

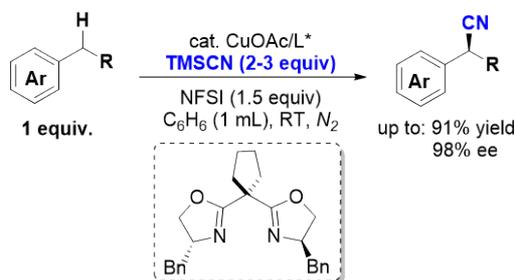
## Copper-Catalyzed Radical Relay for Asymmetric C-H Functionalization

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Due to the highly active radical intermediate, the organic transformation via radical pathway have been extensively studied. However, the selective control of radical intermediate is extremely challenging, which significantly retards the success of highly selective radical reaction, specially for the enantioselective version. Recently, Our group recently reveals that the stereoselective control of radical could be achieved by using copper catalyst,<sup>[1]</sup> and a series of enantioselective difunctionalization of alkenes have been explored by using bisoxazoline (Box)/Cu(I) catalytic system, such as trifluoromethylcyanation, aminocyanation, trifluoromethylarylation.<sup>[2-3]</sup> In these studies, a benzylic radical intermediate was involved in the catalytic cycles, which can be enantioselectively trapped by (Box)/Cu<sup>II</sup> intermediate to produce enantiomerically enriched products. Inspired these results, we disclosed a radical relay process for the successful asymmetric oxidative cyanation of benzylic C-H bond by using copper catalyst, which presented one of most efficient method for the efficient synthesis of optical pure alkylnitriles from simple alkyl arenes.<sup>[4]</sup> Meanwhile, asymmetric benzylic C-H arylation will be also presented as well in this symposium.



### References

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