the utilization of $C(sp^3)$ -organoboranes as partners in metal-catalyzed $C(sp^3)$ - $C(sp^2)$ cross-couplings, such as B-alkyl Suzuki-Miyaura reactions. The article by Waldvogel, Breinbauer and co-authors demonstrates for the first time the synthetic potential of combining the electro-oxidative dehydrogenative cross coupling of ortho-substituted phenols with Pd-catalyzed cross-coupling reactions. In the second article, Štěpnička and co-workers describe the preparation of palladium catalysts deposited over silica gel-bearing composite amide-donor functional moieties on the surface, which were evaluated in the Sonogashira-type cross-coupling of acyl chlorides with terminal alkynes.



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