INTERNATIONAL SOLVAY INSTITUTES BRUSSELS

SOLVAY COLLOQUIUM

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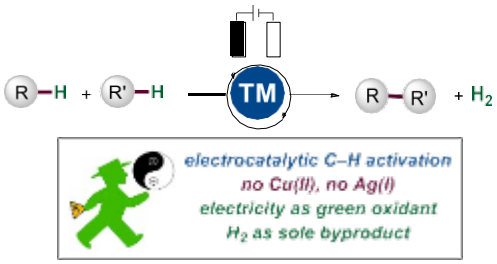
Current Aspects of Electrocatalysis with Potential

Oxidative C–H activation has emerged as an increasingly powerful tool in molecular syntheses.[1] Despite major progress towards atom and step economy, these transformations largely rely on precious metal catalysts and stoichiometric amounts of toxic metal oxidants, compromising the overall sustainability of the C–H activation strategy. In contrast, employing electrooxidation in lieu of reactive chemical oxidants prevents undesired waste formation through oxidant economy and offers efficient use of renewable energies from sustainable sources for chemical bond formation.[2] Inexpensive Earth-abundant 3d metal[3] cobaltaelectrocatalysis set the stage for molecular syntheses at a unique level of resource economy. Our studies towards metallaelectrocatalytic C–H and C–C activation, data science[4] and enantioselective[5] electrocatalysis will be discussed, with a topical focus on sustainable base metals.



[1] a) L. Ackermann, Acc. Chem. Res. 2014, 47, 281–295; b) C. S. Yeung, V. M. Dong, Chem. Rev. 2011, 111, 1215–1292.
[2] a) P. Gandeepan, L.H. Finger, T.H. Meyer, L. Ackermann, Chem. Soc. Rev. 2020, 49, 4254–4272; b) L. Ackermann, Acc. Chem. Res. 2020, 53, 84–104. c) C. Ma, P. Fang, T.-S. Mei, ACS Catal. 2018, 7179–7189.
[3] P. Gandeepan, T. Müller, D. Zell, G. Cera, S. Warratz, L. Ackermann, Chem. Rev. 2019, 111, 2192–2452.
[4] Z. Lin, U. Dhawa, X. Hou, M. Surke, B. Yuan, S.-W. Li, Y.-C. Liou, M.J. Johansson, L.-C. Xu, C.-H. Chao, X. Hong, L. Ackermann, Nat. Commun. 2023, 14, 4224.
[5] a) T. von Münchow, S. Dana, Y. Xu, B. Yuan, L. Ackermann, Science 2023, 379, 1036–1042; b) U. Dhawa, T. Wdowik, X. Hou, B.Yuan, J.C.A. Oliveira, L. Ackermann, Chem. Sci. 2021, 12, 14182-14188.

Thursday 20 March 2025 at 4:00 P.M.

COFFEE AND TEA WILL BE SERVED AT 3:45 P.M IN FRONT OF THE SOLVAY ROOM

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