

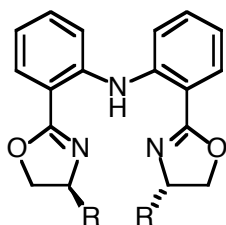
Recent Advances in Chemical Efficiency in Asymmetric Synthesis

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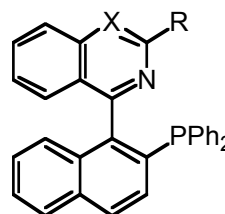
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Asymmetric catalysis, one approach for the preparation of enantiomerically pure compounds and the focus of research in both academic and industrial laboratories, is an attractive technology for chemical efficiency as a small amount of enantiomerically pure material can produce large quantities of enantiomerically enriched or enantiopure material. Research in asymmetric catalysis to date highlights the difficulty in finding a 'universal' ligand suitable for a wide spectrum of reactions and substrates. For this reason the preparation and testing of new ligands for asymmetric catalysis is an active research field.

This presentation will describe the synthesis of new C_2 - and non- C_2 -symmetric analogues of our bis-oxazoline ligands **1** and their application in the Nozaki-Hiyama-Kishi allylation, crotylation, methallylation and homoallynylation of aldehydes. In addition, the products of homoallynylation (β -allenols) will be tested as substrates for a series of reactions in order to study their usefulness in synthetic chemistry. The application of ligand class **1** to the asymmetric Henry and Friedel-Crafts reactions will also be discussed. The application of axially chiral ligands of type **2** and **3** to the asymmetric β -borylation of α,β -unsaturated systems will be presented.



1



2 (X = C, N)