Asymmetric Reactions with Cooperative and Multifunctional Catalysis

Modified cinchona alkaloids that are prepared from abundant natural cinchona alkaloids by simple derivatizations have been established as highly efficient and broadly effective bifunctional chiral catalysts. In this lecture, the discovery and development of new modes of catalysis by cinchona alkaloids in the context of establishing a range of mechanistically distinct asymmetric transformations with unique activity and selectivity will be highlighted. The impact of the cinchona alkaloid catalysis on the asymmetric synthesis of biologically important compounds and complex natural products will also be illustrated.