

lädt ein

gemeinsam mit der Gesellschaft
Deutscher Chemiker

zum

Vortrag

von Herrn

**Prof. Dr. Jochen
Niemeyer**

*Organic Chemistry,
Faculty of Chemistry*

**University of
Duisburg-Essen**



**“Rotaxanes. Catenanes
and macrocycles: Using
the supramolecular
toolbox for the design
of novel catalysts”**

am: 26. November 2026

um: 09:30 Uhr

WO: im Raum A12/232

Gäste sind herzlich willkommen!



Prof. Dr. Jochen
Niemeyer

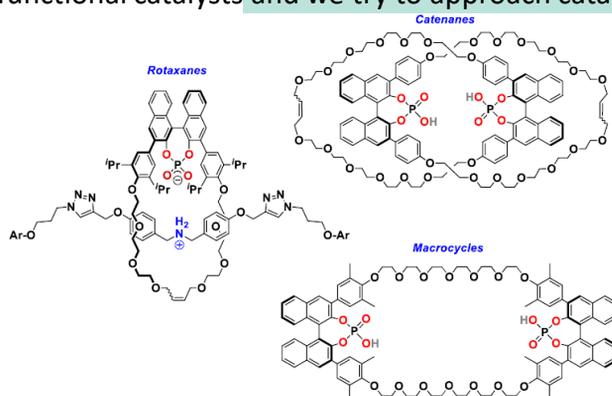
Organic Chemistry,
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“Rotaxanes. Catenanes and macrocycles: Using the supramolecular toolbox for the design of novel catalysts”

The development of highly efficient organocatalysts has revolutionized chemical catalysis in the last decades. Especially the use of chiral Brønsted-acids, such as 1,1'-binaphthyl-phosphoric acids, has enabled a plethora of highly useful stereoselective transformations. Our group has recently developed chiral [2]rotaxanes,¹ [2]catenanes² and non-interlocked macrocycles³ based on 1,1'-binaphthyl-phosphoric acids. These were successfully applied as catalysts for various transformations, such as enantioselective transfer-hydrogenations, Michael-additions and fluorinations. In our research, we are investigating how the special nature of the mechanical bond influences the application in catalysis. In this context, we develop novel methods for the synthesis of the desired interlocked catalysts, we investigate the special nature of bifunctional catalysts and we try to approach catalyst structures with mechanical chirality.



References:

- 1) a) F. R. Struth, D. Jansen, N. Pairault, M. Schumacher, F. Uteschil, J. Linders, C. Mayer, A. H. Gröschel, S. M. Goldup, J. Niemeyer, *Chem. Eur. J.* **2024**, *30*, e202402717, b) N. Pairault, H. Zhu, D. Jansen, A. Huber, C. G. Daniliuc, S. Grimme, J. Niemeyer, *Angew. Chem. Int. Ed.* **2020**, *59*, 5102-5107.
- 2) a) D. Jansen, J. Gramüller, F. Niemeyer, T. Schaller, M. C. Letzel, S. Grimme, H. Zhu, R. M. Gschwind, J. Niemeyer, *Chem. Sci.* **2020**, *11*, 4381-4390; b) R. Mitra, H. Zhu, S. Grimme, J. Niemeyer, *Angew. Chem. Int. Ed.* **2017**, *56*, 11456-11459; c) R. Mitra, M. Thiele, F. Octa-Smolín, M. C. Letzel, J. Niemeyer, *Chem. Commun.* **2016**, *52*, 5977-5980.
- 3) M. Thiele, T. Rose, M. Lökov, S. Stadtfeld, S. Tshepelevitch, E. Parman, K. Opara, C. Wölper, I. Leito, S. Grimme, J. Niemeyer, *Chem. Eur. J.* **2023**, *29*, e202202953.

