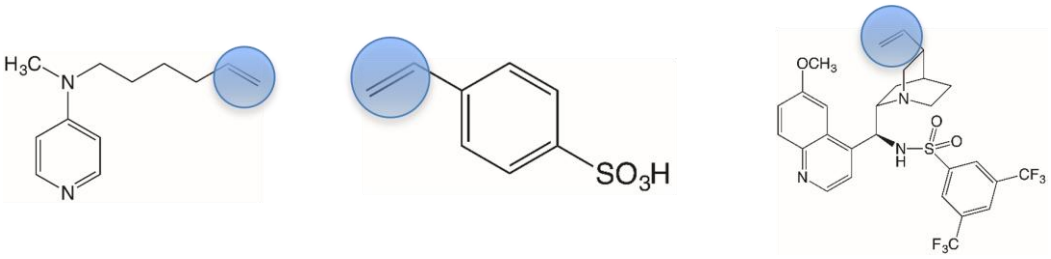
Fiber-fixed Organocatalysts for Fine Chemicals and Pharmaceuticals

Enantiomers are molecules that are identical in terms of their molecular formula and atomic linkage, but whose spatial structure is like an image and mirror image of each other. For a large number of highly effective drugs, only one of two enantiomers is desired, as the enantiomers often have different biological effects. Separating the mixtures is time-consuming and therefore costly. This can be remedied by chiral organocatalysts, which produce only the desired enantiomer in a selective reaction. The use of organocatalysts is still a young field of modern catalysis, the discovery of which was honored with the Nobel Prize in Chemistry in 2021. In an initial IGF project, the DTNW coined the term "organotextile catalysis" in cooperation with Nobel Prize winner Benjamin List. It was shown for the first time that organocatalysts can be permanently fixed to textile fiber materials. The immobilized catalysts showed outstanding properties with regard to the production of enantiomerically pure products and recyclability. The DTNW has many years of expertise in the field of immobilizing a wide variety of catalysts on fibers. The Niemeyer working group at the University of Essen has been working for many years on the development of novel organocatalysts for innovative applications. The aim of the joint project is the permanent immobilization of organocatalysts on textile carrier materials and their use in the enantioselective production of fine chemicals and pharmaceuticals. The target groups are small and medium-sized companies from the chemical, fine chemical and pharmaceutical sectors as well as manufacturers of technical textiles with novel functionality, which will be enabled by this development to produce high-priced fine chemicals and pharmaceuticals selectively and at low cost.



Project:

Title (German):	Asymmetrische Synthese von enantiomerenreinen Feinchemikalien und Pharmaka mit textilfixierten Organokatalysatoren
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Contact DTNW: Dr. Klaus Opwis, Tel.: +49-2151-843-2014, e-Mail: opwis@dtnw.de

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