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Advances in Catalytic Coupling Reactions

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Message from the Guest Editors

Coupling reactions are a fundamental and reliable organic synthetic tool for constructing carbon–carbon, carbon–nitrogen, and carbon–oxygen bonds in various academic and industrial fields. For example, the Suzuki–Miyaura cross-coupling reaction between an aryl halide and an organoboron species is catalyzed by the combination of a palladium metal catalyst and a ligand to form a carbon–carbon bond. Until today, various improvements have been made to transition metal catalysts and ligands, and reaction efficiencies and substrate applicability have been dramatically improved. With advances in reactors and technologies, reaction efficiencies are further enhanced by introducing novel techniques such as microwave and flow systems.

This Special Issue focuses on the modernization of various catalytic coupling reactions, such as carbon–carbon, carbon–heteroatom (nitrogen, oxygen, sulfur, etc.) bond formation. We welcome articles, communications, and reviews on the recent advances in coupling reactions using homogeneous/heterogeneous catalysts, and traditional/renovated/novel reaction methods, equipment and technology.