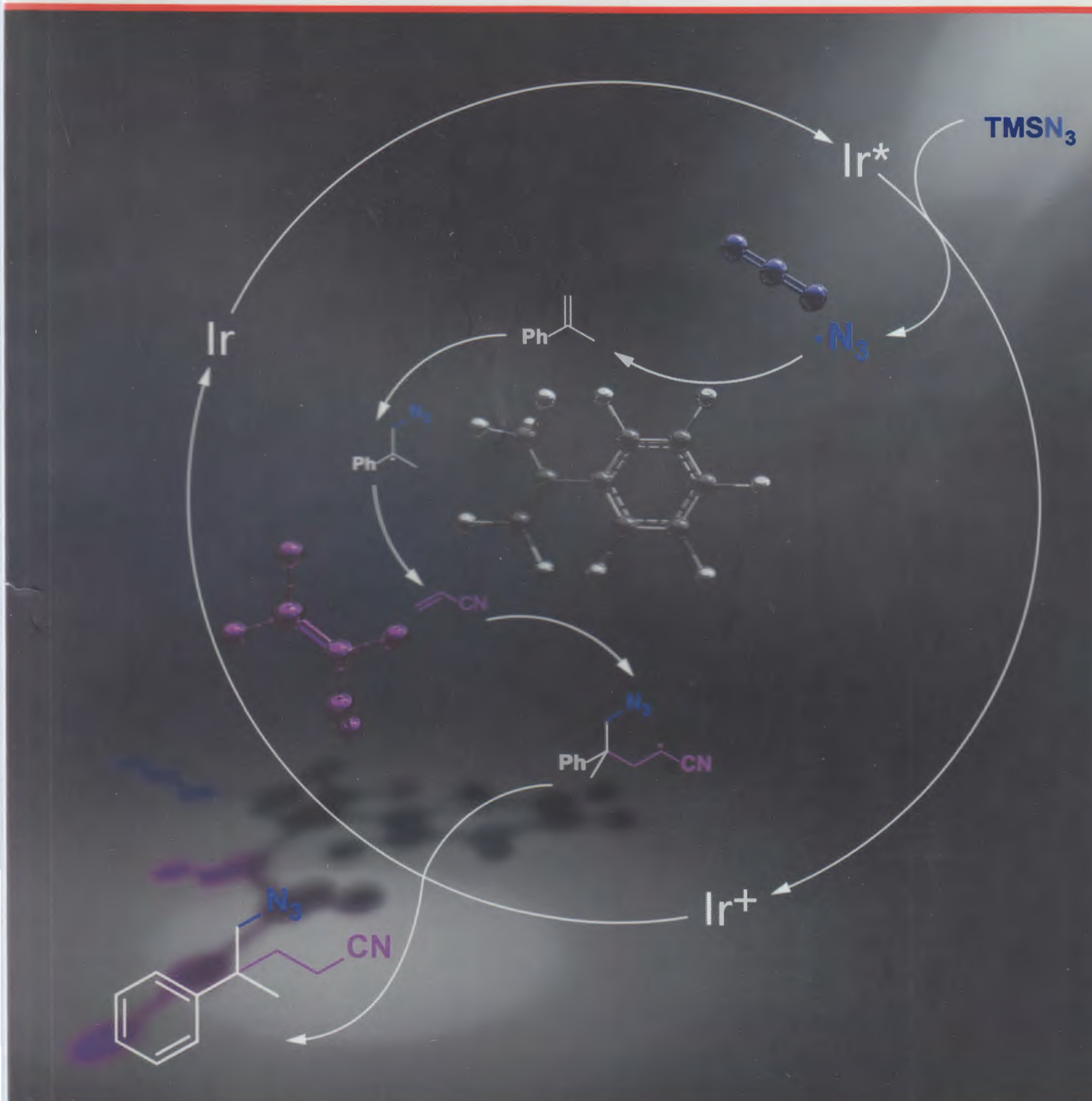
CJC

Chinese Journal of Chemistry

中国化学 - An International Journal

www.cjc.wiley-vch.de

Volume 36 | Number 11 | November 2018



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CJOCEV 36(11) 981-1112 (2018)
ISSN 1001-604X • CN 31-1547/O6
mc.manuscriptcentral.com/cjoc

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中国化学 - An International Journal

