Department of Chemistry and Molecular Biology Seminar
Tuesday, September 4th
8:30 am in Ladd 107

Cyclohexadienes as Building Blocks and Reagents in Synthesis

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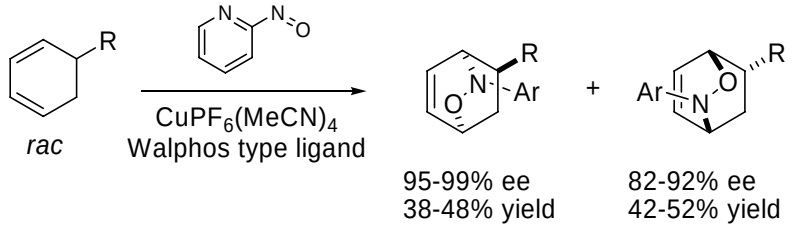
In the lecture the application of functional cyclohexadienes in asymmetric synthesis will be discussed. In the first part transfer hydroamination processes catalyzed by thiols which can also be performed stereoselectively are presented.[1,2] The second part deals with Cu-catalyzed desymmetrization reactions of cyclohexadienes.[3] The product dienes are highly useful as building blocks in natural product synthesis. Finally, we will discuss divergent reactions on racemic mixtures. 2 products out of 8 possible isomers are obtained by $CuPF_6(MeCN)_4$-catalyzed highly enantioselective regiodivergent nitroso Diels-Alder reactions using 5-substituted 1,3-cyclohexadienes. A Swalphos-type ligand turned out to be best suited to run these processes.[4] These divergent reactions on racemic cyclohexadienes deliver highly valuable compounds for the synthesis of biologically interesting carbasugars. As a first application the synthesis of peracetylated 2-*epi*-validamine will be presented. Finally, novel homolytic substitutions at phosphorous will be discussed.[5]



1. J. Guin, C. Mück-Lichtenfeld, S. Grimme, A. Studer, *J. Am. Chem. Soc.* **2007**, *129*, 4498-4503.
2. J. Guin, A. Studer, *submitted for publication*.
3. R. Umeda, A. Studer, *Org. Lett.* **2007**, *9*, 2175-2178.
4. C. K. Jana, A. Studer, *Angew. Chem. Int. Ed.* **2007**, *in press.*
5. S. E. Vaillard, C. Mück-Lichtenfeld, S. Grimme, A. Studer, *Angew. Chem. Int. Ed.* **2007**, *in press*.