FAKULTÄT FÜR CHEMIE

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Einladung zum Vortrag von

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„A Journey from Discovery of New Pummerer Chemistry to Catalytic C-S Bond Cleavage"

Organosulfur compounds are ubiquitous as starting materials, intermediates, and final products in the pharmaceutical and organic materials industries. However, compared with organic halides, transition metal-catalyzed reactions of organosulfur compounds have been sporadically reported. The infancy of the catalytic reactions of organosulfur compounds mainly originates from the facts that carbon–sulfur bonds are generally rather inert and that organosulfur species often poison catalysts. Thus, development of efficient catalytic systems for utilizing organosulfur compounds represents an important challenge.
During the course of our research on developing new extended Pummerer reactions, we were solicited to explore reliable, general, and efficient catalytic transformations of aryl sulfides. Accordingly, amination of aryl sulfides with amines and cross-coupling of aryl sulfides with arylzinc reagents were invented. The former represents the first example of amination of sulfides and the latter is widest in scope as cross-coupling of sulfides.
We then envisioned an idea of regarding thiophene derivatives as substrates in catalytic transformations through cleavage of the two carbon–sulfur bonds. We thus invented a new route to triphenylenes from dibenzothiophenes through "aromatic metamorphosis", which represents a transformation of an aromatic system to another through partial disassembly of the starting aromatic ring.

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