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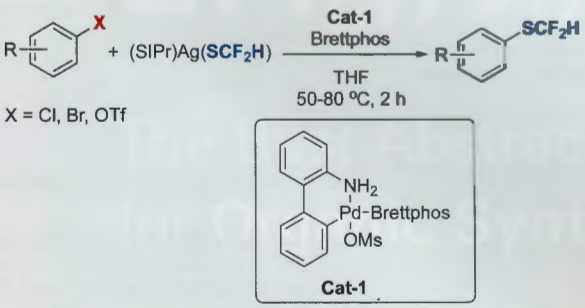
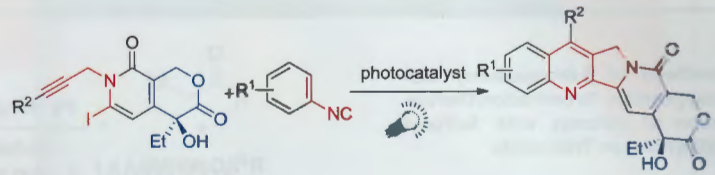
Chemistry Authors Up Close

Comprehensive Report

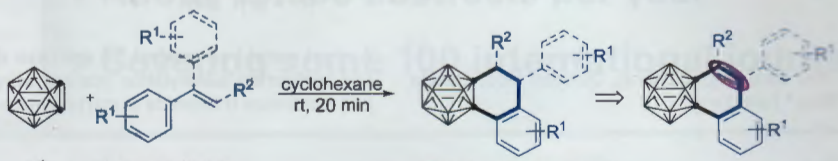
Concise Reports



A highly efficient Pd-catalyzed difluoromethylthiolation of aryl chlorides, bromides and triflates is described.



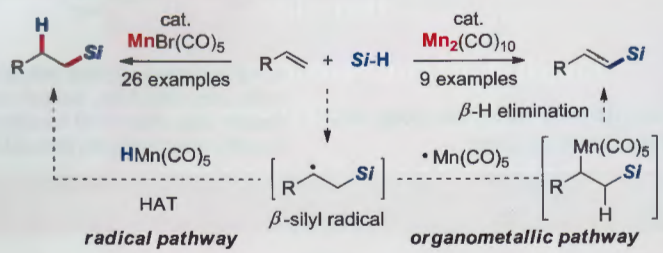
(20S)-Camptothecin, SN38 and Irinotecan



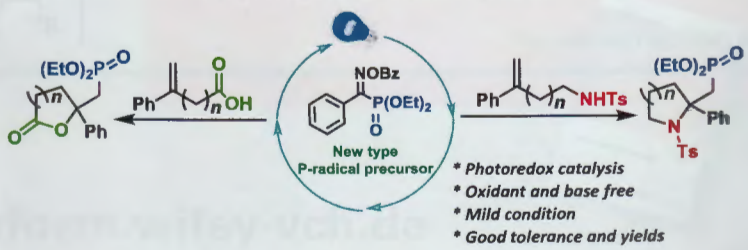
R^1 = H, Alkyl, Aryl, Halide
R^2 = H, Alkyl, Aryl

- Broad substrate scope
- High effiency
- Mild reaction conditions
- up to 86% yield

o-Caboryne undergoes efficiently extra-annular [4+2] cycloaddition with substituted styrenes and 1,1′-diarylethenes at room temperature to give a large variety of carborane-fused polycyclics with a very broad substrate scope. This reaction represents an efficient method for the synthesis of highly functionalized carborane-fused polycyclics and polyarenes.



When a radical meets manganese: A general hydrosilylation of olefins was enabled by the sole catalysis of $Mn(CO)_5Br$, while dehydrogenative silylation of aryl olefins was achieved by using dinuclear $Mn_2(CO)_{10}$. Mechanistic studies suggested hydrogen atom tranfer (HAT) and organometallic β-H elimination pathways from the β-silyl radical intermediate operating in the hydrosilylation and dehydrogenative silylation of olefins, respectively.



A new type of phosphine radical precursor for C—P bond formation has been developed and successfully used in visible-light-catalyzed phosphonation-annulation of unsaturated sulfonamides and carboxylic acids. The catalytic process is simple and green accessible, and no additional oxidant or base is needed. Mechanistic studies suggest that the reaction proceeds *via* a single electron transfer pathway.

Content

Critical Review