

Accepted Manuscript

Catalytic synthesis of chiral organoheteroatom compounds of silicon, phosphorus, and sulfur via asymmetric transition metal-catalyzed C–H functionalization

Yu-Ming Cui, Yan Lin, Li-Wen Xu

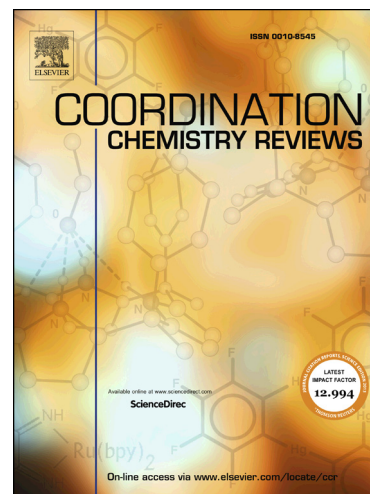
PII: S0010-8545(16)30296-X
DOI: <http://dx.doi.org/10.1016/j.ccr.2016.09.011>
Reference: CCR 112313

To appear in: *Coordination Chemistry Reviews*

Received Date: 30 July 2016
Accepted Date: 19 September 2016

Please cite this article as: Y-M. Cui, Y. Lin, L-W. Xu, Catalytic synthesis of chiral organoheteroatom compounds of silicon, phosphorus, and sulfur via asymmetric transition metal-catalyzed C–H functionalization, *Coordination Chemistry Reviews* (2016), doi: <http://dx.doi.org/10.1016/j.ccr.2016.09.011>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



Catalytic synthesis of chiral organoheteroatom compounds of silicon, phosphorus, and sulfur via asymmetric transition metal-catalyzed C–H functionalization

Yu-Ming Cui^{a,*}, Yan Lin^a, Li-Wen Xu^{a,b,*}

^a *Key Laboratory of Organosilicon Chemistry and Material Technology of Ministry of Education, Hangzhou Normal University, Hangzhou 311121, P. R. China*

Email: liwenxu@hznu.edu.cn (XLW), ym_cui@hznu.edu.cn (CYM)

^b *State Key Laboratory for Oxo Synthesis and Selective Oxidation, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, Lanzhou 730000, P. R. China*

Table of Contents:

1. Introduction
 2. Catalytic synthesis of chiral organosilicon compounds
 - 2.1 Silicon-stereogenic silanes and other related chiral organosilicon compounds
 - 2.2 Planar chiral organosilicon compounds
 - 2.3 Axially chiral organosilicon compounds
 3. Synthesis of chiral organophosphorus compounds
 - 3.1 Central chiral organophosphorus compounds
 - 3.2 Axially chiral organophosphorus compounds
 4. Synthesis of chiral organosulfur compounds
 5. Conclusion
- Acknowledgements
References

ABSTRACT:

Chiral Si-, P-, and S-containing organic compounds with central, planar, and axial chiralities have found a plethora of applications in various fields of chemistry. Despite significant efforts to explore new catalytic methodologies and synthetic applications to access such compounds, there are still only a few examples which are low in number and limited in diversity. The catalytic construction of Si-, P-, and S-stereogenic organoheteroatom compounds is undoubtedly one of the most exciting and challenging aspects in asymmetric catalysis and the application of catalytic asymmetric C–H activation reaction for the construction of chiral organoheteroatom compounds is still in its infancy. In this Review, we highlighted the main progress on the corresponding catalytic asymmetric reactions that apply to the construction of Si-, P-, and S-stereogenic centers and related chiral organoheteroatom compounds in a catalytic C–H activation fashion.

Keywords: C–H activation, asymmetric catalysis, homogeneous catalysis, transition metal catalysis, organoheteroatom compounds.

Download English Version:

<https://daneshyari.com/en/article/5150918>

Download Persian Version:

<https://daneshyari.com/article/5150918>

[Daneshyari.com](https://daneshyari.com)