FAKULTÄT FÜR CHEMIE

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Einladung zum Vortrag von

Prof. Marko Hapke
JKU Linz

„(Hetero)arenes by cyclotrimerization reactions: Catalyst development, substrates and more”

Group 9 metal complexes and especially cobalt complexes are frequently used catalysts for a large variety of cyclisation reactions, including the prominent Pauson-Khand reaction or [2+2+2] cycloaddition reactions.
We focus in our work on the latter, the cyclotrimerisation reaction, and systematically develop Co(I)-complexes with olefin and phosphite ligands as well as chiral catalyst systems. The evaluation of these new catalyst systems led to a great many of interesting insights and the implementation of the results in addition enabled the development of new air-stable and recyclable CpCo(I)-precatalysts. Therefore, the photochemical synthesis of the Co(I)-complexes as well as the promotion of cycloaddition reactions using light energy are playing a major role, beside the development of precatalysts for cyclotrimerisations under thermally milder conditions. Comparing the thermal and photochemical initiation of the catalytic cycle, significant differences were uncovered.

The Co(I)-catalysed photochemical asymmetric biaryl synthesis was found to be highly suitable for the synthesis of functionalized heterobiaryl systems. Further research, e.g. led to the assembly chromatographically separable diastereomeric atropisomers as well as to the development of the first cobalt-based stereoselective cyclotrimerisation of substituted triynes. The synthesised heterobiaryls were investigated in detail for unusual effects on the configurational stability of the biaryl axes of these compounds.

Mittwoch, 11. Jänner 2017, 16:15 Uhr
Hörsaal 3
Währinger Straße 38, 1090 Wien

Kai Carsten Hultzsch
Institut für Chemische Katalyse