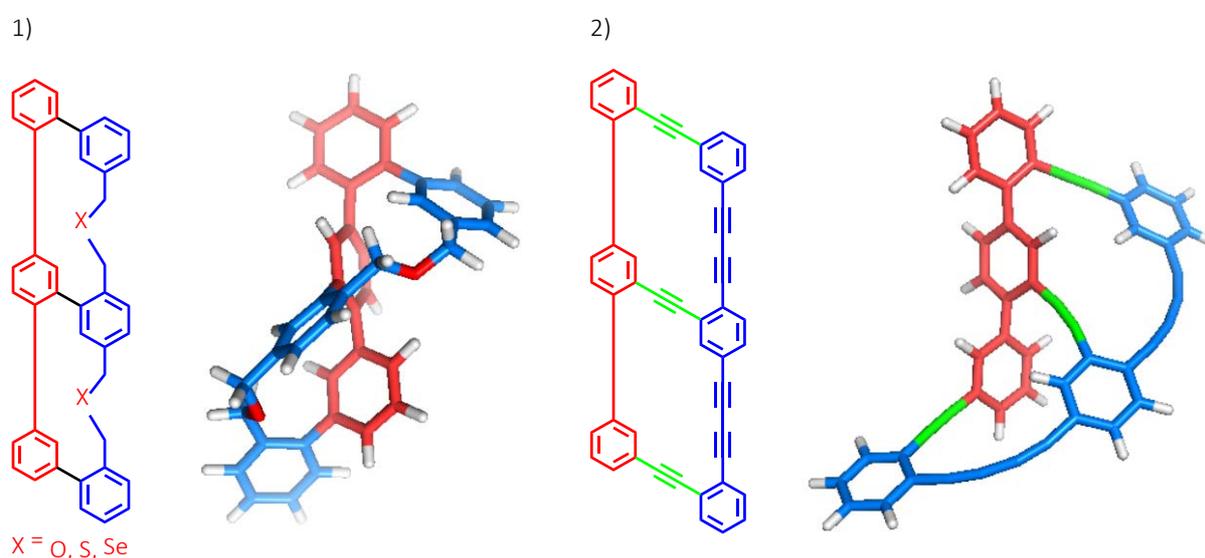


Synthesis towards a new Diacetylene Bridged Geländer-Type Oligomer

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Atropisomers are chiral compounds that do not contain stereogenic centres, but a stereogenic axis. While the synthesis of chiral compounds containing chiral centres has been an important field of research for a long time, little was known about atropisomeric compounds which were treated as an academic curiosity. The interest in atropisomers started with the discovery that the configuration around a biphenyl axis is an important factor to control the pharmacological properties of bioactive compounds. Combined with their usefulness as catalysts in asymmetric synthesis, biphenyls became prominent and well-studied examples of “chiral compounds without stereogenic centre”.



Vögtle *et al.*¹ described a new class of bridged terphenyl compounds called “geländer oligomers”. In the classical geländer oligomers the optical inactive *meso* form is more stable than the pair of enantiomers. Recently, our group reported a novel type of geländer oligomers that cannot exist as a *meso* form.^{2,3,4} However this benzyl ether, sulfur and selenium-bridged molecules (**1**) have all low barriers of racemisation. Therefore, we designed a new diacetylene-bridged molecule (**2**), which is expected to be more rigid. Consequently the racemisation process in this molecule should be significantly slower.

¹ Bernd Kiupel, Christoph Niederalt, Martin Nieger, Stefan Grimme, Fritz Vögtle, *Angew. Chem. Int. Ed.*, **1998**, 37, No. 21, 3031.

² Michel Rickhaus, Linda Maria Bannwart, Markus Neuburger, Heiko Gsellinger, Kaspar Zimmermann, Daniel Häussinger, Marcel Mayor, *Angew. Chem. Int. Ed.*, **2014**, 53, 14587.

³ Michel Rickhaus, Linda Maria Bannwart, Oliver Unke, Heiko Gsellinger, Daniel Häussinger, Marcel Mayor, *Eur. J. Org. Chem.*, **2015**, 786.

⁴ Michel Rickhaus, Oliver T. Unke, Rajesh Mannancherry, Linda Maria Bannwart, Dr. Markus Neuburger, Dr. Daniel Häussinger, Prof. Dr. Marcel Mayor, *Chemistry - A European Journal*, **2016**, 22, 2261.