Fakultät für Naturwissenschaften

Institut für Chemie

lädt ein

gemeinsam mit der Gesellschaft Deutscher Chemiker zum

Vortrag

von Herrn

Prof. Dr. Mark R. Crimmin

Organometallic Chemistry, Department of Chemistry, Faculty of Natural Science

Imperial College London

“Molecular Editing of Aromatic Heterocycles with Organometallic Reagents”

am: 11. Juni 2026

um: 09:30 Uhr im

wo: Raum A12.232

Gäste sind herzlich willkommen!

TECHNISCHE UNIVERSITÄT
IN DER KULTURHAUPTSTADT EUROPAS
CHEMNITZ

Prof. Dr. Michael Sommer
Telefon: 0371 / 531 32507
E-Mail: michael.sommer@chemie.tu-chemnitz.de

Fakultät für Naturwissenschaften

Institut für Chemie

TUC CHEM
INSTITUT FÜR CHEMIE

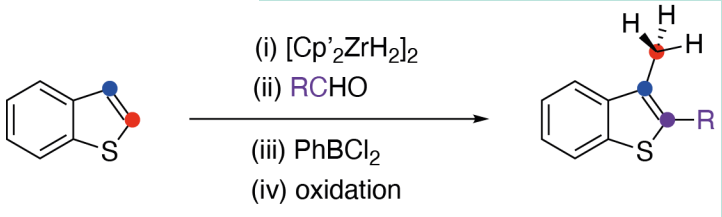
Prof. Dr. Mark R. Crimmin

Organometallic Chemistry, Department of Chemistry, Faculty of Natural Science
Imperial College London

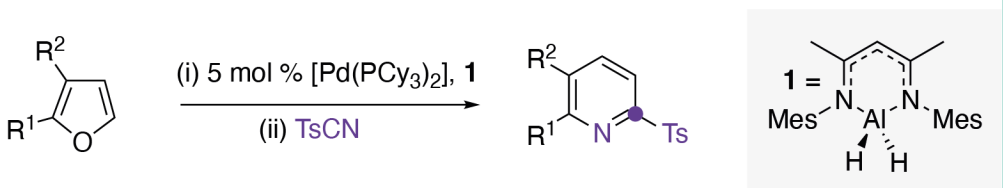
GDCh

Molecular Editing of Aromatic Heterocycles with Organometallic Reagents

Molecular editing is an emerging aspect of synthetic chemistry that involves the manipulation of structures through reactions that either add, delete, or exchange atoms.[1] In this lecture, I will describe two approaches to use organometallic reagents in the editing of aromatic heterocycles.
The first, involves the editing of benzothiophenes using the zirconocene dihydride reagent $[Cp'_2ZrH_2]_2$ (Cp' = C_5H_4Me). We report a new ring-inflection reaction sequence that first breaks down the sulfur-containing ring and then rebuilds it – allowing an introduction of a methyl substituent at the 3-position and a broad range of functionality at the 2-position of benzothiophene. The procedure can be carried out in one-pot reaction with one purification step. Aspects of scope, mechanism and selectivity will be discussed and a key role of organozirconium intermediates elucidated.



The second approach involves the ring-expansion of furans into pyridines. This reaction is initiated through a palladium-catalysed insertion of an aluminium reagent into the carbon–oxygen bond of the furan.[2] Subsequent addition of TsCN to the organoaluminium intermediate directly leads to deoxygenation and the corresponding 2-tosylated pyridine.



References
1. Jurczyk, J. Woo, J. Kim, S. F. Dherange, B. D. Sarpong, R. Levin, M. D. *Nat. Synth.* **2022**, *1*, 352–364.
2. Hooper, T. N. Brown, R. K. Rekhroukh, F. Garçon, M. White, A. J. P. Costa, P. J. Crimmin, M. R. *Chem. Sci.* **2020**, *11*, 7850–7857.

TECHNISCHE UNIVERSITÄT
IN DER KULTURHAUPTSTADT EUROPAS
CHEMNITZ

Prof. Dr. Michael Sommer
Telefon: 0371 / 531 32507
E-Mail: michael.sommer@chemie.tu-chemnitz.de