Université de Montréal, Montréal, QC, Canada

THIRD INTERNATIONAL SYMPOSIUM
ON C–H ACTIVATION

May 30 – June 2, 2016

IL10 – Functionalization of sp^3 C-H Bonds with Transition Metal Catalysts and Organocatalysts

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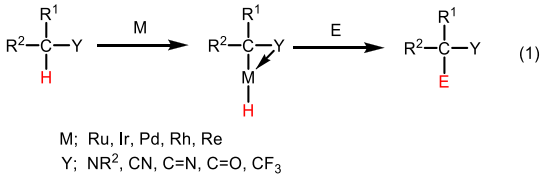
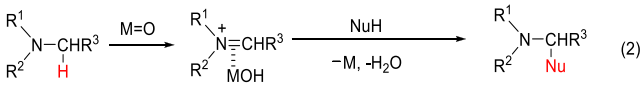
Two methods for functionalization of C–H bonds will be presented.

1) The C–H functionalization of substrates such as amines, nitriles, ketones, isocyanates α to heteroatoms with transiton-metal catalysts gives α-transition-metalated intermediates, from which various useful methods for unique and selective carbon-carbon bond formation can be constructed (eq 1).[1] Acid-base ambiphilic transition metal catalyst would be a future key catalyst.[2]
2) The C–H functionalization by bio-inspired metal catalysts[3] and biocatalysts[4] with molecular oxygen or peroxides provides useful methods for catalytic C–H oxidative functionalizations of various substrates such as amines, amides, and even non-activated hydrocarbons under mild conditions (eq 2).





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