Enantioselective Catalysis of Photochemical Reactions

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The creation of chirality is one of the most fundamental challenges in synthetic organic chemistry. Our group has worked for some time on enantioselective catalytic photochemical reactions based on triplet energy transfer and on chromophore activation.[1] The first approach[2,3] is based on a triplet energy transfer by hydrogen-bonding chiral catalysts, which in turn are derived from a previously described template. The second approach[4,5] relies on the use of Brønsted or Lewis acids, which change the photophysical properties of the chromophore and ideally allow for a selective excitation in the chiral environment which they provide. Beyond [2+2] photocycloaddition chemistry our studies are directed towards photochemical rearrangement[6] and deracemization[7,8] reactions with a potential for synthetic applications. The presentation discusses the background of the above-mentioned experiments and provides the latest results of our research efforts in this area.

References

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