Universität Basel

Research Project

AtropFluoPhoto - Stereoselective Synthesis of Atropisomeric Fluorophores for Asymmetric Photocatalysis

Third-party funded project

Project title AtropFluoPhoto - Stereoselective Synthesis of Atropisomeric Fluorophores for Asymmetric Photocatalysis
Principal Investigator(s) Sparr, Christof ;
Co-Investigator(s) Wu, Xingxing ;
Organisation / Research unit
Departement Chemie / Organische Chemie (Sparr)
Department
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Arylated heterocyclic systems, such as fluorophores, have a long history as a component in functional materials. They are extremely useful platforms for a broad application in material science, biological imaging or organic synthesis, owing to their unique chemical, photophysical, and electrochemical properties. The development of an efficient route to prepare this type of heterocycles continues to attract interest for various applications, while only limited to the synthesis of symmetric fluorophores in racemic fashion. Introducing a chiral element into the molecules is of great significance for drug discovery, the design of catalysts for asymmetric synthetic photochemistry and other enantioselective methods. The resulting fluorophore bearingăenantiospecific sensing platforms may also find potential applications in the enantioselective recognition of chiral small molecules or bioactive compounds such as DNA.
Hence, the aim of the proposed AtropFluoPhoto is to develop a strategy for the asymmetric catalytic synthesis of chiral heterocyclic fluorophores. We plan to investigate different activation modes to achieve the construction of axially chiral fluorophores in intramolecular or intermolecular reactions. With the knowledge of their unique chemical and photophysical properties, we will then particularly explore their practical application in synthesis and novel catalyst design for asymmetric catalysis in photocatalysis.

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Add publication

Published results

4649151, Wu, Xingxing; Sparr, Christof, Stereoselective Synthesis of Atropisomeric Acridinium Salts by the Catalyst-Controlled Cyclization of ortho-Quinone Methide Iminiums, 1433-7851 ; 1521-3773, Angewandte Chemie International Edition, Publication: JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)

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