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# Stereoselective Pd-catalyzed cross-coupling enabled by ionic ligand–substrate interactions

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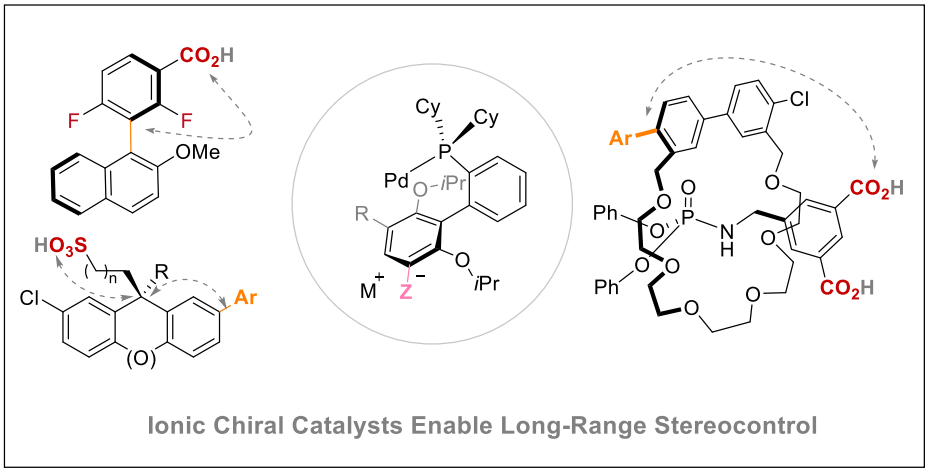
Incorporating ionic groups into synthetic transition-metal catalysts represents a promising design element for enantioselective reactions by engaging electrostatic interactions between ligands and substrates. However, the nondirectional nature of ionic interactions presents a unique challenge in precise transmission of chirality from the catalysts to the prochiral substrates. In this talk, I will present our recent work on developing phosphine ligands possessing nonligating ionic groups to exert long-range stereocontrol in Pd-catalyzed cross-coupling reactions. Applications of the ionic steering strategy in enantiotopic-group-selective reactions and atroposelective reactions to access quaternary carbon, triaryl phosphorus, axial biaryls, and mechanically planar chiral rotaxanes will be discussed to illustrate the synthetic utilities.




References:

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