CATALYTIC FORMATION OF C-S BONDS

Ivana Fleischera, Prasad Kathea, and Paul Gehrtzb

aInstitute of Organic Chemistry, University of Tübingen, Auf der Morgenstelle 18, 72076 Tübingen
bCurrent address: Department of Organic Chemistry, Weizmann Institute of Science, 234 Herzl Street, Rehovot

Our recent research interests focus on development of homogeneously catalyzed reactions for the synthesis and use of sulfur-containing compounds, such as thioethers. They constitute valuable target compounds for material science and pharmaceutical applications [1]. Herein, two conceptually different synthetic methodologies for their construction will be presented.

We have developed a general Ni-catalyzed coupling of challenging aryl chlorides and in situ generated aliphatic and aromatic thiolates [2]. Well-defined and air-stable Ni precatalysts were used to transform a broad scope of substrates containing various functional groups and heterocyclic motifs.

Moreover, a Pd-catalyzed tandem isomerizing hydrothiolation of 3-arylpropenes was investigated [3]. The catalyst system consisting of a Pd(II) precursor, bidentate phosphine ligand and strong Bronsted acid was able to convert a variety of substrates to branched benzylc thioethers in a highly regioselective matter.

---