Chiral sulfones are present in, and can be used as synthetic intermediates for the preparation of, many biologically active compounds and natural products. The synthesis of chiral sulfones has attracted increased attention due to their utility as intermediates. Previous methods for the synthesis of chiral sulfones have included asymmetric arylations/alkenylation of α-bromosulfones, rhodium- and organocatalyzed asymmetric conjugate addition to unsaturated sulfones, asymmetric radical additions, and asymmetric conjugate reduction of prochiral unsaturated sulfones. Among the reported methods, metal-catalyzed asymmetric cross coupling of prochiral sulfones is of interest as one of the most straightforward approaches for chiral sulfone synthesis. However, only a few efficient catalyst systems for the preparation of chiral sulfones have been reported so far.

Herein we describe our development of an enantioselective synthesis of chiral sulfones from readily available sulfone-derived olefins by base metal catalysis. The process enjoys mild conditions, general scope, broad functional group compatibility. The details of this reaction will be presented.