

CBC SEMINAR ANNOUNCEMENT



Professor Armido Studer
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Nitroxides and Quinones as mild Oxidants in Catalysis

In the presentation novel applications of the persistent TEMPO radical as an environmentally benign oxidant in catalysis will be discussed. We will show that TEMPO can be applied in Pd-catalyzed oxidative C-C-bond forming processes.¹ Direct C-H-arylation of arenes and carboaminoxylations of indoles and indenes can be achieved via this method.² In the latter process the nitroxide acts both as oxidant and as reagent. Oxidative Heck-chemistry can also be conducted by using TEMPO or related nitroxides as mild terminal oxidants.³ Finally we will focus on the use of nitroxides and quinones as organic oxidants in biomimetic aldehyde oxidations.⁴ Oxidative esterifications and redox activation of Michael acceptors will be presented along with mechanistic studies.⁵

References

1. L. Tebben, A. Studer, *Angew. Chem. Int. Ed.* **2011**, *50*, 5034.
2. a) S. Kirchberg, R. Fröhlich, A. Studer, *Angew. Chem. Int. Ed.* **2009**, *48*, 4235. b) S. Kirchberg, R. Fröhlich, A. Studer, *Angew. Chem. Int. Ed.* **2010**, *49*, 6877. c) S. Kirchberg, S. Tani, K. Ueda, J. Yamaguchi, A. Studer, K. Itami, *Angew. Chem. Int. Ed.* **2011**, *50*, 2387. d) M. Steinmetz, K. Ueda, S. Grimme, J. Yamaguchi, S. Kirchberg, K. Itami, A. Studer, *Chem. Asian. J.* **2012**, *7*, in press. e) K. Yamaguchi, J. Yamaguchi, A. Studer, K. Itami, *Chem. Sci.* **2012**, *3*, 2165.
3. Z. He, S. Kirchberg, R. Fröhlich, A. Studer, *Angew. Chem. Int. Ed.* **2012**, *51*, 3699.
4. a) S. De Sarkar, S. Grimme, A. Studer, *J. Am. Chem. Soc.* **2010**, *132*, 1190. b) S. De Sarkar, A. Studer, *Angew. Chem. Int. Ed.* **2010**, *49*, 9266.
5. R. C. Samantha, B. Maji, S. De Sarkar, K. Bergander, R. Fröhlich, C. Mück-Lichtenfeld, H. Mayr, A. Studer, *Angew. Chem.* **2012**, *51*, 5234

Date: 26th November 2012 (Monday)
Time: 11:00am – 12:30pm
Venue: NTU SPMS CBC Building Level 2,
Conference Room
Host: Asst Professor Robin Chi