Einladung

Im Rahmen der gemeinsamen Kolloquien der Fakultät für Chemie und chemische Biologie der Technischen Universität Dortmund hält

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einen Vortrag mit dem Thema:

"Photoredox Multicatalysis of Selenium-Π-Acids – From First Principles to Applications"

Abstract: The regio- and stereoselective catalytic oxidative functionalization of non-polarized olefinic π-bonds constitutes an important and, thus, heavily investigated field of current chemical research. Among the panoply of oxidative transformations involving olefins as substrates, both allylic and vinylic functionalization reactions have been focal points of numerous method-oriented investigations. Until this day, however, the majority of such catalytic methods is based on the use of certain transition metal catalysts, such as palladium or copper complexes. In stark contrast, kindred processes enabled by non-metallic catalysts are markedly less well developed. This circumstance is insofar remarkable and – to some extent – surprising as certain p-block element compounds such as organic sulfur- and selenium species have been previously shown to exhibit high catalytic activity in the oxidative conversion of simple alkenes. In this context, our research group has focused, inter alia, on harnessing the pronounced carbophilicity, i.e. the high chemoselectivity of selenenium ions (RSe⁺) toward olefinic π-bonds, for the development of a novel catalysis concept to directly derivatize simple, non-polarized alkenes under oxidative conditions. Exemplary results of our efforts include Se-catalyzed allylic and vinylic aminations as well as C(sp³)-H acyloxylations of alkenes. In addition, we have been able to design an unprecedented selenium-based photoredox multicatalysis regime that allows the use of ambient air as a gratuitous, omnipresent, and renewable reagent for oxidative alkene functionalization reactions. Key examples, showcasing the utility of this integrative multicatalysis concept, include the first example of an aerobic allylic alkene phosphatation using simple dialkylhydrogenphosphates as nucleophiles as well as aerobic etherifications and lactonizations.

Scheme 1: Oxidative allylic functionalizations of non-polarized alkenes facilitated by photo-aerobic selenium-π-acid catalysis.

Zeit: Dienstag, 14.07.2020 um 17.15 Uhr
Ort: https://tu-dortmund.zoom.us/j/93353198801?pwd=aWp6a2p3TE1ZZG1XVnhxNEVRYUtQZz09
Meeting-ID: 933 5319 8801
Passwort: 895722

Betreuer: Prof. Dr. Andreas Steffen (3800)
References


