

13th May 2016 Madrid, Spain

Chiroptics2016

Control of Chiroptical Responses through Molecular Design

José Lorenzo Alonso-Gómez

Departamento de Química Orgánica

Universidade de Vigo

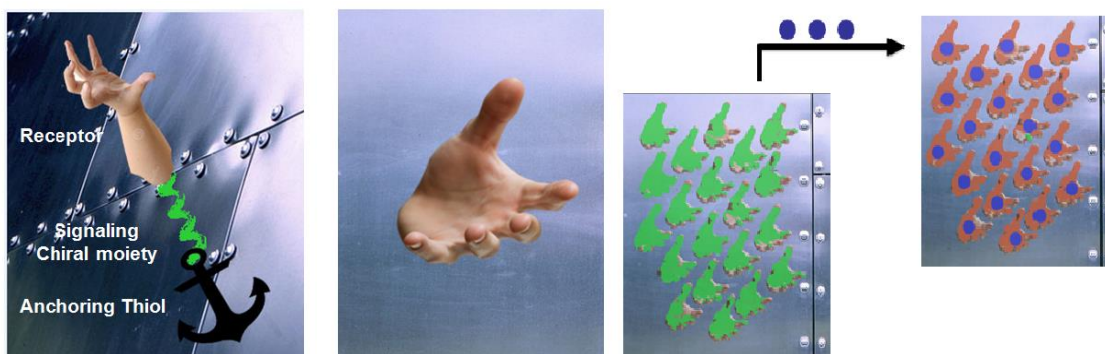
36310 Vigo (Spain)

lorenzo@vigo.es

Systems that are not superimposable with their mirror image are **chiral**. The different interaction of opposite chiral systems with helical light is the origin of **chiroptical responses**. A basic understanding of this phenomena is essential for the design of functional **chiroptical materials**.

We have been using **chiral axes** for the construction of **linear**, **cyclic** and **cage-shaped** molecules that present remarkable chiroptical responses.¹ Analysis of the response–structure relationships thanks to experimental and theoretical analysis uncovers the mechanisms responsible for the high efficiency of these systems in discriminating left and right helical light.² However, theoretical simulations may not be suitable for very large systems. Since our goal is to obtain chiroptical materials, we are currently working on a chiroptical method for predicting the responses arising from the simultaneous interaction between several chromophores.

Within Chiroptics, we are interested in the functionalization of surfaces³ and nanoparticles as well as in the development of chiroptical switches for the exploration of their applicability in sensing and imaging.



- (1) Míguez-Lago, S.; Llamas-Saiz, A. L.; Magdalena Cid, M.; Alonso-Gómez, J. L. *Chem. Eur. J.* **2015**, *21*, 18085 –18088.
- (2) Castro-Fernández, S.; Cid, M. M.; López, C. S.; Alonso-Gómez, J. L. *J. Phys. Chem. A* **2015**, *119*, 1747.
- (3) Zhang, Y.-Q.; Oner, M. A.; Lahoz, I. R.; Cirera, B.; Palma, C.-A.; Castro-Fernández, S.; Míguez-Lago, S.; Cid, M. M.; Barth, J. V; Alonso-Gómez, J. L.; Klappenberger, F. *Chem. Commun.* **2014**, *50*, 15022.