Carbene-Catalyzed Activation of Aldehydes and Esters for Asymmetric Reactions and Dynamic Kinetic Resolutions

This thesis focuses on exploring new reaction modes and new synthetic methodologies that enabled by \(N\)-heterocyclic carbenes (NHCs) catalysts. Several very useful enantiopure small molecules, such as \(\beta^2\)-amino esters, chroman derivatives and \(\alpha,\alpha\)-disubstituted carboxylic esters were successfully made with our methods.