Univerzita Karlova v Praze, Přírodovědecká fakulta

Sekce chemie PřF UK v Praze
zve všechny zájemce na přednášku z cyklu

Quo Vadis Chemie

Photochemical Facets in the Synthesis and Catalysis of Co(I)-complexes

kterou přednese

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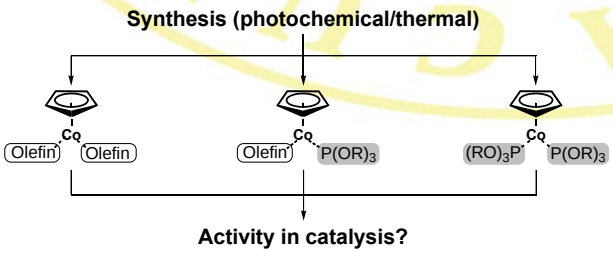
dne 15. 4. v 14:00 hod.
v posluchárně CH2, v budově chemických kateder PřF UK
Hlavova 8, Praha 2

Abstrakt: We focus in our work on the cyclotrimerisation reaction, and systematically develop Co(I)-complexes with olefin and phosphite ligands. The evaluation of these new catalyst systems led to a great many of interesting insights.[1] 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 can be discovered and novel possibilities for the reaction procedure were uncovered.



The Co(I)-catalysed photochemical asymmetric biaryl synthesis was found to be highly suitable for the synthesis of heterobiaryl systems.[2] Also under thermal and photochemical conditions, the use of achiral Co(I)-olefin complexes allows the preparation of chromatographically separable diastereomeric atropisomers.[3] The supply of photochemical energy allows not only exceptional low reaction temperatures, but also unusual effects on the stability of the biaryl axis were observed.[4]

[1] a) N. Weding, R. Jackstell, H. Jiao, A. Spannenberg, M. Hapke, *Adv. Synth. Catal.* **2011**, *353*, 3423. b) I. Thiel, H. Jiao, A. Spannenberg, M. Hapke, *Chem. Eur. J.* **2013**, *19*, 2548.
[2] M. Hapke, K. Kral, C. Fischer, A. Spannenberg, A. Gutnov, D. Redkin, B. Heller, *J. Org. Chem.* **2010**, *75*, 3993.
[3] F. Fischer, P. Jungk, N. Weding, A. Spannenberg, H. Ott, M. Hapke, *Eur. J. Org. Chem.* **2012**, 5828.
[4] K. Kral, M. Checinski, C. Fischer, M. Hapke, *submitted*.