A Molecular Macrocyclic Loop

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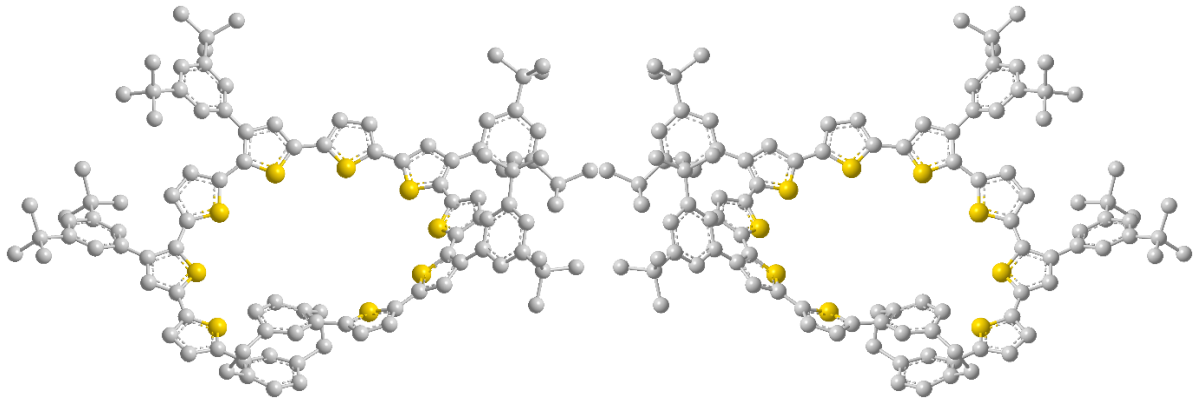
Spin selectivity in electron transmission is a heavily investigated topic in the field of organic electronics. High spin selectivity is achieved when double stranded DNA is investigated in a self-assembled monolayer.[1] However, to the best of our knowledge, no organic molecules with a single coil were investigated up to date. The target compounds depicted below are based on substituted pseudo-para-[2.2]-paracyclophane. The oligothiophenic macrocycle is fully conjugated, resulting in a non-planar helically chiral π-conjugated structure.



We have synthesized the oligothiophenic macrocycles as a racemic mixture. The detailed synthetic strategy and properties of the target compounds will be presented.

[1] B. Göhler, V. Hamelbeck, T. Z. Markus, M. Kettner, G. F. Hanne, Z. Vager, R. Naaman, H. Zacharias, Science, 2011, 331, 894.