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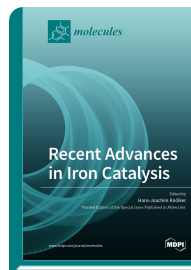
Special Issue Reprint

Recent Advances in Iron Catalysis

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Transition metal-catalyzed reactions play a key role in many transformations of synthetic organic chemistry. For most of these reactions, noble metals, for example, palladium, have been used as catalysts. Over the last two decades, more and more first row transition metals have been applied as catalysts for organic reactions, with iron taking the center stage. The driving forces behind this development are not only the high costs for the noble metals but also their toxicity. Iron is the most abundant transition metal in the Earth's crust, and thus, it is considerably cheaper than the precious noble metals. Moreover, iron compounds are involved in many biological processes, and thus, iron exhibits a low toxicity. Because of this low toxicity, iron-catalyzed reactions are important for an environmentally benign sustainable chemistry. However, iron catalysts are not only investigated to replace noble metals; they offer many applications in synthesis beyond those of classical noble metal catalysts. Several articles of the present book emphasize the complementarity of iron-catalyzed reactions as compared to reactions catalyzed by noble metals. The book shows intriguing recent developments and the current standing of iron-catalyzed reactions as well as applications to organic synthesis.



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