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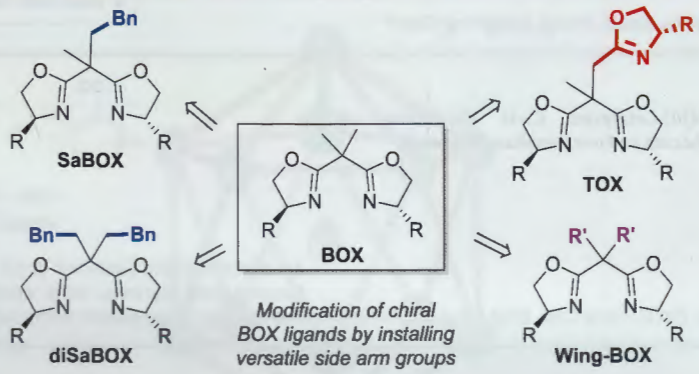
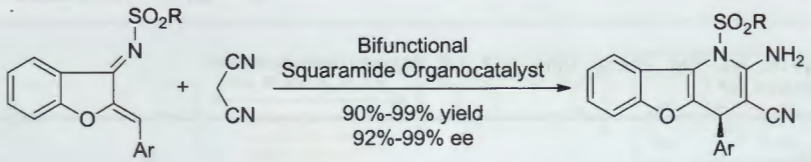
Chemistry Authors Up Close

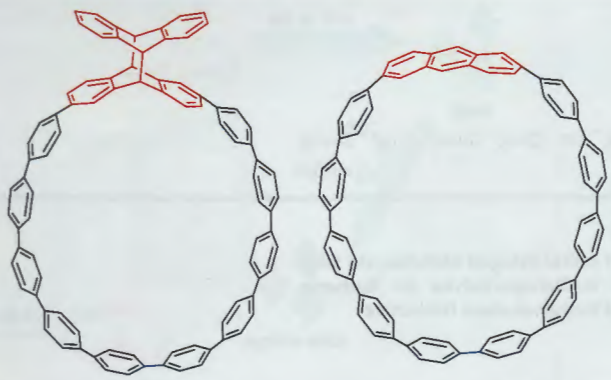


A journey towards developing sidearm modified chiral bisoxazoline ligands and their applications in asymmetric catalysis is introduced. The sidearm modified chiral bisoxazoline ligands included TOX, SaBOX, diSaBOX and Wing-BOX.

Concise Reports

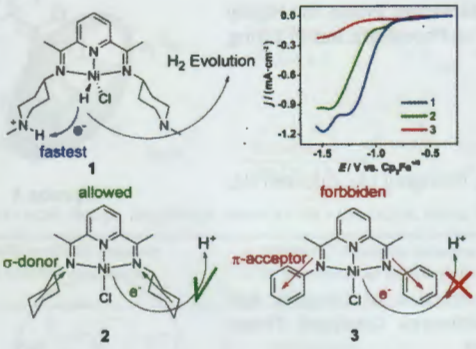


An efficient bifunctional squaramide-catalyzed Michael addition/cyclization of azadienes with malononitrile has been successfully developed, providing a facile access to chiral benzofuran-fused 1,4-dihydropyridines with excellent yields, wide substrate scope and up to 99% ee. Additionally, this formal [4+2] cycloaddition can be performed in gram scale without noticeable loss of yield and enantioselectivity.

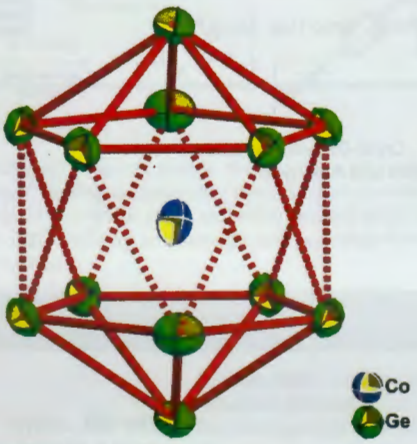


We report the efficient syntheses of two novel oligoparaphenylene-derived macrocycles using the anthracene photodimerization–cycloreversion strategy. Their photophysical, electrochemical, and computational properties, in comparison with that of [12]cycloparaphenylene, show intriguing effects of π-conjugation interruption and anthracene incorporation.

