

## I did it my way – breaking bonds and stereotypes

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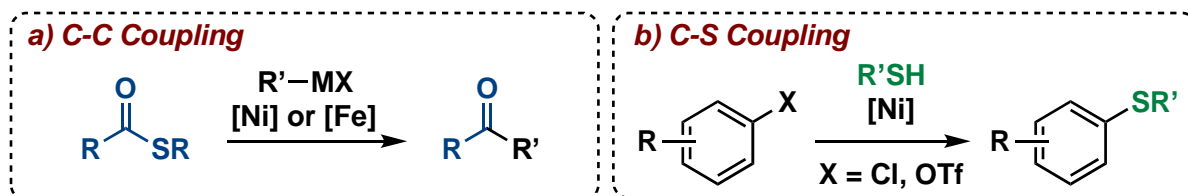
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In the research part of the talk, an overview on research activities of the Fleischer group will be given. Our research interests focus on development of new metal-catalyzed methods for the synthesis and use of sulfur-containing compounds, such as thioesters and thioethers. They constitute valuable synthetic intermediates and target compounds for material chemistry and pharmaceutical applications.<sup>[1]</sup> Our aim is to develop efficient transformations employing non-precious metals as homogeneous catalysts and to gain mechanistic understanding of the processes.

We have demonstrated the usefulness of thioesters in cross coupling reactions with arylzinc reagents to generate ketones (Figure 1a).<sup>[2]</sup> A defined nickel complex was employed as catalyst and a series of functionalized ketones was successfully obtained. The scope was later expanded to the coupling of thioesters with more reactive organomanganese reagents upon iron catalysis.<sup>[3]</sup>

Furthermore, we have developed nickel-catalyzed coupling reactions of challenging aryl chlorides and triflates with thiols, whereby max. TOF of 800 h<sup>-1</sup> was achieved (Figure 1b).<sup>[4]</sup> A broad scope of substrates containing various functional groups and heterocyclic motifs was successfully converted. A systematic study of couplings of sterically hindered aliphatic thiols was conducted and accompanied by mechanistic studies.



**Figure 1.** Examples of developed catalytic transformations of thioesters and thiols.

### References

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 [4] a) P. H. Gehrtz, V. Geiger, T. Schmidt, L. Sršan, I. Fleischer, *Org. Lett.* **2019**, 21, 50; b) R. M. Oechsner, J. P. Wagner, I. Fleischer *ACS Catal.* **2022**, 12, 2233; c) R. M. Oechsner, I. H. Lindenmaier, I. Fleischer, *Org. Lett.* **2023**, 25, 1655; d) I. H. Lindenmaier, R. C. Richter, I. Fleischer, *Org. Chem. Front.* **2024**, 11, 2485.