Fakultät für Naturwissenschaften

Institut für Chemie

lädt ein

gemeinsam mit der Gesellschaft Deutscher Chemiker zum

Vortrag

von Herrn

Prof. Jan Streuff

Department of Chemistry for Life Sciences
Uppsala University
Sweden

“New Reductive Coupling and Cleavage Reactions for Organic Synthesis”

am: 28.01.2027

um: 09:30 Uhr
wo: im Raum A12.232

Gäste sind herzlich willkommen!

TECHNISCHE UNIVERSITÄT
IN DER KULTURHAUPTSTADT EUROPAS
CHEMNITZ

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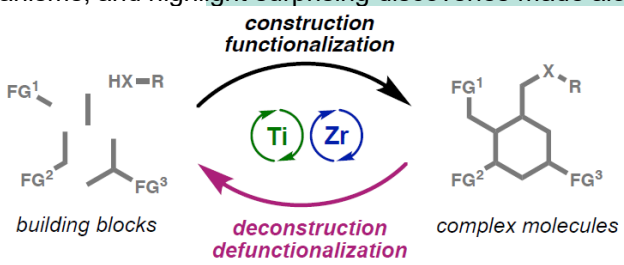
GDCh

New Reductive Coupling and Cleavage Reactions for Organic Synthesis

My group is working on one hand on the development of synthetic methods for the construction of organic molecules by establishing bond connections that cannot be easily achieved otherwise. For example, we have been developing titanium-catalyzed reductive umpolung reactions that enable the direct coupling between carbonyls, nitriles, esters, amides, and Michael acceptors to forge building blocks with unnatural functional group patterns.[1,2] These reactions show a high catalyst control, since the single-electron transfer catalyst remains coordinated during the coupling step.[3] In parallel, we have been investigating how complex molecules can be selectively defunctionalized and deconstructed back into useful base chemicals and have begun to build up a toolbox of catalyzed and uncatalyzed reactions for challenging bond cleavage reactions.[4] These are of potential interest for the development of new strategies for organic synthesis as well as for the topical area of chemical recycling. The reactions often make use of the unique reactivity early transition metal catalysts with key contributions in the area of titanium(III) and zirconium hydride catalysis. The lecture will cover our recent progress these areas, discuss our insight into the underlying mechanisms, and highlight surprising discoveries made along the way.[5]



References

[1] (a) Streuff, J Synlett **2023**, *34*, 314–326. (b) Streuff, J.; Gansäuer, A. *Angew. Chem. Int. Ed.* **2015**, *54*, 14232–14242. (c) Streuff, *J. Chem. Rec.* **2014**, *14*, 1100–1113.

[2] Selected works: (a) Streuff, J.; Feurer, M.; Bichovski, P.; Frey, G.; Gellrich, U. *Angew. Chem. Int. Ed.* **2012**, *51*, 8661–8664. (b) Frey, G.; Luu, H.-T.; Bichovski, P.; Feurer, M.; Streuff, J. *Angew. Chem. Int. Ed.* **2013**, *52*, 7131–7134. (c) Bichovski, P.; Haas, T. M.; Kratzert, D.; Streuff, J. *Chem. Eur. J.* **2015**, *21*, 2339–2342. (d) Leijendekker, L. H.; Weweler, J.; Leuther, T. M.; Streuff, J. *Angew. Chem. Int. Ed.* **2017**, *56*, 6103–6106.

[3] (a) Streuff, J.; Feurer, M.; Frey, G.; Steffani, A.; Kacprzak, S.; Weweler, J.; Leijendekker, L. H.; Kratzert, D.; Plattner, D. A. *J. Am. Chem. Soc.* **2015**, *137*, 14396–14405. (b) Younas, S. L.; Streuff, J. *ACS Catal.* **2021**, *11*, 11451–11458.

[4] (a) Matt, C.; Kölblin, F.; Streuff, J. *Org. Lett.* **2019**, *21*, 6983. (b) Weweler, J.; Younas, S. L.; Streuff, J. *Angew. Chem. Int. Ed.* **2019**, *58*, 17700–17703. (c) Matt, C.; Kern, C.; Streuff, J. *ACS Catal.* **2020**, *10*, 6409–6413. (d) Matt, C.; Orthaber, A.; Streuff, J. *Angew. Chem. Int. Ed.* **2022**, *61*, e202114044. (e) S. L. Albers, J. K. Harzendorf, M. Deliaval, J. Köllmann, J. Streuff, *Nat. Commun.* **2026**, *17*, 9502.

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