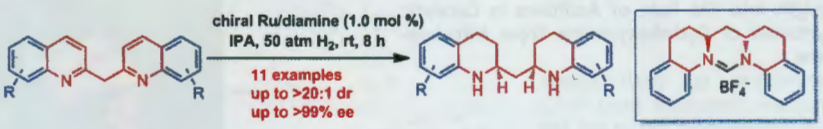
Content



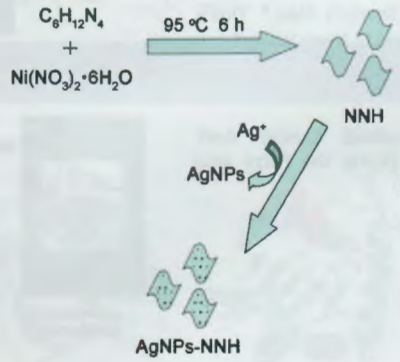
Regulation of metal center reduction and metal hydride formation for HER — lower overpotentials and faster reaction rates.



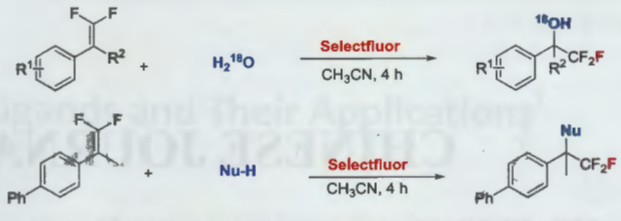
The pseudo-D_{5d} geometry of $[Co@Ge_{12}]^{3-}$ can be viewed as structurally derived from an icosahedral cage via Jahn-Teller effect, leading to notable bonding differences from I_h-$[M@E_{12}]^{q-}$ clusters (E = Sn, Pb with q = 2, 3).

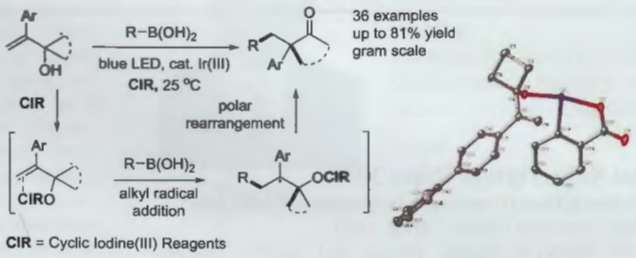


The first asymmetric hydrogenation of bis(quinolin-2-yl)methanes using chiral cationic ruthenium diamine catalysts was developed with up to > 20 : 1 *dr* and > 99% *ee*. This new protocol provides a practical and facile approach to not only chiral 1,3-diamines but also a novel class of 6-membered chiral NHC ligands.



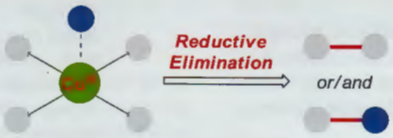
The process for preparing AgNPs-NNH nanocomposites was showed above. Firstly, the layered NNH was synthesized by hydrothermal method. Subsequently, AgNPs were well distributed on the surface of NNH under in-situ reduction. The AgNPs-NNH nanocomposites were used to construct sensing interface, developing electrochemical sensor for H_2O_2 detection.



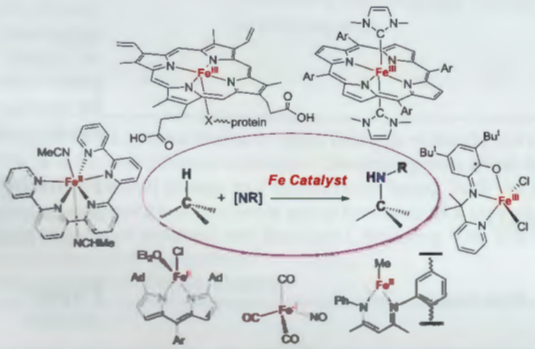


Here we report cyclic iodine(III) reagents enable the synthesis of cyclopentanones, cyclohexanones, and dihydrofuranones bearing α-quaternary centers by photoredox catalysis. The reaction proceeds by the formation of the novel cyclic iodine(III) reagent-allylic alcohol complex, which enables the first alkyl boronate addition and semi-pinacol rearrangement of allylic alcohols with dual alcohol and olefin activation.

Recent Advances



Stoichiometric and catalytic reactions involving reductive elimination of structurally well-defined organocopper(III) compounds are summarized. Other organocopper(III) compounds of well-defined structures but inert to reductive elimination are also presented for comparison.



Recent study on Fe-catalyzed C—H bond amination reactions has led to the development of a series of new iron catalysts that enable the direct functionalization of C—H bonds into C-NHRs.

Comprehensive Report